



울산광역시 울주군 언양읍 반천산업로 113-19

(주)신일프리노스

T : 052)275-5990 F: 052)274-0971

e-mail : SEUN3021@hanmail.net



# CATALOGUE 2015/16

Electrical connection technology / tools and measuring instruments



Verbindungen mit **System**  
The **Power** of Partnership

**Klauke**<sup>®</sup>  
A Textron Company



## Expertise

**Recognised worldwide** as leading suppliers of connecting material, crimping and cutting tools for electrical, plumbing and heating systems.

## Innovation

Our Innovation and Service Center is located at our headquarters in Remscheid. This is where - **since 1879** - new solutions have emerged from the discourse between the users and our experts.

## Presence

In over 70 countries, our distributors ensure widespread, service-oriented support - **close to the customer at all times.**

## Responsibility

Certified to the international standard ISO 14001:2004, we create innovative new products with the utmost respect for conservation – **future-oriented for a better environment.**

## Quality Assurance

We offer the crafts, trade and industry perfectly coordinated products and services - **innovative and application-oriented.**



## Electrical connection system

22

- Tubular cable lugs and connectors, blue connection® - Cu
- Copper tubular cable lugs and connectors - Cu
- Tubular cable lugs and connectors - nickel, stainless steel
- Copper compression cable lugs and connectors to DIN
- Terminals, connectors and pin terminals to DIN - Cu
- Sleeves for compacted conductors and sector-shaped conductors - Cu
- Aluminum compression cable lugs and connectors to DIN
- Aluminum/copper compression cable lugs and connectors
- Clamps and screw connectors
- Cable end-sleeves
- Cable connections, insulated and non insulated
- Assortments



## Crimping dies

410

- Series 50
- Series 4
- Series 5
- Series 18
- Series 22
- Series 13
- Series 25
- Series 45



## Holemaking tools

526

- Round and special shape punches
- Punching tools and sets
- Hole saws
- Bits and step bits



## Cable pulling technology

594

- Fish tapes/pulling rods
- Cable pulling systems
- Cable puller
- Pulling grips
- Accessories



## Technical Appendix

i-1

- Notes on the various crimping profiles
- Legend of pictograms used
- Conversion charts
- Standards, changes, improvements
- Service check list as master copy
- Order form as master copy
- Alphabetical Index
- Alphanumerical Index



## Crimping and cutting tools

218

- Mechanical crimping and cutting tools
- Electric and pneumatic crimping tools
- Hand-operated hydraulic crimping and cutting tools
- Battery powered crimping and cutting tools
- Hydraulic universal tools and heads
- Hydraulic crimping and cutting heads
- Hydraulic drive units
- Hydraulic systems
- Accessories for hydraulic tools
- Force and pressure gauge systems



## Hand tools

456

- VDE tools
- Standard tools
- Wire stripping tools
- Stripping tools
- Stripping tools for communication technology



## Processing tools

582

- Special cutting tools
- Machining tools for bus bars
- Pumps and pump accessories

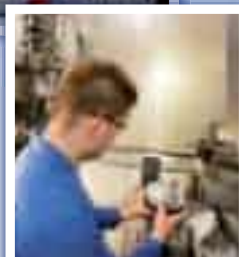
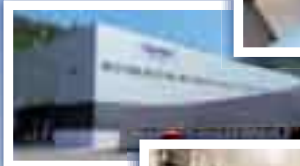


## Testing and measuring instruments

614

- Voltage testers
- Digital multimeter
- Clamp meters
- VDE Testing instruments
- Temperature gauges
- Cable and conductor identifiers
- Network, measuring devices and testers





## *At Klauke we have **always** been committed to the **future**.*

Success needs a vision. This is ours: pioneering solutions for trade and industry as well as a close partnership with our distribution channels. At Klauke we live this vision day after day.

In 1879 Gustav Klauke founded our company. Over time the markets changed, new technologies were developed and later replaced. Klauke constantly evolved and grew with innovative solutions that reflected the new demands of our customers.

### **10,000 solutions for the trade user**

All over the world, Klauke is renowned for its high-quality electrical connection systems and tools for crimping, cutting and punching. By offering special solutions for the connection systems and the tools industry we meet the requirements in the most diverse industries. In total our product range comprises more than 10,000 products for trade, industry and also the growth markets of renewable energies and modern infrastructure.

Since 1996 Klauke belongs to the Greenlee Division of the Textron Group. With the focus on hole punching and cable pulling technology, Greenlee perfectly complements our own areas of competence.

### **Medium-sized German business meets global player**

The close cooperation with a Group of 32,000 employees has generated important development impetus for both our customers and ourselves. As an example, we combine the virtues of a German medium-sized company with the strengths and global presence of a large corporation. This enables us to continuously optimise our processes and product quality, to remain a technological leader and to operate in future markets. Developing the future has always been our primary objective.







### ***Our recipe for success:***

*Klauke quality for global markets.*

For more than 130 years now, "Made in Germany" has been a certificate of origin, a claim to quality and the key to the success of our products. Klauke's long and successful history began with pliers production at our headquarters in Remscheid. From that acorn we have continued to grow. We are now an international organisation. All over the world, "Made by Klauke" is synonymous with outstanding quality products. Of that we are proud.

### **Worldwide presence with local solutions**

Currently, more than 800 employees develop, produce and distribute the Klauke range from ten locations in Europe and Asia-Pacific and via Greenlee in North and South America. Backed by a global distribution network and Authorised Service Centers in over 50 countries, we are close to our customers and their needs throughout the world. Allowing us to create local solutions for regional markets and their special requirements.

*“Made by Klauke  
stands for quality  
and proximity to local  
markets worldwide.”*

Jörg Sokat  
Marketing Manager





*Solutions for the requirements of **today and tomorrow***

## Expertise

### Electrical Distribution

The Klauke and Greenlee brands stand for innovation, safety and cost-effectiveness in installation technology - unconditionally and uncompromisingly. Both in electrical connection systems as well as in the case of tools and measuring devices, professional users all over the world trust in our products and application-orientated solutions.

**Klauke:** Electrical connection systems, crimping, cutting and hand tools

**Greenlee:** Holmaking tools, cable pulling technology, test and measurement instruments

## Innovation

### Automotive Connector Solutions

Klauke develops and produces electrical connection systems and special tools for the automotive industry, certified according to ISO/TS 164494:2009. Our solutions are used, for example, in vehicle electrical systems, engine and electro mobility concepts. Based on knowledge and experience attained over decades we incorporate the latest manufacturing processes to produce special tools.



### Assembly Solutions

Industrial products often call for customer-specific punched parts, connecting materials, connectors and pre-assembled cables. Assembly Solutions from Klauke offer specific and highly-flexible solutions. Due to our in-house design and manufacturing expertise in electrical connection systems, we can also undertake unconventional requirements and small production runs quickly, reliably and economically.

## Requirement



### Customized Tools

Our battery hydraulic crimping tools are market leaders for solder free connections solutions. Furthermore Klauke's professional crimping and cutting tools provide the technological basis for customer specific solutions in many fields. In close collaboration with our customers, our tool experts develop innovative prototypes that eventually lead to production stage and then manufacturing.





## ***Electrical conductors*** are the *life line of the modern world.*

Reliable connections in energy and data networks are crucial to the supply systems and creature comforts of our society. Therefore, we develop and produce electrical connection systems and tools for energy generation, transport and distribution that meet the highest requirements.

### **Innovation for practical applications**

Our focus is very much on day-to-day implementation practice. This is the basis upon which we have continued to develop the Klauke range over decades. Today, we have a complete range of mutually compatible cable lugs and connectors for low and medium voltage applications.



All Klauke solutions combine innovative capacity, technological expertise and close dialogue with users. They keep us in touch with the latest trends and our markets. Here are a few examples:

- ▶ The new blue connection system makes the connection of compacted conductors simpler, safer and more efficient than ever before. The special cable lugs and precisely-matching crimping dies for Klauke tools pay testimony to our system expertise.
- ▶ We rely on technologies that make our tools especially user-friendly, powerful and safe. For example, our tools feature ARS, the automatic retract stop, Li-Ion high-performance batteries and a lightweight, resilient steel/aluminum hybrid construction.
- ▶ We developed the LS 50-L Flex as a battery powered hydraulic punching tool specifically for working in constricted spaces. It combines an aluminum head that rotates through 360° with an especially narrow and compact design. Weighing just two kilos, it is also one of the lightest battery powered hydraulic tools around. The Li-Ion technology, which is compatible with all Klauke tools, provides the energy source. The LS 50-L Flex shows what we value most: Innovations for the user made in Germany, made by Klauke.



**blue connection®**

Simple. Safe. Efficient.







***The correct connector for every application and the matching tool for every connection.***

The system concept is paramount. The Klauke range has the right processing tool for every cable lug. The result is mutually compatible tubular cable lugs, crimping dies and mechanical and hydraulic crimping tools – quite simply the Klauke system.

**From the requirement to the product**

The system development starts by exchanging information with the users. Our engineers use their requirements and needs to create new, future-facing products and solutions. They make day-to-day activities simpler, safer and more efficient, exceeding expectations for performance, convenience and cost-effectiveness.



**AHP 700-L: Systematic innovation**

One example par excellence of system integration is the AHP 700-L, the new battery powered hydraulic drive unit for crimping, cutting and punching. This unit is compatible with all Klauke crimping and cutting heads, as well as with Greenlee punch retainers and the bus bar machining centre. It is also based on the same 18V Li-Ion technology as the Safety Plus generation of battery powered hydraulic tools.

The integrated pressure sensor determines the oil pressure required for each crimping operation. The Intelligent Pressing System - IPS for short - reports any deviations to the user immediately via optical and acoustic signals.

The identical batteries, the optional NG2 power supply and the diagnostics facility via USB adapter and i-press analysis software increase flexibility in practical use.

The cross-model use of important technologies is part of Klauke's system concept: Everything matches, for improved safety and efficiency in day-to-day use.





*Tools need **service** and users need **advice** – we offer both and more.*

In workaday life, Klauke crimping and cutting tools are exposed to hot and cold temperatures and fouling from the harsh conditions prevailing on construction sites. Sometimes it rains, sometimes the sun burns down and dust is often widespread - a durability test for our tools. As with all high-tech solutions, they must therefore be inspected on a regular basis and serviced from time to time.

### **Worldwide service you can rely on**

With an unbeatable technical maintenance and repair service, our company Service Centers along with Authorised Service Centers (ASC) ensure that Klauke tools retain their full functionality and guarantee reliable connections. Services range from regular tool inspection to service and repair work through to the free tool Hotline and an equipment hire facility.

Furthermore: Our mobile service van can be deployed for site operations upon request!



- ▶ Worldwide repair and maintenance service through over 50 authorised Service Centers (Klauke ASC).
- ▶ Complete maintenance service with annual inspection and work at fixed prices.
- ▶ Free Hotline for all questions about the tool service in Germany.
- ▶ Fast, uncomplicated equipment hire service for all standard tools.
- ▶ Mobile service van for site operations.





## **Trading partners have our full support.**

Our trading partners - as the link to the customer - play a key role in the Klauke success story. We maintain close contact, provide expert advice and on-site support.

## **Training courses and trade fairs - Klauke is onboard**

Our commitment starts with training courses and workshops for installation engineers, employees from the wholesale sector and distributors. Our partners receive intense support at all important national and international trade fairs. This is the ideal platform for presenting new products and sharing experiences. And of course, we support our distributors as experts with comprehensive information and advice.



## **Klauke demonstration van: Tools you can touch**

The best arguments for Klauke tools are quality, performance and their proverbial suitability for daily use. We visit our distributors and users throughout Europe with a practical roadshow. The Klauke demonstration van carries electrical connection technology and tools from both Klauke and Greenlee that you can touch. Customer presentations, open-house events and internal training courses are enriched by hands-on experience.

## **Close cooperation for improving safety and enhancing expertise**

Klauke is a strong brand worldwide. We stand for values such as innovation, quality, safety and sustainable economies. The trades and the users can rely on this brand promise at all times. With our cooperation partners of electrical brand initiatives, we commit to strengthening the brands and their worth. As an E-Check partner, we stand for tested safety in the electrical trade. Because for us there is no compromise when it comes to the safety of our products.







## Our *distribution service:*

- ▶ Product presentations and expert advice on-site by our field service team.
- ▶ The Klauke demonstration van - on the road for our customers.
- ▶ Internal and external training courses and workshops for users.
- ▶ Information and advice at all important national and international trade fairs.
- ▶ Swift technical support from our experts for special applications.
- ▶ Upon request, we test your electrical connections and compile test reports.



## We are *consistently better than the standards demand.*

Klauke products are used in environments that have to meet tough safety requirements. That's why their reliability and quality is of the utmost importance. For us, simply meeting the requirements of a standard is not enough. In terms of safety, ease-of-use and robustness, all Klauke products comply with the highest specifications and perform in excess of the standards required.

### Quality starts with the process

Our internal processes provide the foundation required. Our focus on lean management principles increases efficiency, responsibility and personal commitment - from management to development to production and sales.

Klauke undergoes regular internal and external audits in order to safeguard the quality of our products and processes.

### Our certifications

In terms of quality management, we are certified to ISO 9001:2008 and specifically for the automotive industry to ISO/TS 16949:2009. Klauke's environmental management system complies with the requirements of ISO 14001:2004.

These certifications guarantee that our customers can rely on their Klauke products and services at all times.





# *Environmental protection and sustainability – for us **the only alternative!***

Environmental issues are extremely important to us. And a question of entrepreneurial responsibility. That's why Klauke is involved in the "Ökoprofit" (Ecoprofit) project of the Bergisch City Triangle, and is today certified to ISO 14001:2004.

## **Our goal: Continuous improvement**

This international standard defines world-recognised standards for environmental management systems. It focuses on a continuous improvement process for environmental performance.

The result for us is clearly defined goals: Avoiding waste and errors, enhancing efficiency and minimising energy consumption in every production phase. Because we want to keep raw materials, fossil fuels and our environment for the next generations.

## **Employing resources correctly**

Resource management is of course also important: In the procurement of material and components, we attach importance to top quality materials and components. To guarantee this, we work only with certified suppliers. This, coupled with our strict quality management principle, ensures our procurement, production and service standards are sustainably maintained.

### **Avoiding harmful substances**

Ecologically harmless products are essential to our understanding of sustainable economic activity. Starting with the supplier chain, we make sure that all components and materials remain within environmental limits and we satisfy the requirements of directives such as REACH and RoHS. On principle, harmful substances such as lead and mercury, polycyclic aromatic hydrocarbons (PAH) are not used in Klauke products. Moreover, we use the most environmentally-compatible materials, resources and equipment possible, biodegradable hydraulic fluids for example. And so our products combine user orientation with environmental responsibility.

### **Increasing tool life**

Our comprehensive range of services contributes to maintaining the performance of our tools over the long term. This is good for the environment, saves resources and increases the economic benefits for our customers.

### **Encouraging recycling**

By the time a tool finally reaches the end of its useful life, the course for reuse has long been set. Even during the tool development phase, we plan and design our products and components for a high reuse and recycling quota. By taking back used devices free-of-charge within Germany, we support our customers, ensure professional recycling and satisfy the requirements of the WEEE Directive.

### **Taking responsibility, seizing opportunities**

Environmental and resource management at all company levels is extremely important to Klauke. We perceive improving to become more and more innovative as an opportunity. And we take on this responsibility - for our customers, our employees and our children.

**Klauke** always close by...



- Northern region
- Central region
- Southern region
- Austria

#### **Gustav Klauke GmbH**

Auf dem Knapp 46  
42855 Remscheid  
Tel.: +49 (0)2191 907 0  
Fax: +49 (0)2191 907 0  
info@klauke.textron.com  
www.klauke.com

**Sales Hotline: +49 (0)2191 907 107**

#### **■ Sales manager**

##### **Torsten Darkow**

Tel.: +49 (120)2191 907 120  
Fax: +49 (340)2191 907 340  
Mobile: +49 (0)172 7051247  
tdarkow@klauke.textron.com

#### **■ Internal sales manager**

##### **Axel Rauch**

Tel.: +49 (401)2191 907 401  
Fax: +49 (340)2191 907 340  
Mobile: +49 (0)172 7051240  
arauch@klauke.textron.com

#### **■ Assistant**

##### **Jasmin Gatto**

Tel.: +49 (254)2191 907 254  
Fax: +49 (340)2191 907 340  
jgatto@klauke.textron.com

## ■ Northern region

### Regional sales manager

- Uwe Pilgrim  
Tel.: +49 (0)521 7853 470  
Fax: +49 (0)521 7853 471  
Mobile: +49 (0)151 14639753  
upilgrim@klauekue.textron.com

### Trade representatives

- Eastern Lower Saxony,  
East Westphalia, Münster  
**Detlef Sikora GmbH**  
Lägenfeldstrasse 7  
30952 Ronnenberg  
Tel.: +49 (0)511 438040  
Fax: +49 (0)511 4380449  
hannover@sikora.de

### ■ Saxony-Anhalt

- **Detlef Sikora GmbH**  
Gewerbegebiet Süd Nr. 2  
39443 Staßfurt  
Tel.: +49 (0)392669310  
Fax: +49 (0)392669315  
stassfurt@sikora.de

### Field service

- Bremen,  
North West Lower Saxony,  
South West Lower Saxony,  
North West North Rhine Westphalia  
**Jürgen Wolf**  
Tel.: +49 (0)4942 204 794  
Fax: +49 (0)4942 204 793  
Mobile: +49 (0)151 11443897  
jwolf@klauekue.textron.com
- Schleswig-Holstein, Hamburg  
**Florian Hensel**  
Tel.: +49 (0)4892 8998694  
Fax: +49 (0)4892 8998692  
Mobile: +49 (0)151 14639539  
fhensel@klauekue.textron.com

## ■ Central region

### Regional sales manager

- Roland Recke  
Tel.: +49 (0)2191 907 368  
Fax: +49 (0)2191 907 340  
Mobile: +49 (0)151 14639759  
recke@klauekue.textron.com

### Area sales manager

- NRW central, Hesse, Rhineland-  
Palatinate, Saarland  
**Wolfgang Frowein**  
Tel.: +49 (0)2191 907 119  
Fax: +49 (0)2191 907 340  
Mobile: +49 (0)172 7051241  
wrowein@klauekue.textron.com

### Field service

- Mecklenburg-Western Pomerania,  
Berlin, Brandenburg  
**Jürgen Mießner**  
Tel.: +49 (0)3391 7008264  
Fax: +49 (0)3391 6593695  
Mobile: +49 (0)172 7051239  
jmiesner@klauekue.textron.com

### ■ Saxony

- **Mario Schüppel**  
Tel.: +49 (0)371 8449 140  
Fax: +49 (0)371 8449 141  
Mobile: +49 (0)172 7051244  
mschueppel@klauekue.textron.com

### ■ Thuringia

- **Georg Göritz**  
Tel.: +49 (0)3628 9298 46  
Fax: +49 (0)3628 9298 47  
Mobile: +49 (0)151 57136116  
ggoeritz@klauekue.textron.com

### ■ North Rhine Westphalia Ruhr Valley and Lower Rhine

- **Ralf Weber**  
Tel.: +49 (0)2261 9130 325  
Fax: +49 (0)2261 9130 378  
Mobile: +49 (0)172 7051251  
rweber@klauekue.textron.com

### ■ North Rhine Westphalia South, Rhineland-Palatinate North

- **Daniel Frowein**  
Tel.: +49 (0)2191 907 0  
Fax: +49 (0)2191 907 340  
Mobile: +49 (0)151 14639762  
dfrowein@klauekue.textron.com

## ■ Southern region

### Regional sales manager

- Thomas Keck  
Tel.: +49 (0)7042 102280  
Fax: +49 (0)7042 102385  
Mobile: +49 (0)151 14639769  
tkeck@klauekue.textron.com

### Trade representatives

- Baden-Württemberg  
**Claudia Nolle e. K.**  
Industrial representative  
Teckstrasse 21  
73734 Esslingen-Berkheim  
Tel.: +49 (0)711 365611 0  
Fax: +49 (0)711 365611 99  
info@iv-nolle.de

### ■ North Bavaria

- **Jürgen Doerner  
Handelsvertretungen GmbH**  
Kafkastrasse 5  
90471 Nuremberg  
Tel.: +49 (0)911 998150  
Fax: +49 (0)911 9981540  
nuernberg@hv-doerner.de

### ■ South Bavaria

- **Jürgen Doerner  
Industrievertretungen GmbH**  
Bussardstrasse 8  
82166 Gräfelfing  
Tel.: +49 (0)89 8980700  
Fax: +49 (0)89 89807035  
info@doerner-muenchen.de

### Technical support

- Southern region  
**Sebastian Harter**  
Tel.: +49 (0)7804 91253 50  
Fax: +49 (0)7804 91253 51  
Mobile: +49 (0)151 14639774  
sharter@klauekue.textron.com

## ■ Austria

### KLAUKE HANDELSGES.M.B.H.

- Thomas Farthofer  
Ared-Str. 7 TOP 3  
2544 Leobersdorf  
Tel.: +43 (0)2256 629 25  
Fax: +43 (0)2256 62925 30  
Mobile: +43 (0)664 5072746  
tfarthofer@klauekue.textron.com



For reliable **connections** worldwide.

#### **Gustav Klauke GmbH**

Auf dem Knapp 46 · D-42855 Remscheid  
P.O. Box 10 05 22 · D-42805 Remscheid  
Tel.: +49 (0)2191 907 0  
Fax: +49 (0)2191 907 205  
info@klauke.textron.com  
www.klauke.com

#### **Distribution companies/ Sales offices**

■ **GREENLEE TEXTRON INC.**

4455 Boeing Drive  
Rockford, IL 61109 - 2988  
USA  
Tel.: +1 815 397 7070  
Fax: +1 815 397 9247  
www.greenlee.textron.com

■ **KLAUKE FRANCE S.A.R.L.**

16, Rue Saint-Louis, Z.I. ACTISUD  
F-57150 Creutzwald  
France  
Tel.: +33 (0)387 2984 70  
Fax: +33 (0)387 2984 79  
gcordel@klauke.textron.com

■ **OOO KLAUKE RUS**

125009, Moscow, Tverskaya 16/2  
Building 1, 7th floor, office 901B  
Russian Federation  
Tel.: +7 495 9358 971  
Fax: +7 495 9358 962  
slekomtseva@klauke.textron.com

■ **KLAUKE UK LTD.**

Hillside Road East, Bungay, Suffolk  
NR35 1JX  
Great Britain  
Tel.: +44 (0)19 86 89 1519  
Fax: +44 (0)19 86 89 6132  
sales@klauke.textron.com

■ **GREENLEE COMMUNICATIONS  
LIMITED**

Brecon House, William Brown Close  
Llantarnam Park, Cwmbran NP44 3AB  
Wales  
Tel.: +44 (0)1633 6277 10  
Fax: +44 (0)1633 6277 11  
info@tempo.textron.com

■ **TEXTRON CHINA INC.**

**GREENLEE / KLAUKE OFFICE**  
Room 201, Floor 2, No. 455 Fushan  
Road, Pudong area, Shanghai  
Post code 200122  
P.R. of China  
Tel.: +86 21 684160 66  
Fax: +86 21 684160 33  
tlu@greenlee.textron.com

■ **TEXTRON FAR EAST PTE LTD**

**c/o Greenlee Textron**  
No.6 Seletar Aerospace Heights  
Singapore 797545  
Tel.: +65 98 19 22 97  
cwec@greenlee.textron.com

■ **GREENLEE / KLAUKE OFFICE  
AUSTRALIA / NEW ZEALAND**

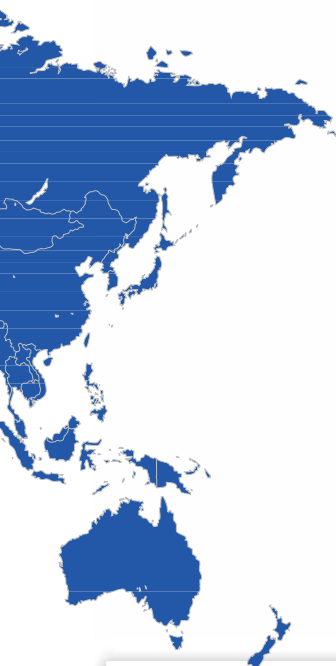
25 Webb Ellis Court,  
Pelican Waters, Queensland 4551  
Australia  
Tel.: +61 7 543973 77  
Fax: +61 7 543975 77  
nellement@greenlee.textron.com

■ **GREENLEE / KLAUKE OFFICE  
LATIN AMERICA**

Av. Projetada, s/no. Lambari  
08900-000 Guararema - SP  
Brazil  
Tel.: +55 12 3911 8532  
uluz@greenlee.textron.com

■ **Klauke India a division of Textron  
India Pvt. Ltd.**

Adithi Enclave, 2nd Floor  
#29, 80 Feet Road  
4th Block, Kormangala  
Bangalore - 560 034  
Karnataka, India  
Tel.: +91 80 25 53 0007  
sales.in@klauke.textron.com



## Worldwide representation

### ■ Andorra

**GAVE ELECTRO, S.L.**  
08430 La Roca del Valles  
Tel.: +34 93 84 22 212  
Fax: +34 93 84 227 55  
gave@gave.com

### ■ Argentina

**JAIME LARRABE**  
Penalolen, Chile  
Tel.: +56 562 27 90 139  
Fax: +562 27 90 139  
jaime.larrabe@yahoo.es

### ■ Australia

**GREENLEE / KLAUKE OFFICE  
AUSTRALIA / NEW ZEALAND**  
Pelican Waters 4551 QLD  
Tel.: +61 7 54 39 7377  
Fax: +61 7 54 39 7577  
nellement@greenlee.textron.com

### ■ Bahrain

**NISSAD DEVELOPMENT CO. LTD.**  
1306 Nicosia  
Tel.: +357 22 76 5014  
Fax: +357 22 76 1535  
info@nissad.com



### **TOMAD INTERNATIONAL INC.**

Beirut  
Tel.: +961 1 88 49 44  
Fax: +961 1 88 49 29  
vahe@tomad.info



### ■ Belarus

**OOO KLAUKE RUS**  
125009 Moscow  
Tel.: +74 95 93 589 71  
Fax: +74 95 93 589 62  
slekomtseva@klauke.textron.com

### ■ Belgium

**NBR NUSSBAUMER NV/SA**  
1500 Halle  
Tel.: +32 2 35 70 940  
Fax: +32 2 35 49 679  
info@nussbaumer.be

### ■ Bosnia and Herzegovina **KABELTECH DOO**

71000 Sarajevo  
Tel.: +387 33 71 3061  
Fax: +387 33 71 3063  
info@kabeltech.co.ba

### ■ Brazil

**GREENLEE / KLAUKE OFFICE  
LATIN AMERICA**  
08900-000 Guararema - SP  
Tel.: +55 12 3911 8532  
Mobile: +55 12 9657 1524  
uluz@greenlee.textron.com

### ■ Brunei

**Textron Far East PTE LTD  
C/O GREENLEE TEXTRON**  
Singapore 797545  
Tel.: +65 98 19 22 97  
Fax: +65 67 48 16 51  
cwee@greenlee.textron.com

### ■ Bulgaria

**V & V ISOMATIC LTD.**  
1505 Sofia  
Tel.: +359 2 95 83 111  
Fax: +359 2 95 82 270  
office@viv-isomatic.com

### ■ Canada

**GREENLEE TEXTRON INC.**  
Rockford, IL 61109-29 88  
Tel.: +1 815 397 7070  
Fax: +1 815 397 9247  
www.greenlee.textron.com

### ■ China

**TEXTRON CHINA INC.  
GREENLEE / KLAUKE OFFICE**  
Shanghai 200122  
Tel.: +86 21 68 41 6066  
Fax: +86 21 68 41 6033  
tl@greenlee.textron.com

### ■ Columbia

**LAUMAYER COLOMBIANA S.A.**  
Medellín  
Tel.: +57 4 361 8585  
Fax: +57 4 361 3667  
comercial@laumayer.com

### ■ Croatia

**KONEKT**  
Zagreb  
Tel.: +385 1 23 61 890  
Fax: +385 1 23 61 882  
konekt@konekt.hr

### ■ Czech Republic

**KLAUKE Z. NITSCH S.R.O.**  
14000 Praha 4 - Pankrac  
Tel.: +42 02 61 21 3219  
Fax: +42 02 61 21 3218  
klauke@klauke.cz

### ■ Denmark

**WEXOE A/S**  
3500 Vaerloese  
Tel.: +45 45 46 5800  
Fax: +45 45 46 5801  
wexoe@wexoe.dk

### ■ Ecuador

**AMER-ANDES**  
Bogota / Columbia  
Tel.: +571 61 67 094  
Fax: +571 61 02 402  
amerandes@cablenet.co

### ■ Egypt

**WARCO ENGINEERING &  
TRADING**  
Mohandessin / Giza  
Tel.: +20 2 3025 265  
Fax: +20 2 3025 275  
aragab@commnet.com.eg



### **TOMAD INTERNATIONAL INC.**

Beirut  
Tel.: +961 1 88 4944  
Fax: +961 1 88 4929  
vahe@tomad.info



### ■ El Salvador

**ABELLA GROUP**  
Miami, Florida 33126 / USA  
Tel.: +1 305 47 09 800  
Fax: +1 305 47 02 202  
ae.aespinoza@abellagroup.com

### ■ Estonia

**LAPP MILTRONIC SIA ESTONIAN  
BRANCH**  
Lääne-Virumaa 44307  
Tel.: +372 65 18 970  
Fax: +372 65 18 971  
info@lappmiltronic.ee

### ■ Finland

**CABLEX OY**  
20360 Turku  
Tel.: +358 2 88 00 020  
Fax: +358 2 88 00 021  
reiho.karlsson@cablex.fi

### ■ France

**KLAUKE FRANCE S.A.R.L.**  
57150 Creutzwald  
Tel.: +33 387 29 8470  
Fax: +33 387 29 8479  
gcordel@klauke.textron.com

### ■ Greece

**KALAMARAKIS SAPOUNAS S.A.**  
13671 Chamomilos-Acharnes  
Tel.: +30 2 102406 0006  
Fax: +30 2 102406 007  
ksa@ksa.gr

### ■ Great Britain

**KLAUKE UK LTD.**  
Bungay Suffolk NR35 1JX  
Tel.: +44 (0)19 86 89 1519  
Fax: +44 (0)19 86 89 6132  
sales@klauke.textron.com

- Guatemala**  
**ABELLA GROUP**  
Miami, Florida 33126 / USA  
Tel.: +1 305 47 09 800  
Fax: +1 305 47 02 202  
ae.aespinoza@abellagroup.com
- Hong Kong**  
**TEXTRON CHINA INC.**  
**GREENLEE / KLAUKE OFFICE**  
Shanghai 200122  
Tel.: +86 21 68 41 6066  
Fax: +86 21 68 41 6033  
tlu@greenlee.textron.com
- Hungary**  
**TRENDELEKTRO KFT.**  
H-2049 Diosd  
Tel.: +36 23 54 5140  
Fax: +36 23 54 5141  
info@trendelektro.hu
- Holland**  
**H.K. ELECTRIC BV**  
5321 JZ Hedel  
Tel.: +31 73 59 97 599  
Fax: +31 73 59 97 590  
verkoop@hkelectric.nl
- Iceland**  
**REYKJAFELL LTD.**  
105 Reykjavik  
Tel.: +354 58 86 010  
Fax: +354 58 86 088  
reykjafell@reykjafell.is
- India**  
**KLAUKE INDIA**  
**A DIVISION OF TEXTRON INDIA PVT.LTD.**  
Bangalore 560 034  
Tel.: +91 80 2553 0007  
Mobile: +91 97 409 36006  
sales.in@klauke.textron.com
- Indonesia**  
**TEXTRON FAR EAST PTE LTD**  
**C/O GREENLEE TEXTRON**  
Singapore 797545  
Tel.: +65 98 19 2297  
Fax: +65 67 48 1651  
cwee@greenlee.textron.com
- Ireland**  
**KLAUKE UK LTD.**  
Bungay Suffolk NR35 1JX  
Tel.: +44 (0)19 86 89 1519  
Fax: +44 (0)19 86 89 6132  
sales@klauke.textron.com
- Israel**  
**SHAY A.U., LTD.**  
49222 Petach Tikva  
Tel.: +972 3 92 33 601  
Fax: +972 3 92 34 601  
ilans@uriel-shay.com
- Italy**  
**COMMERCIALE TIEGER S.R.L.**  
20159 Milan  
Tel.: +39 02 68 86 330  
Fax: +39 02 66 80 2529  
comtiegert@tin.it
- Japan**  
**GOODMAN INC.**  
Yokohama, Kanagawa 236-0037  
Tel.: +81 45 701 5680  
Fax: +81 45 701 4302  
kwantanabe@goodman-inc.co.jp
- Jordan**  
**NISSAD DEVELOPMENT CO. LTD.**  
1306 Nicosia  
Tel.: +357 22 76 5014  
Fax: +357 22 76 1535  
info@nissad.com
- KLAUKE**  
**000 KLAUKE RUS**  
125019 Moscow  
Tel.: +7 495 935 8971  
Fax: +7 495 935 8912  
slekomtseva@klauke.textron.com
- Kosovo**  
**NIDAS D.O.O.**  
11000 Beograd  
Tel.: +381 11 24 17 714  
Fax: +381 11 24 17 715  
office@nidas.co.rs
- Kuwait**  
**NISSAD DEVELOPMENT CO. LTD.**  
1306 Nicosia  
Tel.: +357 22 76 5014  
Fax: +357 22 76 1535  
info@nissad.com
- TOMAD INTERNATIONAL INC.**  
Beirut  
Tel.: +961 1 88 49 44  
Fax: +961 1 88 49 29  
vahe@tomad.info
- Latvia**  
**LAPP MILTRONIC SIA**  
LV-1021 Riga  
Tel.: +371 675 01 900  
Fax: +371 675 01 909  
info@lappmiltronic.lv
- Lebanon**  
**TOMAD INTERNATIONAL INC.**  
Beirut  
Tel.: +961 1 88 49 44  
Fax: +961 1 88 49 29  
vahe@tomad.info
- AL-BONIAN GROUP**  
Beirut  
Tel.: +961 1 38 5755  
Fax: +961 1 38 5714  
info@al-boniangroup.com
- Lithuania**  
**LAPP MILTRONIC LIETUVOS FILIALAS**  
Vilnius, LT-11341  
Tel.: +370 5 27 80 390  
Fax: +370 5 27 80 397  
info@lappmiltronic.lt
- Luxembourg**  
**M & A PARTNERS**  
8055 Bertrange  
Tel./Fax: +352 2 26 36 2046  
archit@pt.lu
- Macedonia**  
**SISKON SYSTEMS ENGINEERING**  
Skopje  
Tel.: +38 92 30 62 423  
Fax: +38 92 30 61 250  
siskon@siskon.com.mk
- Malaysia**  
**TEXTRON FAR EAST PTE LTD**  
**C/O Greenlee Textron**  
Singapore 797545  
Tel.: +65 98 19 2297  
Fax: +65 67 48 1651  
cwee@greenlee.textron.com
- Mexico**  
**REMAT, S.A. DE C.V.**  
Mexico, D.F.  
Tel.: +52 55 5256 3440  
Fax: +52 55 5256 3441  
alvarobnava@aol.com
- Morocco**  
**ETS. LOUIS GUILLAUD**  
2000 Casablanca  
Tel.: +21 222 30 5971  
Fax: +21 222 31 7888  
elg@casanet.net.ma
- Montenegro**  
**NIDAS D.O.O.**  
11000 Beograd  
Tel.: +381 11 24 17 714  
Fax: +381 11 24 17 715  
office@nidas.co.rs
- New Zealand**  
**GREENLEE / KLAUKE OFFICE AUSTRALIA / NEW ZEALAND**  
Pelican Waters 4551 QLD  
Tel.: +61 7 5439 7377  
Fax: +61 7 5439 7577  
nellement@greenlee.textron.com
- Nicaragua**  
**ABELLA GROUP**  
Miami, Florida 33126 / USA  
Tel.: +1 305 470 9800  
Fax: +1 305 470 2202  
ae.aespinoza@abellagroup.com
- Norway**  
**Proxsi AS**  
0661 Oslo  
Tel.: +47 220881 00  
Fax: +47 220881 01  
firmapost@proxsi.no
- Oman**  
**NISSAD DEVELOPMENT CO. LTD.**  
1306 Nicosia  
Tel.: +357 22 76 5014  
Fax: +357 22 76 1535  
info@nissad.com
- TOMAD INTERNATIONAL INC.**  
Beirut  
Tel.: +961 1 88 49 44  
Fax: +961 1 88 49 29  
vahe@tomad.info
- Paraguay**  
**JAIME LARRABE**  
Penalolen, Chile  
Tel.: +56 562 279 0139  
Fax: +562 279 0139  
jaimelarrabe@yahoo.es
- Philippines**  
**DULHUNTY TRADING INT'L**  
1115 Quezon City  
Tel.: +632 416 8284  
Fax: +632 416 2278  
gabats@yahoo.com

## ■ Poland

**Klauke Polska Sp. z o.o.**  
ul. Piłsudskiego 243  
05-270 Marki  
Tel.: +48 515 021 091  
info-pl@klauke.textron.com

## ■ Portugal

**PALISSY GALVANI ELECTRICIDADE SA.**  
2625-607 Vialonga  
Tel.: +35 121 32 23 400  
Fax: +35 121 32 23 410  
info@palissygalvani.pt

## ■ Qatar

**NISSAD DEVELOPMENT CO. LTD.**  
1306 Nicosia  
Tel.: +35 722 76 5014  
Fax: +35 722 76 1535  
info@nissad.com



## TOMAD INTERNATIONAL INC.

Beirut  
Tel.: +961 1 88 49 44  
Fax: +961 1 88 49 29  
vahe@tomad.info



## ■ Romania

**GERKON ELECTRO S.R.L.**  
530211 Miercurea-Ciuc  
Tel.: +40 266 37 2108  
Fax: +40 266 31 2238  
office@gerkonelectro.ro

## ■ Russia

**OOO KLAUKE RUS**  
125009 Moscow  
Tel.: +74 95 9358 971  
Fax: +74 95 9358 962  
slektomtseva@klauke.textron.com

## ■ Saudi Arabia

**NISSAD DEVELOPMENT CO. LTD.**  
1306 Nicosia  
Tel.: +35 722 76 5014  
Fax: +35 722 76 15 35  
info@nissad.com



## TOMAD INTERNATIONAL INC.

Beirut  
Tel.: +961 1 88 49 44  
Fax: +961 1 88 49 29  
vahe@tomad.info



## ■ Serbia

**NIDAS D.O.O.**  
11000 Beograd  
Tel.: +38 111 24 17 714  
Fax: +38 111 24 17 715  
office@nidas.co.rs

## ■ Singapore

**GREENLEE / KLAUKE OFFICE**  
**SOUTH EAST ASIA**  
Singapore 508743  
Tel.: +65 98 19 2297  
Fax: +65 67 48 1651  
cwee@greenlee.textron.com

## ■ Slovakia

**KLAUKE Z. NITSCH S.R.O.**  
14000 Praha 4 - Pankrac  
Tel.: +42 02 61 21 3219  
Fax: +42 02 61 21 3218  
klauke@klauke.cz

## ■ Slovenia

**ISARIA D.O.O.**  
1420 Trbovlje  
Tel.: +38 63 56 31 800  
Fax: +38 63 56 31 802  
isaria.trbovlje@siol.net

## ■ South Africa

**EBERHARDT-MARTIN CC.**  
2092 Newlands  
Tel.: +27 11 28 80 000  
Fax: +27 11 67 35 043  
ebm@ebm.co.za



## IMG Distributors C.C.

Benoni  
Tel.: +27 11 42 54 062  
Fax: +27 11 42 52 554  
tony@imgdistributors.co.za



## ■ South Korea

**KESCO CO., LTD**  
Seoul 150-093  
Tel.: +82 2 26 14 0989  
Fax: +82 2 26 14 0966  
tsoh@ikesco.com

## ■ Spain

**GAVE ELECTRO, S.L.**  
08430 La Roca del Valles  
Tel.: +34 93 84 22 212  
Fax: +34 93 84 22 727  
gave@gave.com

## ■ Sweden

**Klauke Sverige**  
Mr. Fredrik Fleetwood  
Tel.: +46 (0)72 588 98 18  
info@Klauke.se

## ■ Switzerland

**FERRATEC AG**  
8964 Rudolfstetten  
Tel.: +41 56 64 92 121  
Fax: +41 56 64 92 141  
info@ferratec.ch

## ■ Syria

**AROYAN & KHATCHADOURIAN CO.**  
Aleppo  
Tel.: +963 214 656 558  
Fax: +963 214 640 692  
a-kco@aloola.sy



## ■ Taiwan

**PO CHARNG CO. LTD**  
Taipei 110  
Tel.: +886 22 76 31 623  
Fax: +886 22 76 67 492  
kevin@pocharnng.com.tw

## ■ Thailand

**SUMMIT ENG. AND SERVICES CO. LTD**  
10400 Bangkok  
Tel.: +662 64 22 478  
Fax: +662 64 23 085  
sudsuda@greennovation.in.th

## BE PROMPT TRADING & SERVICES LTD

Bangkok 10100-07  
Tel.: +662 22 54 201  
Fax: +662 22 54 200  
beprompt\_b@yahoo.com

## ■ Turkey

**Kardeş Elektrik Sanayi ve Ticaret A.Ş.**  
343295 Besyol-Sefaköy / Istanbul  
Tel.: +90 212 62 49 204  
Fax: +90 212 59 24 810  
info@kardeselektrik.com.tr

## ■ Ukraine

**OOO KLAUKE RUS**  
125009 Moscow  
Tel.: +74 95 9358 971  
Fax: +74 95 9358 962  
slektomtseva@klauke.textron.com

## ■ Uruguay

**JAIME LARRABE**  
Penalolen, Chile  
Tel.: +562 279 0139  
Fax: +562 279 0139  
jaimelarrabe@yahoo.es

## ■ United Arab Emirates

**NISSAD DEVELOPMENT CO. LTD.**  
1306 Nicosia  
Tel.: +35 722 76 5014  
Fax: +35 722 76 1535  
info@nissad.com



## TOMAD INTERNATIONAL INC.

Beirut  
Tel.: +961 1 88 49 44  
Fax: +961 1 88 49 29  
vahe@tomad.info



## ■ USA

**GREENLEE TEXTRON INC.**  
Rockford, IL 61109-2988  
Tel.: +1 815 397 7070  
Fax: +1 815 397 9247  
www.greenlee.textron.com

## ■ Venezuela

**RB TOOLS C.A.**  
Caracas 1060  
Tel.: +58 21 29 92 7491  
Fax: +58 21 62 44 12  
rbtools@movistar.net.ve



## ■ Vietnam

**ELESCO ASIA PTE LTD**  
349562 Singapore  
Tel.: +65 67 41 4248  
Fax: +65 67 77 36 86  
sales18@elesco.com.sg



## ■ Yemen

**NISSAD DEVELOPMENT CO. LTD.**  
1306 Nicosia  
Tel.: +357 22 76 5014  
Fax: +357 22 76 1535  
info@nissad.com

## TOMAD INTERNATIONAL INC.

Beirut  
Tel.: +961 1 88 49 44  
Fax: +961 1 88 49 29  
vahe@tomad.info



**Tubular cable lugs and connectors blue connection® - Cu****24**

|                        |    |
|------------------------|----|
| Tubular cable lugs     | 26 |
| Butt connectors        | 28 |
| Tool application chart | 29 |

**Copper tubular cable lugs and connectors - Cu****30**

|                                                                |    |
|----------------------------------------------------------------|----|
| Tubular cable lugs                                             | 32 |
| Angle tubular cable lugs                                       | 36 |
| Connectors                                                     | 40 |
| Insulated tubular cable lugs and connectors                    | 44 |
| Tubular cable lugs and connectors for fine stranded conductors | 47 |
| Tubular cable lugs and compression joints for solid conductors | 51 |
| Tubular cable lugs for switchgear connections                  | 54 |
| Tool application chart                                         | 55 |

**Tubular cable lugs and connectors - nickel, stainless steel****62**

|                                                   |    |
|---------------------------------------------------|----|
| Stainless steel tubular cable lugs and connectors | 64 |
| Tubular cable lugs and connectors - nickel        | 66 |
| Tool application chart                            | 68 |

**Copper compression cable lugs and connectors to DIN****70**

|                                                                   |    |
|-------------------------------------------------------------------|----|
| Compression cable lugs acc. to DIN 46235                          | 72 |
| Angle compression cable lugs                                      | 74 |
| Compression cable lugs, special type                              | 77 |
| Compression joints acc. to DIN 46267, part 1 and similar versions | 79 |
| Tool application chart                                            | 84 |

**Terminals, connectors and pin terminals to DIN - Cu****86**

|                                                      |    |
|------------------------------------------------------|----|
| Solderless terminals acc. to DIN 46234               | 88 |
| Insulated solderless terminals                       | 90 |
| Solderless terminals, fork and pin type              | 92 |
| Insulated solderless terminals for meter connections | 94 |
| Solderless connectors acc. to DIN 46341              | 95 |
| Tool application chart                               | 97 |

**Sleeves for compacted conductors and sector-shaped conductors - Cu****100****Aluminum compression cable lugs and connectors to DIN****106**

|                                                                          |     |
|--------------------------------------------------------------------------|-----|
| Compression cable lugs acc. to DIN 46329 and similar versions - Al       | 108 |
| Compression joints acc. to DIN 46267, part 2 and similar versions - Al   | 110 |
| Reduction compression joints - Al                                        | 112 |
| Compression joints, full tension - Al                                    | 115 |
| Compression cable lugs and connectors for Al/St cables DIN EN 50182 - Al | 116 |
| Tool application chart                                                   | 118 |

**Aluminum/copper compression cable lugs and connectors****122**

|                                |     |
|--------------------------------|-----|
| Compression cable lugs - Al/Cu | 124 |
| Compression joints - Al/Cu     | 126 |
| Bi-metallic washer             | 129 |
| Tool application chart         | 130 |

**Clamps and screw connectors**
**132**

|                                                       |     |
|-------------------------------------------------------|-----|
| Punched cable lugs - Cu                               | 134 |
| Screw connectors with soldering hole - CuZn           | 135 |
| Parallel groove clamps for tap off connections - Cu   | 137 |
| C and H-shaped clamps - Cu                            | 139 |
| Screw connectors for street lighting - CuZn           | 141 |
| Screw connectors, high resistant aluminum alloy       | 142 |
| Compact tap connectors, high resistant aluminum alloy | 147 |
| Tool application chart                                | 150 |

**Cable end-sleeves**
**152**

|                                                                            |     |
|----------------------------------------------------------------------------|-----|
| Cable end-sleeves acc. to DIN 46228, part 1 and part 2                     | 154 |
| Insulated cable end-sleeves acc. to DIN 46228, part 4 and similar versions | 157 |
| Insulated cable end-sleeves for short circuit resistant conductors         | 162 |
| Insulated twin cable end-sleeves                                           | 162 |
| Insulated cable end-sleeves, strips and tapes                              | 163 |
| Tool application chart                                                     | 165 |

**Cable connections, insulated and non insulated**
**172**

|                           |     |
|---------------------------|-----|
| Insulated terminals       | 174 |
| Non-insulated receptacles | 184 |
| Flexible connectors       | 188 |
| Tool application chart    | 193 |

**Assortments**
**196**

|                                                          |     |
|----------------------------------------------------------|-----|
| Assortment boxes with tubular und compression cable lugs | 198 |
| Pocket boxes with cable end-sleeves                      | 200 |
| Pocket boxes with insulated cable end-sleeves            | 201 |
| Assortment boxes with cable end-sleeves                  | 206 |
| Assortment boxes with insulated cable end-sleeves        | 206 |
| Assortment boxes with insulated terminals                | 209 |

”

*Build on our experience:  
No matter what the application,  
we guarantee safe electrical connections.“*



Torsten Selbach,  
Technical Support

# **blue connection<sup>®</sup>**

*Simple. Safe. Efficient.*

## **blue connection<sup>®</sup> – because modern cables have narrower diameters**

Modern compacted multi-stranded conductors are up to 15 percent thinner than comparable predecessors. At the same time, savings are often made on sheathing and insulation. Here, conventional tubular cable lugs and connectors usually have too much play - a considerable safety risk which has to date necessitated additional sleeves for compacted conductors.

Klaue has developed blue connection<sup>®</sup>, a special connection system for compacted multi-stranded conductors to VDE 0295 Class 2. Its copper tubular cable lugs and connectors are an exact fit for the new, thinner generation of conductors without any additional sleeves whatsoever. In combination with custom-made blue connection<sup>®</sup> crimping dies for Klaue's established tools, compacted conductors will in future also be crimped extremely simply, safely and efficiently.

### **Conventional, uncompacted multi-stranded conductor**

- Large cable diameters dictated by conductor construction
- Round single wires

### **Compacted multi-stranded conductors to VDE 0295 Class 2**

- Narrower cable diameter with the same conductor cross-section thanks to compacted single wires

### **Compacted conductors with space-saving single wires**



**Comparison between conventional cables and the new cable generation with up to 15% narrower conductor diameter**

# Only blue fits exactly!



Cable lug



Crimping die



Tool

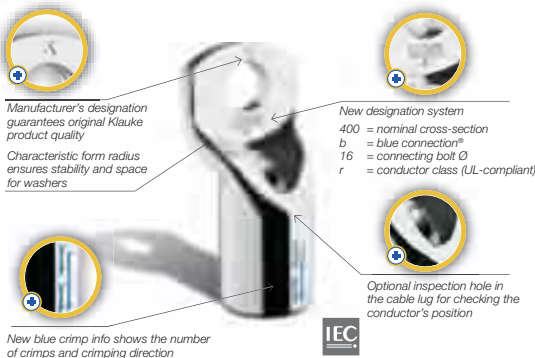
Cable lug with blue crimp info + blue crimping die + blue crimping tool = blue connection®

## Simply assign and crimp.

- ▶ Perfect fit on compacted conductors to VDE 0295 Class 2.
- ▶ Simple assignment of crimping tool/crimping die through colour-coding system.
- ▶ Existing tools with replaceable crimping dies can continue to be used with blue connection® products.

### Benefits:

- ▶ Crimping of compacted conductors without additional sleeves.
- ▶ No investment in new tools, only the crimping dies are replaced.



## New designation – Safely connected.

- ▶ Designated by manufacturer's designation, nominal cross-section and hole dimension.
- ▶ Crimping direction and number of crimps.
- ▶ Compact design with form radius.
- ▶ Tested to IEC 61238, part 1.

### Benefits:

- ▶ All information available at a glance.
- ▶ Bad crimps are avoided.
- ▶ Highly-stable and vibration-proof.

## Efficient: High productivity, low costs

- ▶ New crimp geometries reduce the number of crimps.
- ▶ The processing of sleeves for compacted conductors is eliminated.
- ▶ Up to 35% less material used thanks to the compact design.
- ▶ Smaller packing units.

### Benefits:

- ▶ Less time and lower cost expenditure when using the new cable lug system.
- ▶ Processing of sleeves for compacted conductors is eliminated.
- ▶ Lower material costs.
- ▶ Reducing storage costs through reduced material usage.





## Tubular cable lugs, blue connection®, Cu



- ▶ For compacted multi-stranded conductors to VDE 0295 Class 2
- ▶ Accurate assignment of crimping tool/crimping die through colour-coding system
- ▶ Less crimpings due to max. crimping width
- ▶ Reduced costs due to compact dimensions

### Characteristics

- Total cross-section: 6 - 400 mm²
- Rigid design thanks to special shaped radius
- Processing takes place without the use of additional sleeves
- Annealed material optimises material and crimping properties
- Flat contact surface and precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated

### Order info

- Also available with inspection hole, part number appendix "ms"
- 45° angle version also available, part number appendix "45"
- 90° angle version also available, part number appendix "90"
- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section mm² | Size of bolt dia. | Part No. | Dimension mm |       |       |       |       |       |       |       | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------|-------------------|----------|--------------|-------|-------|-------|-------|-------|-------|-------|-----------------------|------------------|
|                           |                   |          | d1           | a     | b     | d2    | d4    | c1    | c2    | l     |                       |                  |
| 6                         | M5                | 6B5      | 3.20         | 9.0   | 10.50 | 5.30  | 5.00  | 5.00  | 6.50  | 20.50 | 0.24                  | 50               |
|                           | M6                | 6B6      | 3.20         | 9.0   | 11.00 | 6.40  | 5.00  | 6.00  | 8.00  | 22.00 | 0.26                  | 50*              |
|                           | M8                | 6B8      | 3.20         | 9.0   | 12.50 | 8.40  | 5.00  | 8.00  | 10.00 | 24.00 | 0.29                  | 50*              |
|                           | M10               | 6B10     | 3.20         | 9.00  | 14.00 | 10.50 | 5.00  | 10.00 | 11.50 | 25.50 | 0.30                  | 50               |
| 10                        | M5                | 10B5     | 4.20         | 9.00  | 11.50 | 5.30  | 6.20  | 5.00  | 6.50  | 21.00 | 0.35                  | 50               |
|                           | M6                | 10B6     | 4.20         | 9.00  | 12.00 | 6.40  | 6.20  | 6.00  | 8.00  | 22.50 | 0.39                  | 50*              |
|                           | M8                | 10B8     | 4.20         | 9.00  | 14.00 | 8.40  | 6.20  | 8.00  | 10.00 | 24.50 | 0.43                  | 50*              |
|                           | M10               | 10B10    | 4.20         | 9.00  | 15.00 | 10.50 | 6.20  | 10.00 | 11.50 | 26.00 | 0.44                  | 50               |
| 16                        | M6                | 16B6     | 5.50         | 10.0  | 13.50 | 6.40  | 7.70  | 6.00  | 8.00  | 25.00 | 0.61                  | 50*              |
|                           | M8                | 16B8     | 5.50         | 10.0  | 15.00 | 8.40  | 7.70  | 8.00  | 10.00 | 27.00 | 0.65                  | 50*              |
|                           | M10               | 16B10    | 5.50         | 10.00 | 16.50 | 10.50 | 7.70  | 10.00 | 11.50 | 28.00 | 0.69                  | 50               |
|                           | M12               | 16B12    | 5.50         | 10.00 | 18.50 | 13.00 | 7.70  | 12.00 | 13.00 | 29.50 | 0.72                  | 50               |
| 25                        | M6                | 25B6     | 6.60         | 10.0  | 15.00 | 6.40  | 9.00  | 6.00  | 8.00  | 25.50 | 0.81                  | 25               |
|                           | M8                | 25B8     | 6.60         | 10.0  | 16.00 | 8.40  | 9.00  | 8.00  | 10.00 | 27.50 | 0.88                  | 50*              |
|                           | M10               | 25B10    | 6.60         | 10.0  | 18.00 | 10.50 | 9.00  | 10.00 | 11.50 | 29.00 | 0.93                  | 50*              |
|                           | M12               | 25B12    | 6.60         | 10.0  | 19.50 | 13.00 | 9.00  | 12.00 | 13.00 | 30.50 | 0.97                  | 25               |
| 35                        | M8                | 35B8     | 7.70         | 11.0  | 18.00 | 8.40  | 10.60 | 8.00  | 10.00 | 29.50 | 1.34                  | 50*              |
|                           | M10               | 35B10    | 7.70         | 11.0  | 19.50 | 10.50 | 10.60 | 10.00 | 11.50 | 31.00 | 1.42                  | 50*              |
|                           | M12               | 35B12    | 7.70         | 11.0  | 21.00 | 13.00 | 10.60 | 12.00 | 13.00 | 32.50 | 1.48                  | 25               |
| 50                        | M8                | 50B8     | 9.20         | 11.0  | 19.00 | 8.40  | 12.40 | 8.00  | 10.00 | 31.00 | 1.87                  | 25*              |
|                           | M10               | 50B10    | 9.20         | 11.0  | 21.00 | 10.50 | 12.40 | 10.00 | 11.50 | 32.50 | 1.95                  | 25*              |
|                           | M12               | 50B12    | 9.20         | 11.0  | 23.00 | 13.00 | 12.40 | 12.00 | 13.00 | 34.00 | 2.05                  | 25               |
| 70                        | M8                | 70B8     | 11.00        | 21.0  | 22.00 | 8.40  | 14.60 | 8.00  | 10.00 | 41.50 | 3.17                  | 25               |
|                           | M10               | 70B10    | 11.00        | 21.0  | 24.00 | 10.50 | 14.60 | 10.00 | 11.50 | 43.00 | 3.33                  | 25*              |
|                           | M12               | 70B12    | 11.00        | 21.0  | 25.00 | 13.00 | 14.60 | 12.00 | 13.00 | 44.50 | 3.46                  | 25*              |
| 95                        | M16               | 70B16    | 11.00        | 21.0  | 28.00 | 17.00 | 14.60 | 15.00 | 17.00 | 48.50 | 3.73                  | 10               |
|                           | M10               | 95B10    | 13.00        | 21.0  | 26.00 | 10.50 | 17.00 | 10.00 | 11.50 | 44.50 | 4.55                  | 25*              |
|                           | M12               | 95B12    | 13.00        | 21.0  | 28.00 | 13.00 | 17.00 | 12.00 | 13.00 | 46.00 | 4.75                  | 25*              |
|                           | M16               | 95B16    | 13.00        | 21.0  | 30.00 | 17.00 | 17.00 | 15.00 | 17.00 | 50.00 | 5.01                  | 10               |

**Tubular cable lugs, blue connection®, Cu**

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No.      | Dimension mm |      |       |       |       |       |       |       | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|---------------|--------------|------|-------|-------|-------|-------|-------|-------|-----------------------|------------------|
|                                       |                   |               | d1           | a    | b     | d2    | d4    | c1    | c2    | l     |                       |                  |
| 120                                   | M10               | <b>120B10</b> | 14.50        | 22.0 | 28.00 | 10.50 | 19.00 | 10.00 | 11.50 | 47.00 | 6.02                  | 25*              |
|                                       | M12               | <b>120B12</b> | 14.50        | 22.0 | 29.50 | 13.00 | 19.00 | 12.00 | 13.00 | 48.50 | 6.26                  | 25*              |
|                                       | M16               | <b>120B16</b> | 14.50        | 22.0 | 32.00 | 17.00 | 19.00 | 15.00 | 17.00 | 52.50 | 6.73                  | 10               |
| 150                                   | M10               | <b>150B10</b> | 16.20        | 22.0 | 30.00 | 10.50 | 21.00 | 10.00 | 11.50 | 48.50 | 7.41                  | 10               |
|                                       | M12               | <b>150B12</b> | 16.20        | 22.0 | 32.00 | 13.00 | 21.00 | 12.00 | 13.00 | 50.00 | 7.71                  | 10               |
|                                       | M16               | <b>150B16</b> | 16.20        | 22.0 | 34.00 | 17.00 | 21.00 | 15.00 | 17.00 | 54.00 | 8.25                  | 10               |
|                                       | M20               | <b>150B20</b> | 16.20        | 22.0 | 36.50 | 21.00 | 21.00 | 18.50 | 21.00 | 58.00 | 8.84                  | 10               |
| 185                                   | M10               | <b>185B10</b> | 18.00        | 24.0 | 33.00 | 10.50 | 23.00 | 10.00 | 11.50 | 52.00 | 9.21                  | 10               |
|                                       | M12               | <b>185B12</b> | 18.00        | 24.0 | 33.00 | 13.00 | 23.00 | 12.00 | 13.00 | 53.50 | 9.43                  | 10               |
|                                       | M16               | <b>185B16</b> | 18.00        | 24.0 | 36.00 | 17.00 | 23.00 | 15.00 | 17.00 | 57.70 | 10.14                 | 10               |
|                                       | M20               | <b>185B20</b> | 18.00        | 24.0 | 38.50 | 21.00 | 23.00 | 18.50 | 21.00 | 61.50 | 10.90                 | 10               |
| 240                                   | M12               | <b>240B12</b> | 20.60        | 24.0 | 38.00 | 13.00 | 26.00 | 12.00 | 13.00 | 56.00 | 12.46                 | 10               |
|                                       | M16               | <b>240B16</b> | 20.60        | 24.0 | 38.00 | 17.00 | 26.00 | 15.00 | 17.00 | 60.00 | 13.24                 | 10               |
|                                       | M20               | <b>240B20</b> | 20.60        | 24.0 | 41.00 | 21.00 | 26.00 | 18.50 | 21.00 | 64.00 | 14.14                 | 10               |
|                                       | M12               | <b>300B12</b> | 23.10        | 33.0 | 41.00 | 13.00 | 28.00 | 12.00 | 13.00 | 67.00 | 14.39                 | 5                |
| 300                                   | M16               | <b>300B16</b> | 23.10        | 33.0 | 41.00 | 17.00 | 28.00 | 15.00 | 17.00 | 71.00 | 15.27                 | 5                |
|                                       | M20               | <b>300B20</b> | 23.10        | 33.0 | 41.00 | 21.00 | 28.00 | 18.50 | 21.00 | 75.00 | 16.2                  | 5                |
| 400                                   | M16               | <b>400B16</b> | 26.10        | 34.0 | 47.00 | 17.00 | 32.00 | 15.00 | 17.00 | 74.50 | 22.16                 | 5                |
|                                       | M20               | <b>400B20</b> | 26.10        | 34.0 | 47.00 | 21.00 | 32.00 | 18.50 | 21.00 | 78.50 | 23.36                 | 5                |

▶ 10-300 mm² IEC tested

▶ \* = Also available in small handy packs

 ▶ **Tools: see chart page 29**


## Butt connectors, blue connection®, Cu



- ▶ For compacted multi-stranded conductors to VDE 0295 Class 2
- ▶ Accurate assignment of crimping tool/crimping die through colour-coding system
- ▶ Less crimpings due to max. crimping width
- ▶ Reduced costs due to compact dimensions

### Characteristics

- Total cross-section: 6 - 400 mm²
- Processing takes place without the use of additional sleeves
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated

### Order info

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section<br>mm² | Part No.    | Dimension mm |       |       | Weight/<br>100 pcs. ~ kg | Packing unit/pcs |
|------------------------------|-------------|--------------|-------|-------|--------------------------|------------------|
|                              |             | d1           | d4    | l     |                          |                  |
| 6                            | <b>6B</b>   | 3.20         | 5.00  | 25.00 | 0.255                    | 50*              |
| 10                           | <b>10B</b>  | 4.20         | 6.20  | 25.00 | 0.360                    | 50*              |
| 16                           | <b>16B</b>  | 5.50         | 7.70  | 27.00 | 0.543                    | 50*              |
| 25                           | <b>25B</b>  | 6.60         | 9.00  | 27.00 | 0.699                    | 50*              |
| 35                           | <b>35B</b>  | 7.70         | 10.60 | 28.00 | 1.026                    | 50*              |
| 50                           | <b>50B</b>  | 9.20         | 12.40 | 28.00 | 1.334                    | 25*              |
| 70                           | <b>70B</b>  | 11.00        | 14.60 | 48.00 | 3.065                    | 25*              |
| 95                           | <b>95B</b>  | 13.00        | 17.00 | 48.00 | 3.987                    | 25*              |
| 120                          | <b>120B</b> | 14.50        | 19.00 | 50.00 | 5.157                    | 25*              |
| 150                          | <b>150B</b> | 16.20        | 21.00 | 52.00 | 6.379                    | 10               |
| 185                          | <b>185B</b> | 18.00        | 23.00 | 56.00 | 7.889                    | 10               |
| 240                          | <b>240B</b> | 20.60        | 26.00 | 58.00 | 10.000                   | 10               |
| 300                          | <b>300B</b> | 23.10        | 28.00 | 76.00 | 13.079                   | 5                |
| 400                          | <b>400B</b> | 26.10        | 32.00 | 78.00 | 18.453                   | 5                |

▶ 10-300 mm² IEC tested

▶ \* = Also available in small handy packs

▶ Tools: see chart page 29

**blue connection**

**■ Tool application chart**
**Tubular cable lugs and butt connectors  
blue connection®**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| <b>6-50</b>                                                         | K05BC          |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ⬡             | 246            |
| <b>6-150</b>                                                        | K354           |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ⬡             | 260            |
|                                                                     | EK354          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 314            |
|                                                                     | EK354L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 316            |
| <b>6-240</b>                                                        | HK60UNV        | +UA5                      |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 354            |
|                                                                     | EK505L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 318            |
|                                                                     | EKM60UNVL      | +UA5                      |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 356            |
|                                                                     | EK60UNVL       | +UA5                      |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 357            |
| <b>6-300</b>                                                        | K22            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ⬡             | 264            |
|                                                                     | HK6022         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 288            |
|                                                                     | HK60UNV        | +UA22                     |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 354            |
|                                                                     | EK6022L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 324            |
|                                                                     | EKM6022L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 322            |
|                                                                     | EKM60UNVL      |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 356            |
|                                                                     | EK60UNVL       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 357            |
|                                                                     | THK22          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ⬡             | 364            |
|                                                                     | PK22           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 364            |
|                                                                     | PK60UNV        | +UA22                     |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 355            |
| <b>10-120</b>                                                       | K06BC          |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ⬡             | 249            |
| <b>16-400</b>                                                       | HK12030        |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 292            |
|                                                                     | HK12042        |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 294            |
|                                                                     | HK120U         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 296            |
|                                                                     | EK12030L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 330            |
|                                                                     | EK12042L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 332            |
|                                                                     | EK120UNVL      |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 358            |
|                                                                     | EK120UL        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 334            |
|                                                                     | HK122EL380     |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ⬡             | 390            |
|                                                                     | PK12042        |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 368            |
| <b>25-150</b>                                                       | PK120U         |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 370            |
|                                                                     | K09BC          |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ⬡             | 250            |

## Safe connections to Klauke standards.

### Copper tubular cable lugs and connectors for all applications.

Safe electrical connections are crucial. Power outages caused by faulty cable connections can cause severe damage. The power supply is interrupted. Production comes to a stand-still. Traffic is disrupted.

Tubular cable lugs and connectors from Klauke meet the highest quality requirements and satisfy international standards. Traditional applications are power supply, transportation, trade and industry, as well as building installation and railway technology.

We also develop and produce tailor made solutions.



- Extensive product range for low and medium-voltage applications.
- Distinct chamfer for easy entry of the conductor, burr-free edges.
- Consistent precision, high safety and rating properties thanks to high-quality pure electrolytic copper.
- Klauke coding system with manufacturer's identification, nominal cross-section and hole size.



*Klauke tubular cable lugs are suitable for practically every application that uses copper conductors.*



► **Make sure, when using Klauke connecting materials, that you always crimp towards the cable.**



## ■ Connections with system *for every application.*

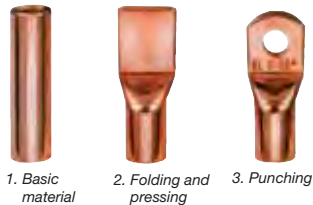


- ▶ Products to Klauke standards in various designs and shapes.
- ▶ To international standards such as IEC, UL, DNV and German Lloyd.
- ▶ Solutions for cables with compacted round conductors, cables with sector-shaped conductors and to suit individual requirements.
- ▶ Plus all corresponding manual and hydraulic crimping tools.

### Benefits:

- ▶ The right products for every installation scenario.
- ▶ **Highest flexibility for connecting cables.**
- ▶ Standards-compliance permits international application.
- ▶ **A single source for everything** – from cable lugs to tools.
- ▶ Guarantees the correct tools for professional electrical installation.

▶ *More from  
Page 218.*



1. Basic material

2. Folding and pressing

3. Punching



4. Annealing

5. Tinned end product

## ■ *Pure material, special processing.*

- ▶ Klauke tubular cable lugs are made from quality E-Cu tubes. All suppliers are certified.
- ▶ Defined, unique material properties by annealing the cable lugs.

### Benefits:

- ▶ Optimised conductivity, enhanced safety and high cable lug rating thanks to high quality material.
- ▶ The **annealing of cable lugs during production** sets Klauke products apart and guarantees **outstanding installation properties**, with **minimised crimp force and less tool wear**.

## ■ *Hold even under strong and severe vibrations.*

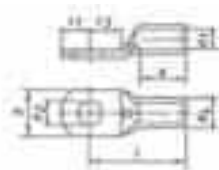
- ▶ Consistent material thickness, precise diameters and an accurate fit mean optimised processing and ultimate safety.
- ▶ Tested to DIN EN 61373 Class 1B "**Railway applications**".

### Benefits:

- ▶ With professional installation of the correct types, optimised stability even with mechanically stressed or severely vibrating connections.
- ▶ Less repair and maintenance.
- ▶ Safe connections even under high load, e.g. in public transport services.



## Tubular cable lugs, Cu, standard type



- ▶ Cable lug for fine stranded conductors to VDE 0295 Class 5
- ▶ With inspection hole for monitoring the inserted cable

**Characteristics**

- Total cross-section: 0.75 - 6 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Flat contact surface and precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

**Order info**

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

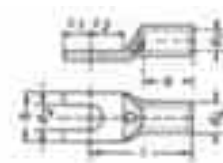
| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Dimension mm |   |      |     |     |      |     |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------|--------------|---|------|-----|-----|------|-----|----|-----------------------|------------------|
|                                       |                   |          | d1           | a | b    | d2  | d4  | c1   | c2  | l  |                       |                  |
| 0.75                                  | M3                | 91R3     | 1.3          | 6 | 6.0  | 3.2 | 2.8 | 3.25 | 4.0 | 12 | 0.060                 | 100*             |
|                                       | M4                | 91R4     | 1.3          | 6 | 6.5  | 4.3 | 2.8 | 4.00 | 5.0 | 13 | 0.060                 | 100              |
|                                       | M5                | 91R5     | 1.3          | 6 | 7.5  | 5.3 | 2.8 | 4.75 | 5.5 | 14 | 0.060                 | 100              |
| 1.5                                   | M3                | 92R3     | 1.8          | 6 | 6.5  | 3.2 | 3.3 | 3.25 | 4.0 | 12 | 0.080                 | 100              |
|                                       | M4                | 92R4     | 1.8          | 6 | 6.5  | 4.3 | 3.3 | 4.00 | 5.0 | 13 | 0.080                 | 100              |
|                                       | M5                | 92R5     | 1.8          | 6 | 7.5  | 5.3 | 3.3 | 4.75 | 5.5 | 14 | 0.080                 | 100*             |
|                                       | M6                | 92R6     | 1.8          | 6 | 9.0  | 6.5 | 3.3 | 6.50 | 6.5 | 16 | 0.090                 | 100              |
| 2.5                                   | M3                | 93R3     | 2.3          | 6 | 7.5  | 3.2 | 4.2 | 3.25 | 4.0 | 12 | 0.120                 | 100              |
|                                       | M4                | 93R4     | 2.3          | 6 | 7.5  | 4.3 | 4.2 | 4.00 | 5.0 | 13 | 0.120                 | 100              |
|                                       | M5                | 93R5     | 2.3          | 6 | 8.5  | 5.3 | 4.2 | 4.75 | 5.5 | 14 | 0.130                 | 100*             |
|                                       | M6                | 93R6     | 2.3          | 6 | 9.5  | 6.5 | 4.2 | 6.50 | 6.5 | 16 | 0.150                 | 100              |
|                                       | M8                | 93R8     | 2.3          | 6 | 13.0 | 8.5 | 4.2 | 7.75 | 9.5 | 20 | 0.180                 | 100              |
| 4                                     | M4                | 94R4     | 3.0          | 8 | 8.5  | 4.3 | 5.0 | 4.75 | 5.5 | 18 | 0.210                 | 100              |
|                                       | M5                | 94R5     | 3.0          | 8 | 9.0  | 5.3 | 5.0 | 4.75 | 6.0 | 18 | 0.213                 | 100*             |
|                                       | M6                | 94R6     | 3.0          | 8 | 10.0 | 6.5 | 5.0 | 6.50 | 6.5 | 19 | 0.220                 | 100              |
|                                       | M8                | 94R8     | 3.0          | 8 | 13.0 | 8.5 | 5.0 | 8.50 | 9.5 | 22 | 0.280                 | 100              |
| 6                                     | M4                | 95R4     | 4.0          | 9 | 9.5  | 4.3 | 6.0 | 5.00 | 5.5 | 18 | 0.290                 | 100              |
|                                       | M5                | 95R5     | 4.0          | 9 | 9.5  | 5.3 | 6.0 | 6.00 | 6.0 | 19 | 0.300                 | 100              |
|                                       | M6                | 95R6     | 4.0          | 9 | 10.0 | 6.5 | 6.0 | 7.00 | 6.5 | 19 | 0.300                 | 100              |
|                                       | M8                | 95R8     | 4.0          | 9 | 14.0 | 8.5 | 6.0 | 8.50 | 9.5 | 22 | 0.320                 | 100              |

▶ \* = Also available in small handy packs

▶ Tools: see chart page 55

**Tubular cable lugs, Cu, fork type**

- ▶ For fine stranded conductors
- ▶ Fork-type version for simple and direct screw mounting
- ▶ With inspection hole for monitoring the inserted cable


**Characteristics**

- Total cross-section: 0.75 - 16 mm²
- Annealed material optimises material and crimping properties
- Flat contact surface and precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

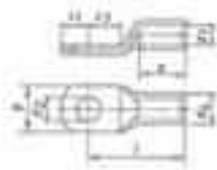
**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section mm² | Size of bolt dia. | Part No. | Dimension mm |    |      |     |     |       |      |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------|-------------------|----------|--------------|----|------|-----|-----|-------|------|----|-----------------------|------------------|
|                           |                   |          | d1           | a  | b    | d2  | d4  | c1    | c2   | l  |                       |                  |
| 0.75                      | M3                | 91C3     | 1.3          | 6  | 6.0  | 3.2 | 2.8 | 3.25  | 4.0  | 12 | 0.06                  | 100              |
|                           | M4                | 91C4     | 1.3          | 6  | 6.5  | 4.3 | 2.8 | 4.00  | 5.0  | 13 | 0.05                  | 100              |
|                           | M5                | 91C5     | 1.3          | 6  | 7.5  | 5.3 | 2.8 | 4.75  | 5.5  | 14 | 0.06                  | 100              |
| 1.5                       | M3                | 92C3     | 1.8          | 6  | 6.5  | 3.2 | 3.3 | 3.25  | 4.0  | 12 | 0.07                  | 100              |
|                           | M4                | 92C4     | 1.8          | 6  | 6.5  | 4.3 | 3.3 | 4.00  | 5.0  | 13 | 0.07                  | 100              |
|                           | M5                | 92C5     | 1.8          | 6  | 7.5  | 5.3 | 3.3 | 4.75  | 5.5  | 14 | 0.07                  | 100              |
|                           | M6                | 92C6     | 1.8          | 6  | 9.0  | 6.5 | 3.3 | 6.50  | 6.5  | 16 | 0.08                  | 100              |
| 2.5                       | M3                | 93C3     | 2.3          | 6  | 7.5  | 3.2 | 4.2 | 3.25  | 4.0  | 12 | 0.12                  | 100              |
|                           | M4                | 93C4     | 2.3          | 6  | 7.5  | 4.3 | 4.2 | 4.00  | 5.0  | 13 | 0.11                  | 100              |
|                           | M5                | 93C5     | 2.3          | 6  | 8.5  | 5.3 | 4.2 | 4.75  | 5.5  | 14 | 0.12                  | 100              |
|                           | M6                | 93C6     | 2.3          | 6  | 9.5  | 6.5 | 4.2 | 6.50  | 6.5  | 16 | 0.10                  | 100              |
| 4                         | M4                | 94C4     | 3.0          | 8  | 8.5  | 4.3 | 5.0 | 4.75  | 5.5  | 17 | 0.19                  | 100              |
|                           | M5                | 94C5     | 3.0          | 8  | 9.0  | 5.3 | 5.0 | 4.75  | 6.0  | 17 | 0.19                  | 100              |
|                           | M6                | 94C6     | 3.0          | 8  | 10.0 | 6.5 | 5.0 | 6.50  | 6.5  | 19 | 0.21                  | 100              |
|                           | M8                | 94C8     | 3.0          | 8  | 13.0 | 8.5 | 5.0 | 8.50  | 9.5  | 22 | 0.24                  | 100              |
| 6                         | M4                | 95C4     | 4.0          | 9  | 9.5  | 4.3 | 6.0 | 5.00  | 5.5  | 18 | 0.27                  | 100              |
|                           | M5                | 95C5     | 4.0          | 9  | 9.5  | 5.3 | 6.0 | 6.00  | 6.0  | 19 | 0.32                  | 100              |
|                           | M6                | 95C6     | 4.0          | 9  | 10.0 | 6.5 | 6.0 | 7.00  | 6.5  | 19 | 0.27                  | 100              |
|                           | M8                | 95C8     | 4.0          | 9  | 14.0 | 8.5 | 6.0 | 8.50  | 9.0  | 22 | 0.31                  | 100              |
| 10                        | M5                | 96C5     | 4.5          | 10 | 12.0 | 5.5 | 7.0 | 6.50  | 7.5  | 22 | 0.45                  | 100              |
|                           | M6                | 96C6     | 4.5          | 10 | 12.0 | 6.5 | 7.0 | 6.50  | 7.5  | 22 | 0.41                  | 100              |
|                           | M8                | 96C8     | 4.5          | 10 | 15.0 | 8.5 | 7.0 | 10.00 | 10.0 | 25 | 0.52                  | 100              |
| 16                        | M5                | 97C5     | 5.5          | 13 | 12.0 | 5.5 | 8.5 | 5.50  | 6.5  | 26 | 0.81                  | 100              |
|                           | M6                | 97C6     | 5.5          | 13 | 12.0 | 6.5 | 8.5 | 6.25  | 7.5  | 27 | 0.81                  | 100              |
|                           | M8                | 97C8     | 5.5          | 13 | 15.0 | 8.5 | 8.5 | 8.50  | 9.5  | 29 | 0.90                  | 100              |

▶ Tools: see chart page 55

## Tubular cable lugs, Cu, standard type



- ▶ Ideal cable lug for panel building
- ▶ For multi-stranded round shaped conductors e.g. VDE 0295 Class 2
- ▶ For pre-rounded multi-stranded sector shaped conductors

## Characteristics

- Total cross-section: 6 - 400 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Flat contact surface and precise end machining for easy cable insertion
- Item identification on cable lug
- Acc. to DIN EN 61373 class 1 B approved to vibration

## Material

- Copper acc. to EN 13600

## Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

## Order info

- Also available with inspection hole, part number appendix "ms"
- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Dimension mm |    |    |      |      |       |      |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------|--------------|----|----|------|------|-------|------|----|-----------------------|------------------|
|                                       |                   |          | d1           | a  | b  | d2   | d4   | c1    | c2   | l  |                       |                  |
| 6                                     | M5                | 1R5      | 3.5          | 9  | 10 | 5.5  | 6.5  | 6.50  | 7.5  | 21 | 0.50                  | 100              |
|                                       | M6                | 1R6      | 3.5          | 9  | 12 | 6.5  | 6.5  | 6.50  | 7.5  | 21 | 0.47                  | 100*             |
|                                       | M8                | 1R8      | 3.5          | 9  | 15 | 8.5  | 6.5  | 10.00 | 10.0 | 23 | 0.54                  | 100              |
|                                       | M10               | 1R10     | 3.5          | 9  | 17 | 10.5 | 6.5  | 12.00 | 12.0 | 25 | 0.59                  | 100              |
|                                       | M12               | 1R12     | 3.5          | 9  | 19 | 13.0 | 6.5  | 13.00 | 13.0 | 28 | 0.63                  | 100              |
| 10                                    | M5                | 2R5      | 4.5          | 10 | 12 | 5.5  | 7.0  | 6.50  | 7.5  | 22 | 0.50                  | 100              |
|                                       | M6                | 2R6      | 4.5          | 10 | 12 | 6.5  | 7.0  | 6.50  | 7.5  | 22 | 0.49                  | 100              |
|                                       | M8                | 2R8      | 4.5          | 10 | 15 | 8.5  | 7.0  | 10.00 | 10.0 | 25 | 0.58                  | 100*             |
|                                       | M10               | 2R10     | 4.5          | 10 | 17 | 10.5 | 7.0  | 12.00 | 12.0 | 27 | 0.62                  | 100              |
|                                       | M12               | 2R12     | 4.5          | 10 | 19 | 13.0 | 7.0  | 13.00 | 13.0 | 29 | 0.64                  | 100              |
| 16                                    | M5                | 3R5      | 5.5          | 13 | 12 | 5.5  | 8.5  | 5.50  | 6.5  | 26 | 0.84                  | 100              |
|                                       | M6                | 3R6      | 5.5          | 13 | 12 | 6.5  | 8.5  | 6.25  | 7.5  | 27 | 0.86                  | 100              |
|                                       | M8                | 3R8      | 5.5          | 13 | 15 | 8.5  | 8.5  | 8.50  | 9.5  | 29 | 0.93                  | 100*             |
|                                       | M10               | 3R10     | 5.5          | 13 | 17 | 10.5 | 8.5  | 10.50 | 11.5 | 31 | 0.99                  | 100              |
|                                       | M12               | 3R12     | 5.5          | 13 | 19 | 13.0 | 8.5  | 12.00 | 13.0 | 33 | 1.02                  | 100              |
| 25                                    | M5                | 4R5      | 7.0          | 15 | 14 | 5.5  | 10.0 | 7.50  | 7.5  | 30 | 1.22                  | 25               |
|                                       | M6                | 4R6      | 7.0          | 15 | 14 | 6.5  | 10.0 | 7.50  | 7.5  | 30 | 1.20                  | 100              |
|                                       | M8                | 4R8      | 7.0          | 15 | 16 | 8.5  | 10.0 | 10.00 | 10.0 | 32 | 1.31                  | 100*             |
|                                       | M10               | 4R10     | 7.0          | 15 | 18 | 10.5 | 10.0 | 12.00 | 12.0 | 34 | 1.57                  | 100              |
|                                       | M12               | 4R12     | 7.0          | 15 | 19 | 13.0 | 10.0 | 13.00 | 13.0 | 35 | 1.39                  | 25               |
| 35                                    | M14               | 4R14     | 7.0          | 15 | 21 | 15.0 | 10.0 | 14.50 | 14.5 | 38 | 1.49                  | 25               |
|                                       | M6                | 5R6      | 8.5          | 17 | 17 | 6.5  | 12.0 | 7.50  | 7.5  | 32 | 1.85                  | 100              |
|                                       | M8                | 5R8      | 8.5          | 17 | 17 | 8.5  | 12.0 | 10.00 | 10.0 | 34 | 2.00                  | 100*             |
|                                       | M10               | 5R10     | 8.5          | 17 | 19 | 10.5 | 12.0 | 12.00 | 12.0 | 37 | 2.13                  | 100              |
|                                       | M12               | 5R12     | 8.5          | 17 | 21 | 13.0 | 12.0 | 13.00 | 13.0 | 38 | 2.12                  | 100              |
| 50                                    | M14               | 5R14     | 8.5          | 17 | 21 | 15.0 | 12.0 | 14.50 | 14.5 | 40 | 2.18                  | 25               |
|                                       | M16               | 5R16     | 8.5          | 17 | 26 | 17.0 | 12.0 | 16.00 | 16.0 | 42 | 2.24                  | 25               |
|                                       | M6                | 6R6      | 10.0         | 19 | 20 | 6.5  | 14.0 | 10.00 | 10.0 | 37 | 3.00                  | 25               |
|                                       | M8                | 6R8      | 10.0         | 19 | 20 | 8.5  | 14.0 | 10.00 | 10.0 | 37 | 2.93                  | 50               |
|                                       | M10               | 6R10     | 10.0         | 19 | 20 | 10.5 | 14.0 | 12.00 | 12.0 | 39 | 3.08                  | 50*              |
|                                       | M12               | 6R12     | 10.0         | 19 | 23 | 13.0 | 14.0 | 13.00 | 13.0 | 43 | 3.23                  | 50               |

**Tubular cable lugs, Cu, standard type**

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No.     | Dimension mm |    |    |      |      |       |      |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|--------------|--------------|----|----|------|------|-------|------|----|-----------------------|------------------|
|                                       |                   |              | d1           | a  | b  | d2   | d4   | c1    | c2   | l  |                       |                  |
| 50                                    | M14               | <b>6R14</b>  | 10.0         | 19 | 23 | 15.0 | 14.0 | 14.50 | 14.5 | 45 | 3.32                  | 25               |
|                                       | M16               | <b>6R16</b>  | 10.0         | 19 | 28 | 17.0 | 14.0 | 16.00 | 16.0 | 46 | 3.38                  | 25               |
|                                       | M20               | <b>6R20</b>  | 10.0         | 19 | 30 | 21.0 | 14.0 | 19.00 | 19.0 | 48 | 3.46                  | 25               |
| 70                                    | M6                | <b>7R6</b>   | 12.0         | 21 | 23 | 6.5  | 16.5 | 10.00 | 10.0 | 43 | 4.49                  | 25               |
|                                       | M8                | <b>7R8</b>   | 12.0         | 21 | 23 | 8.5  | 16.5 | 10.00 | 10.0 | 43 | 4.38                  | 50               |
|                                       | M10               | <b>7R10</b>  | 12.0         | 21 | 23 | 10.5 | 16.5 | 12.00 | 12.0 | 44 | 4.54                  | 50*              |
|                                       | M12               | <b>7R12</b>  | 12.0         | 21 | 23 | 13.0 | 16.5 | 13.00 | 13.0 | 46 | 4.63                  | 50               |
|                                       | M14               | <b>7R14</b>  | 12.0         | 21 | 23 | 15.0 | 16.5 | 14.50 | 14.5 | 48 | 4.76                  | 25               |
|                                       | M16               | <b>7R16</b>  | 12.0         | 21 | 28 | 17.0 | 16.5 | 16.00 | 16.0 | 50 | 4.24                  | 25               |
|                                       | M20               | <b>7R20</b>  | 12.0         | 21 | 30 | 21.0 | 16.5 | 19.00 | 19.0 | 53 | 5.09                  | 25               |
|                                       | M8                | <b>8R8</b>   | 13.5         | 25 | 26 | 8.5  | 18.0 | 12.00 | 12.0 | 48 | 5.44                  | 25               |
| 95                                    | M10               | <b>8R10</b>  | 13.5         | 25 | 26 | 10.5 | 18.0 | 12.00 | 12.0 | 48 | 5.40                  | 50*              |
|                                       | M12               | <b>8R12</b>  | 13.5         | 25 | 26 | 13.0 | 18.0 | 13.00 | 13.0 | 49 | 5.56                  | 50               |
|                                       | M14               | <b>8R14</b>  | 13.5         | 25 | 26 | 15.0 | 18.0 | 14.50 | 14.5 | 51 | 5.62                  | 25               |
|                                       | M16               | <b>8R16</b>  | 13.5         | 25 | 28 | 17.0 | 18.0 | 16.00 | 16.0 | 54 | 5.82                  | 50               |
|                                       | M20               | <b>8R20</b>  | 13.5         | 25 | 36 | 21.0 | 18.0 | 22.00 | 22.0 | 60 | 6.71                  | 25               |
|                                       | M8                | <b>9R8</b>   | 15.0         | 26 | 28 | 8.5  | 19.5 | 14.00 | 14.0 | 51 | 6.72                  | 25               |
| 120                                   | M10               | <b>9R10</b>  | 15.0         | 26 | 28 | 10.5 | 19.5 | 14.00 | 14.0 | 51 | 6.57                  | 50               |
|                                       | M12               | <b>9R12</b>  | 15.0         | 26 | 28 | 13.0 | 19.5 | 14.00 | 14.0 | 51 | 6.38                  | 50*              |
|                                       | M14               | <b>9R14</b>  | 15.0         | 26 | 28 | 15.0 | 19.5 | 15.00 | 15.0 | 52 | 6.45                  | 25               |
|                                       | M16               | <b>9R16</b>  | 15.0         | 26 | 30 | 17.0 | 19.5 | 16.00 | 16.0 | 54 | 6.51                  | 50               |
|                                       | M20               | <b>9R20</b>  | 15.0         | 26 | 36 | 21.0 | 19.5 | 22.00 | 22.0 | 63 | 7.74                  | 25               |
|                                       | M8                | <b>10R8</b>  | 16.5         | 30 | 31 | 8.5  | 21.0 | 14.00 | 14.0 | 56 | 7.78                  | 10               |
| 150                                   | M10               | <b>10R10</b> | 16.5         | 30 | 31 | 10.5 | 21.0 | 14.00 | 14.0 | 56 | 7.62                  | 10               |
|                                       | M12               | <b>10R12</b> | 16.5         | 30 | 31 | 13.0 | 21.0 | 15.00 | 15.0 | 57 | 7.73                  | 25               |
|                                       | M14               | <b>10R14</b> | 16.5         | 30 | 31 | 15.0 | 21.0 | 15.00 | 15.0 | 57 | 7.64                  | 10               |
|                                       | M16               | <b>10R16</b> | 16.5         | 30 | 31 | 17.0 | 21.0 | 16.00 | 16.0 | 58 | 7.53                  | 10               |
|                                       | M20               | <b>10R20</b> | 16.5         | 30 | 36 | 21.0 | 21.0 | 22.00 | 22.0 | 66 | 8.80                  | 10               |
|                                       | M10               | <b>11R10</b> | 19.0         | 30 | 35 | 10.5 | 24.0 | 18.00 | 18.0 | 65 | 11.75                 | 10               |
| 185                                   | M12               | <b>11R12</b> | 19.0         | 30 | 35 | 13.0 | 24.0 | 18.00 | 18.0 | 65 | 11.82                 | 10               |
|                                       | M14               | <b>11R14</b> | 19.0         | 30 | 35 | 15.0 | 24.0 | 18.00 | 18.0 | 65 | 11.39                 | 10               |
|                                       | M16               | <b>11R16</b> | 19.0         | 30 | 35 | 17.0 | 24.0 | 18.00 | 18.0 | 65 | 11.24                 | 25               |
|                                       | M20               | <b>11R20</b> | 19.0         | 30 | 39 | 21.0 | 24.0 | 22.00 | 22.0 | 69 | 12.00                 | 10               |
| 240                                   | M10               | <b>12R10</b> | 21.0         | 35 | 39 | 10.5 | 26.0 | 21.50 | 19.0 | 72 | 14.72                 | 10               |
|                                       | M12               | <b>12R12</b> | 21.0         | 35 | 39 | 13.0 | 26.0 | 21.50 | 19.0 | 72 | 14.55                 | 10               |
|                                       | M14               | <b>12R14</b> | 21.0         | 35 | 39 | 15.0 | 26.0 | 21.50 | 19.0 | 72 | 14.24                 | 10               |
|                                       | M16               | <b>12R16</b> | 21.0         | 35 | 39 | 17.0 | 26.0 | 21.50 | 19.0 | 72 | 14.09                 | 25               |
|                                       | M20               | <b>12R20</b> | 21.0         | 35 | 39 | 21.0 | 26.0 | 21.50 | 19.0 | 72 | 13.60                 | 10               |
| 300                                   | M12               | <b>13R12</b> | 23.5         | 44 | 43 | 13.0 | 29.5 | 24.00 | 24.0 | 87 | 23.33                 | 5                |
|                                       | M14               | <b>13R14</b> | 23.5         | 44 | 43 | 15.0 | 29.5 | 24.00 | 24.0 | 87 | 23.14                 | 5                |
|                                       | M16               | <b>13R16</b> | 23.5         | 44 | 43 | 17.0 | 29.5 | 24.00 | 24.0 | 87 | 22.74                 | 5                |
|                                       | M20               | <b>13R20</b> | 23.5         | 44 | 43 | 21.0 | 29.5 | 24.00 | 24.0 | 87 | 22.19                 | 5                |
| 400                                   | M12               | <b>14R12</b> | 27.0         | 44 | 49 | 13.0 | 34.0 | 24.00 | 24.0 | 90 | 32.41                 | 5                |
|                                       | M14               | <b>14R14</b> | 27.0         | 44 | 49 | 15.0 | 34.0 | 24.00 | 24.0 | 90 | 32.24                 | 5                |
|                                       | M16               | <b>14R16</b> | 27.0         | 44 | 49 | 17.0 | 34.0 | 24.00 | 24.0 | 90 | 31.98                 | 5                |
|                                       | M20               | <b>14R20</b> | 27.0         | 44 | 49 | 21.0 | 34.0 | 24.00 | 24.0 | 90 | 31.41                 | 5                |

 ▶ 10-400 mm<sup>2</sup> IEC tested

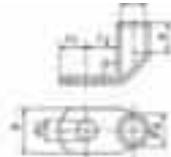
▶ \* = Also available in small handy packs

⚠ Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

▶ Tools: see chart page 55



## Angle tubular cable lugs, copper, 90° angled, standard type



- ▶ For multi-stranded round shaped conductors e.g. VDE 0295 Class 2
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ Flat contact surface by special angle punching technology

## Characteristics

- Total cross-section: 6 - 400 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

## Material

- Copper acc. to EN 13600

## Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

## Order info

- Also available with inspection hole, part number appendix "ms"

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Dimension mm |    |    |      |      |      |    | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|-------------------|----------|--------------|----|----|------|------|------|----|-----------------------|-------------------|
|                                       |                   |          | d1           | a  | b  | d2   | d4   | c1   | l3 |                       |                   |
| 6                                     | M5                | 41R5     | 3.5          | 9  | 10 | 5.5  | 6.5  | 7.5  | 9  | 0.59                  | 50                |
|                                       | M6                | 41R6     | 3.5          | 9  | 12 | 6.5  | 6.5  | 7.5  | 10 | 0.58                  | 50                |
|                                       | M8                | 41R8     | 3.5          | 9  | 14 | 8.5  | 6.5  | 10.0 | 13 | 0.61                  | 50                |
|                                       | M10               | 41R10    | 3.5          | 9  | 17 | 10.5 | 6.5  | 12.0 | 15 | 0.65                  | 50                |
|                                       | M12               | 41R12    | 3.5          | 9  | 19 | 13.0 | 6.5  | 13.0 | 17 | 0.62                  | 50                |
| 10                                    | M5                | 42R5     | 4.5          | 10 | 12 | 5.5  | 7.0  | 6.5  | 10 | 0.57                  | 50                |
|                                       | M6                | 42R6     | 4.5          | 10 | 12 | 6.5  | 7.0  | 6.5  | 10 | 0.57                  | 50                |
|                                       | M8                | 42R8     | 4.5          | 10 | 15 | 8.5  | 7.0  | 10.0 | 13 | 0.63                  | 50                |
|                                       | M10               | 42R10    | 4.5          | 10 | 17 | 10.5 | 7.0  | 12.0 | 15 | 0.66                  | 50                |
|                                       | M12               | 42R12    | 4.5          | 10 | 19 | 13.0 | 7.0  | 13.0 | 18 | 0.81                  | 50                |
| 16                                    | M5                | 43R5     | 5.5          | 13 | 12 | 5.5  | 8.5  | 7.5  | 10 | 1.01                  | 50                |
|                                       | M6                | 43R6     | 5.5          | 13 | 12 | 6.5  | 8.5  | 7.5  | 11 | 1.01                  | 50                |
|                                       | M8                | 43R8     | 5.5          | 13 | 15 | 8.5  | 8.5  | 10.0 | 13 | 1.08                  | 50                |
|                                       | M10               | 43R10    | 5.5          | 13 | 17 | 10.5 | 8.5  | 12.0 | 15 | 1.09                  | 50                |
|                                       | M12               | 43R12    | 5.5          | 13 | 19 | 13.0 | 8.5  | 13.0 | 18 | 1.15                  | 50                |
| 25                                    | M5                | 44R5     | 7.0          | 15 | 14 | 5.5  | 10.0 | 7.5  | 11 | 1.40                  | 25                |
|                                       | M6                | 44R6     | 7.0          | 15 | 14 | 6.5  | 10.0 | 7.5  | 11 | 1.32                  | 25                |
|                                       | M8                | 44R8     | 7.0          | 15 | 16 | 8.5  | 10.0 | 10.0 | 13 | 1.44                  | 25                |
|                                       | M10               | 44R10    | 7.0          | 15 | 18 | 10.5 | 10.0 | 12.0 | 15 | 1.49                  | 25                |
|                                       | M12               | 44R12    | 7.0          | 15 | 19 | 13.0 | 10.0 | 13.0 | 18 | 1.44                  | 25                |
| 35                                    | M14               | 44R14    | 7.0          | 15 | 21 | 15.0 | 10.0 | 14.5 | 20 | 1.55                  | 25                |
|                                       | M6                | 45R6     | 8.5          | 17 | 17 | 6.5  | 12.0 | 7.5  | 11 | 2.05                  | 25                |
|                                       | M8                | 45R8     | 8.5          | 17 | 17 | 8.5  | 12.0 | 10.0 | 13 | 2.20                  | 25                |
|                                       | M10               | 45R10    | 8.5          | 17 | 19 | 10.5 | 12.0 | 12.0 | 15 | 2.28                  | 25                |
|                                       | M12               | 45R12    | 8.5          | 17 | 21 | 13.0 | 12.0 | 13.0 | 18 | 2.38                  | 25                |
| 50                                    | M14               | 45R14    | 8.5          | 17 | 21 | 15.0 | 12.0 | 14.5 | 20 | 2.41                  | 25                |
|                                       | M16               | 45R16    | 8.5          | 17 | 26 | 17.0 | 12.0 | 16.0 | 22 | 2.40                  | 25                |
|                                       | M6                | 46R6     | 10.0         | 19 | 20 | 6.5  | 14.0 | 10.0 | 13 | 3.34                  | 25                |
|                                       | M8                | 46R8     | 10.0         | 19 | 20 | 8.5  | 14.0 | 10.0 | 13 | 3.28                  | 25                |
|                                       | M10               | 46R10    | 10.0         | 19 | 20 | 10.5 | 14.0 | 12.0 | 16 | 3.47                  | 25                |
|                                       | M12               | 46R12    | 10.0         | 19 | 23 | 13.0 | 14.0 | 13.0 | 18 | 3.42                  | 25                |
|                                       | M14               | 46R14    | 10.0         | 19 | 23 | 15.0 | 14.0 | 14.5 | 20 | 3.55                  | 25                |
|                                       | M16               | 46R16    | 10.0         | 19 | 28 | 17.0 | 14.0 | 16.0 | 22 | 3.58                  | 25                |
|                                       | M20               | 46R20    | 10.0         | 19 | 30 | 21.0 | 14.0 | 19.0 | 24 | 3.15                  | 25                |

**Angle tubular cable lugs, copper, 90° angled, standard type**

| Nominal cross section mm² | Size of bolt dia. | Part No.     | Dimension mm |    |    |      |      |      |    | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------|-------------------|--------------|--------------|----|----|------|------|------|----|-----------------------|-------------------|
|                           |                   |              | d1           | a  | b  | d2   | d4   | c1   | l3 |                       |                   |
| 70                        | M6                | <b>47R6</b>  | 12.0         | 21 | 23 | 6.5  | 16.5 | 10.0 | 13 | 4.90                  | 25                |
|                           | M8                | <b>47R8</b>  | 12.0         | 21 | 23 | 8.5  | 16.5 | 10.0 | 14 | 4.80                  | 25                |
|                           | M10               | <b>47R10</b> | 12.0         | 21 | 23 | 10.5 | 16.5 | 12.0 | 16 | 4.88                  | 25                |
|                           | M12               | <b>47R12</b> | 12.0         | 21 | 23 | 13.0 | 16.5 | 13.0 | 18 | 4.99                  | 25                |
|                           | M14               | <b>47R14</b> | 12.0         | 21 | 23 | 15.0 | 16.5 | 14.5 | 20 | 5.38                  | 25                |
|                           | M16               | <b>47R16</b> | 12.0         | 21 | 28 | 17.0 | 16.5 | 16.0 | 22 | 5.35                  | 25                |
| 95                        | M20               | <b>47R20</b> | 12.0         | 21 | 30 | 21.0 | 16.5 | 19.0 | 24 | 5.30                  | 25                |
|                           | M8                | <b>48R8</b>  | 13.5         | 25 | 26 | 8.5  | 18.0 | 12.0 | 14 | 5.89                  | 25                |
|                           | M10               | <b>48R10</b> | 13.5         | 25 | 26 | 10.5 | 18.0 | 12.0 | 17 | 5.88                  | 25                |
|                           | M12               | <b>48R12</b> | 13.5         | 25 | 26 | 13.0 | 18.0 | 13.0 | 18 | 5.93                  | 25                |
|                           | M14               | <b>48R14</b> | 13.5         | 25 | 26 | 15.0 | 18.0 | 14.5 | 20 | 6.03                  | 25                |
|                           | M16               | <b>48R16</b> | 13.5         | 25 | 28 | 17.0 | 18.0 | 16.0 | 22 | 6.17                  | 25                |
| 120                       | M20               | <b>48R20</b> | 13.5         | 25 | 36 | 21.0 | 18.0 | 22.0 | 24 | 6.42                  | 25                |
|                           | M8                | <b>49R8</b>  | 15.0         | 26 | 28 | 8.5  | 19.5 | 14.0 | 16 | 7.26                  | 10                |
|                           | M10               | <b>49R10</b> | 15.0         | 26 | 28 | 10.5 | 19.5 | 14.0 | 17 | 7.30                  | 10                |
|                           | M12               | <b>49R12</b> | 15.0         | 26 | 28 | 13.0 | 19.5 | 14.0 | 18 | 7.19                  | 10                |
|                           | M14               | <b>49R14</b> | 15.0         | 26 | 28 | 15.0 | 19.5 | 15.0 | 20 | 7.30                  | 10                |
|                           | M16               | <b>49R16</b> | 15.0         | 26 | 30 | 17.0 | 19.5 | 16.0 | 22 | 7.35                  | 10                |
| 150                       | M20               | <b>49R20</b> | 15.0         | 26 | 36 | 21.0 | 19.5 | 22.0 | 24 | 7.60                  | 10                |
|                           | M8                | <b>50R8</b>  | 16.5         | 30 | 31 | 8.5  | 21.0 | 14.0 | 16 | 8.41                  | 10                |
|                           | M10               | <b>50R10</b> | 16.5         | 30 | 31 | 10.5 | 21.0 | 14.0 | 17 | 8.27                  | 10                |
|                           | M12               | <b>50R12</b> | 16.5         | 30 | 31 | 13.0 | 21.0 | 15.0 | 18 | 8.34                  | 10                |
|                           | M14               | <b>50R14</b> | 16.5         | 30 | 31 | 15.0 | 21.0 | 15.0 | 20 | 8.52                  | 10                |
|                           | M16               | <b>50R16</b> | 16.5         | 30 | 31 | 17.0 | 21.0 | 16.0 | 22 | 8.62                  | 10                |
| 185                       | M20               | <b>50R20</b> | 16.5         | 30 | 36 | 21.0 | 21.0 | 22.0 | 24 | 9.10                  | 10                |
|                           | M10               | <b>51R10</b> | 19.0         | 30 | 35 | 10.5 | 24.0 | 18.0 | 22 | 12.17                 | 10                |
|                           | M12               | <b>51R12</b> | 19.0         | 30 | 35 | 13.0 | 24.0 | 18.0 | 22 | 11.97                 | 10                |
|                           | M14               | <b>51R14</b> | 19.0         | 30 | 35 | 15.0 | 24.0 | 18.0 | 22 | 11.77                 | 10                |
|                           | M16               | <b>51R16</b> | 19.0         | 30 | 35 | 17.0 | 24.0 | 18.0 | 22 | 11.53                 | 10                |
|                           | M20               | <b>51R20</b> | 19.0         | 30 | 39 | 21.0 | 24.0 | 22.0 | 24 | 12.00                 | 10                |
| 240                       | M10               | <b>52R10</b> | 21.0         | 35 | 39 | 10.5 | 26.0 | 21.5 | 22 | 15.60                 | 10                |
|                           | M12               | <b>52R12</b> | 21.0         | 35 | 39 | 13.0 | 26.0 | 21.5 | 22 | 15.60                 | 10                |
|                           | M14               | <b>52R14</b> | 21.0         | 35 | 39 | 15.0 | 26.0 | 21.5 | 22 | 15.41                 | 10                |
|                           | M16               | <b>52R16</b> | 21.0         | 35 | 39 | 17.0 | 26.0 | 21.5 | 22 | 15.18                 | 10                |
|                           | M20               | <b>52R20</b> | 21.0         | 35 | 39 | 21.0 | 26.0 | 21.5 | 24 | 14.80                 | 10                |
| 300                       | M12               | <b>53R12</b> | 23.5         | 44 | 43 | 13.0 | 29.5 | 24.0 | 24 | 23.60                 | 5                 |
|                           | M14               | <b>53R14</b> | 23.5         | 44 | 43 | 15.0 | 29.5 | 24.0 | 24 | 23.40                 | 5                 |
|                           | M16               | <b>53R16</b> | 23.5         | 44 | 43 | 17.0 | 29.5 | 24.0 | 24 | 20.99                 | 5                 |
|                           | M20               | <b>53R20</b> | 23.5         | 44 | 43 | 21.0 | 29.5 | 24.0 | 24 | 22.70                 | 5                 |
| 400                       | M12               | <b>54R12</b> | 27.0         | 44 | 49 | 13.0 | 34.0 | 24.0 | 24 | 32.53                 | 5                 |
|                           | M14               | <b>54R14</b> | 27.0         | 44 | 49 | 15.0 | 34.0 | 24.0 | 24 | 33.40                 | 5                 |
|                           | M16               | <b>54R16</b> | 27.0         | 44 | 49 | 17.0 | 34.0 | 24.0 | 24 | 32.60                 | 5                 |
|                           | M20               | <b>54R20</b> | 27.0         | 44 | 49 | 21.0 | 34.0 | 24.0 | 24 | 31.80                 | 5                 |

▶ 10-400 mm² IEC tested

⚠ Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

▶ Tools: see chart page 55

## Angle tubular cable lugs, copper, 45° angled, standard type



- For multi-stranded round shaped conductors e.g. VDE 0295 Class 2
- For pre-rounded multi-stranded sector shaped conductors
- Flat contact surface by special angle punching technology

**Characteristics**

- Total cross-section: 6 - 400 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

**Order info**

- Also available with inspection hole, part number appendix "ms"

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Dimension mm |    |    |      |      |      |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------|--------------|----|----|------|------|------|----|-----------------------|------------------|
|                                       |                   |          | d1           | a  | b  | d2   | d4   | c1   | l3 |                       |                  |
| 6                                     | M5                | 41R545   | 3.5          | 9  | 10 | 5.5  | 6.5  | 7.5  | 9  | 0.60                  | 50               |
|                                       | M6                | 41R645   | 3.5          | 9  | 12 | 6.5  | 6.5  | 7.5  | 10 | 0.58                  | 50               |
|                                       | M8                | 41R845   | 3.5          | 9  | 14 | 8.5  | 6.5  | 10.0 | 13 | 0.68                  | 50               |
|                                       | M10               | 41R1045  | 3.5          | 9  | 17 | 10.5 | 6.5  | 12.0 | 15 | 0.70                  | 50               |
|                                       | M12               | 41R1245  | 3.5          | 9  | 19 | 13.0 | 6.5  | 13.0 | 17 | 0.70                  | 50               |
| 10                                    | M5                | 42R545   | 4.5          | 10 | 12 | 5.5  | 7.0  | 6.5  | 10 | 0.57                  | 50               |
|                                       | M6                | 42R645   | 4.5          | 10 | 12 | 6.5  | 7.0  | 6.5  | 10 | 0.57                  | 50               |
|                                       | M8                | 42R845   | 4.5          | 10 | 15 | 8.5  | 7.0  | 10.0 | 13 | 0.63                  | 50               |
|                                       | M10               | 42R1045  | 4.5          | 10 | 17 | 10.5 | 7.0  | 12.0 | 15 | 0.68                  | 50               |
|                                       | M12               | 42R1245  | 4.5          | 10 | 19 | 13.0 | 7.0  | 13.0 | 18 | 0.68                  | 50               |
| 16                                    | M5                | 43R545   | 5.5          | 13 | 12 | 5.5  | 8.5  | 7.5  | 10 | 1.01                  | 50               |
|                                       | M6                | 43R645   | 5.5          | 13 | 12 | 6.5  | 8.5  | 7.5  | 11 | 1.06                  | 50               |
|                                       | M8                | 43R845   | 5.5          | 13 | 15 | 8.5  | 8.5  | 10.0 | 13 | 1.15                  | 50               |
|                                       | M10               | 43R1045  | 5.5          | 13 | 17 | 10.5 | 8.5  | 12.0 | 15 | 1.09                  | 50               |
|                                       | M12               | 43R1245  | 5.5          | 13 | 19 | 13.0 | 8.5  | 13.0 | 18 | 1.15                  | 50               |
| 25                                    | M5                | 44R545   | 7.0          | 15 | 14 | 5.5  | 10.0 | 7.5  | 11 | 1.40                  | 25               |
|                                       | M6                | 44R645   | 7.0          | 15 | 14 | 6.5  | 10.0 | 7.5  | 11 | 1.32                  | 25               |
|                                       | M8                | 44R845   | 7.0          | 15 | 16 | 8.5  | 10.0 | 10.0 | 13 | 1.44                  | 25               |
|                                       | M10               | 44R1045  | 7.0          | 15 | 18 | 10.5 | 10.0 | 12.0 | 15 | 1.49                  | 25               |
|                                       | M12               | 44R1245  | 7.0          | 15 | 19 | 13.0 | 10.0 | 13.0 | 18 | 1.44                  | 25               |
| 35                                    | M14               | 44R1445  | 7.0          | 15 | 21 | 15.0 | 10.0 | 14.5 | 20 | 1.55                  | 25               |
|                                       | M6                | 45R645   | 8.5          | 17 | 17 | 6.5  | 12.0 | 7.5  | 11 | 2.05                  | 25               |
|                                       | M8                | 45R845   | 8.5          | 17 | 17 | 8.5  | 12.0 | 10.0 | 13 | 2.20                  | 25               |
|                                       | M10               | 45R1045  | 8.5          | 17 | 19 | 10.5 | 12.0 | 12.0 | 15 | 2.28                  | 25               |
|                                       | M12               | 45R1245  | 8.5          | 17 | 21 | 13.0 | 12.0 | 13.0 | 18 | 2.38                  | 25               |
| 50                                    | M14               | 45R1445  | 8.5          | 17 | 21 | 15.0 | 12.0 | 14.5 | 20 | 2.41                  | 25               |
|                                       | M16               | 45R1645  | 8.5          | 17 | 26 | 17.0 | 12.0 | 16.0 | 22 | 2.40                  | 25               |
|                                       | M6                | 46R645   | 10.0         | 19 | 20 | 6.5  | 14.0 | 10.0 | 13 | 3.43                  | 25               |
|                                       | M8                | 46R845   | 10.0         | 19 | 20 | 8.5  | 14.0 | 10.0 | 13 | 3.28                  | 25               |
|                                       | M10               | 46R1045  | 10.0         | 19 | 20 | 10.5 | 14.0 | 12.0 | 16 | 3.47                  | 25               |
|                                       | M12               | 46R1245  | 10.0         | 19 | 23 | 13.0 | 14.0 | 13.0 | 18 | 3.42                  | 25               |
|                                       | M14               | 46R1445  | 10.0         | 19 | 23 | 15.0 | 14.0 | 14.5 | 20 | 3.65                  | 25               |
|                                       | M16               | 46R1645  | 10.0         | 19 | 28 | 17.0 | 14.0 | 16.0 | 22 | 3.76                  | 25               |

**Angle tubular cable lugs, copper, 45° angled, standard type**

| Nominal cross section mm² | Size of bolt dia. | Part No. | d1   | a  | b  | Dimension mm |      |      |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------|-------------------|----------|------|----|----|--------------|------|------|----|-----------------------|------------------|
| 50                        | M20               | 46R2045  | 10.0 | 19 | 30 | 21.0         | 14.0 | 19.0 | 24 | 3.30                  | 25               |
|                           | M6                | 47R645   | 12.0 | 21 | 23 | 6.5          | 16.5 | 10.0 | 13 | 5.06                  | 25               |
|                           | M8                | 47R845   | 12.0 | 21 | 23 | 8.5          | 16.5 | 10.0 | 14 | 5.06                  | 25               |
|                           | M10               | 47R1045  | 12.0 | 21 | 23 | 10.5         | 16.5 | 12.0 | 16 | 5.25                  | 25               |
|                           | M12               | 47R1245  | 12.0 | 21 | 23 | 13.0         | 16.5 | 13.0 | 18 | 5.30                  | 25               |
|                           | M14               | 47R1445  | 12.0 | 21 | 23 | 15.0         | 16.5 | 14.5 | 20 | 5.60                  | 25               |
| 70                        | M16               | 47R1645  | 12.0 | 21 | 28 | 17.0         | 16.5 | 16.0 | 22 | 5.61                  | 25               |
|                           | M20               | 47R2045  | 12.0 | 21 | 30 | 21.0         | 16.5 | 19.0 | 24 | 5.60                  | 25               |
| 95                        | M8                | 48R845   | 13.5 | 25 | 26 | 8.5          | 18.0 | 12.0 | 14 | 6.19                  | 25               |
|                           | M10               | 48R1045  | 13.5 | 25 | 26 | 10.5         | 18.0 | 12.0 | 17 | 5.70                  | 25               |
|                           | M12               | 48R1245  | 13.5 | 25 | 26 | 13.0         | 18.0 | 13.0 | 18 | 6.67                  | 25               |
|                           | M14               | 48R1445  | 13.5 | 25 | 26 | 15.0         | 18.0 | 14.5 | 20 | 6.60                  | 25               |
|                           | M16               | 48R1645  | 13.5 | 25 | 28 | 17.0         | 18.0 | 16.0 | 22 | 6.78                  | 25               |
|                           | M20               | 48R2045  | 13.5 | 25 | 36 | 21.0         | 18.0 | 22.0 | 24 | 6.80                  | 25               |
| 120                       | M8                | 49R845   | 15.0 | 26 | 28 | 8.5          | 19.5 | 14.0 | 16 | 7.92                  | 10               |
|                           | M10               | 49R1045  | 15.0 | 26 | 28 | 10.5         | 19.5 | 14.0 | 17 | 7.99                  | 10               |
|                           | M12               | 49R1245  | 15.0 | 26 | 28 | 13.0         | 19.5 | 14.0 | 18 | 7.96                  | 10               |
|                           | M14               | 49R1445  | 15.0 | 26 | 28 | 15.0         | 19.5 | 15.0 | 20 | 7.94                  | 10               |
|                           | M16               | 49R1645  | 15.0 | 26 | 30 | 17.0         | 19.5 | 16.0 | 22 | 8.26                  | 10               |
|                           | M20               | 49R2045  | 15.0 | 26 | 36 | 21.0         | 19.5 | 22.0 | 24 | 8.20                  | 10               |
| 150                       | M8                | 50R845   | 16.5 | 30 | 31 | 8.5          | 21.0 | 14.0 | 16 | 9.00                  | 10               |
|                           | M10               | 50R1045  | 16.5 | 30 | 31 | 10.5         | 21.0 | 14.0 | 17 | 9.15                  | 10               |
|                           | M12               | 50R1245  | 16.5 | 30 | 31 | 13.0         | 21.0 | 15.0 | 18 | 8.75                  | 10               |
|                           | M14               | 50R1445  | 16.5 | 30 | 31 | 15.0         | 21.0 | 15.0 | 20 | 9.20                  | 10               |
|                           | M16               | 50R1645  | 16.5 | 30 | 31 | 17.0         | 21.0 | 16.0 | 22 | 9.22                  | 10               |
|                           | M20               | 50R2045  | 16.5 | 30 | 36 | 21.0         | 21.0 | 22.0 | 24 | 9.26                  | 10               |
| 185                       | M10               | 51R1045  | 19.0 | 30 | 35 | 10.5         | 24.0 | 18.0 | 22 | 13.30                 | 10               |
|                           | M12               | 51R1245  | 19.0 | 30 | 35 | 13.0         | 24.0 | 18.0 | 22 | 13.32                 | 10               |
|                           | M14               | 51R1445  | 19.0 | 30 | 35 | 15.0         | 24.0 | 18.0 | 22 | 13.40                 | 10               |
|                           | M16               | 51R1645  | 19.0 | 30 | 35 | 17.0         | 24.0 | 18.0 | 22 | 12.80                 | 10               |
|                           | M20               | 51R2045  | 19.0 | 30 | 39 | 21.0         | 24.0 | 22.0 | 24 | 13.10                 | 10               |
|                           | M10               | 52R1045  | 21.0 | 35 | 39 | 10.5         | 26.0 | 21.5 | 22 | 16.28                 | 10               |
| 240                       | M12               | 52R1245  | 21.0 | 35 | 39 | 13.0         | 26.0 | 21.5 | 22 | 16.80                 | 10               |
|                           | M14               | 52R1445  | 21.0 | 35 | 39 | 15.0         | 26.0 | 21.5 | 22 | 16.40                 | 10               |
|                           | M16               | 52R1645  | 21.0 | 35 | 39 | 17.0         | 26.0 | 21.5 | 22 | 16.10                 | 10               |
|                           | M20               | 52R2045  | 21.0 | 35 | 39 | 21.0         | 26.0 | 21.5 | 24 | 16.10                 | 10               |
|                           | M12               | 53R1245  | 23.5 | 44 | 43 | 13.0         | 29.5 | 24.0 | 24 | 24.08                 | 5                |
|                           | M14               | 53R1445  | 23.5 | 44 | 43 | 15.0         | 29.5 | 24.0 | 24 | 24.20                 | 5                |
| 300                       | M16               | 53R1645  | 23.5 | 44 | 43 | 17.0         | 29.5 | 24.0 | 24 | 23.23                 | 5                |
|                           | M20               | 53R2045  | 23.5 | 44 | 43 | 21.0         | 29.5 | 24.0 | 24 | 23.50                 | 5                |
|                           | M12               | 54R1245  | 27.0 | 44 | 49 | 13.0         | 34.0 | 24.0 | 24 | 34.00                 | 5                |
|                           | M14               | 54R1445  | 27.0 | 44 | 49 | 15.0         | 34.0 | 24.0 | 24 | 33.40                 | 5                |
|                           | M16               | 54R1645  | 27.0 | 44 | 49 | 17.0         | 34.0 | 24.0 | 24 | 34.28                 | 5                |
|                           | M20               | 54R2045  | 27.0 | 44 | 49 | 21.0         | 34.0 | 24.0 | 24 | 31.80                 | 5                |

▶ 10-400 mm² IEC tested

⚠ Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

▶ Tools: see chart page 55

## Butt connectors, Cu, standard type



- ▶ For multi-stranded conductors e.g. VDE 0295 Class 2
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ Precise end machining for easy cable insertion

**Characteristics**

- Total cross-section: 0.75 - 400 mm<sup>2</sup>
- With buttmarks for precise cable insertion
- Annealed material optimises material and crimping properties

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

**Order info**

- Also available without buttmarks, part number appendix "om"
- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section<br>mm <sup>2</sup> | Part No. | Dimension mm |      |     | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|----------|--------------|------|-----|-----------------------------|------------------|
|                                          |          | d1           | d4   | l   |                             |                  |
| 0.75                                     | 17R      | 1.3          | 2.8  | 20  | 0.09                        | 100*             |
| 1.5                                      | 18R      | 1.8          | 3.3  | 25  | 0.12                        | 100*             |
| 2.5                                      | 19R      | 2.3          | 4.2  | 25  | 0.20                        | 100*             |
| 4                                        | 20R      | 3.0          | 5.0  | 25  | 0.26                        | 100*             |
| 6                                        | 21R      | 3.5          | 6.5  | 25  | 0.50                        | 100*             |
| 10                                       | 22R      | 4.5          | 7.0  | 30  | 0.72                        | 100*             |
| 16                                       | 23R      | 5.5          | 8.5  | 35  | 1.00                        | 100*             |
| 25                                       | 24R      | 7.0          | 10.0 | 40  | 1.41                        | 50*              |
| 35                                       | 25R      | 8.5          | 12.0 | 45  | 2.24                        | 50*              |
| 50                                       | 26R      | 10.0         | 14.0 | 50  | 3.36                        | 50*              |
| 70                                       | 27R      | 12.0         | 16.5 | 55  | 4.87                        | 50*              |
| 95                                       | 28R      | 13.5         | 18.0 | 60  | 5.91                        | 25*              |
| 120                                      | 29R      | 15.0         | 19.5 | 65  | 7.00                        | 25*              |
| 150                                      | 30R      | 16.5         | 21.0 | 70  | 8.12                        | 10               |
| 185                                      | 31R      | 19.0         | 24.0 | 75  | 10.06                       | 10               |
| 240                                      | 32R      | 21.0         | 26.0 | 85  | 13.82                       | 10               |
| 300                                      | 33R      | 23.5         | 29.5 | 100 | 21.94                       | 5                |
| 400                                      | 34R      | 27.0         | 34.0 | 100 | 29.65                       | 5                |

▶ 10-400 mm<sup>2</sup> IEC tested

▶ \* = Also available in small handy packs

🔧 Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

▶ **Tools: see chart page 55**

## Parallel connectors, Cu, standard type

- ▶ Ideal for connecting differing cable cross-sections
- ▶ Precise end machining for easy cable insertion



### Characteristics

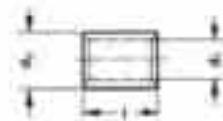
- Total cross-section: 1.5 - 300 mm²
- Annealed material optimises material and crimping properties

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)



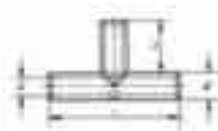
| Nominal cross section<br>mm² | Part No. | Dimension mm |      |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------|----------|--------------|------|----|-----------------------------|------------------|
|                              |          | d1           | d4   | l  |                             |                  |
| 1.5                          | 148R     | 1.8          | 3.3  | 5  | 0.03                        | 100              |
| 2.5                          | 149R     | 2.3          | 4.2  | 5  | 0.04                        | 100              |
| 4                            | 150R     | 3.0          | 5.0  | 7  | 0.08                        | 100              |
| 6                            | 151R     | 4.0          | 6.0  | 7  | 0.09                        | 100              |
| 10                           | 152R     | 4.5          | 7.0  | 9  | 0.17                        | 100              |
| 16                           | 153R     | 5.5          | 8.5  | 10 | 0.28                        | 100              |
| 25                           | 154R     | 7.0          | 10.0 | 13 | 0.44                        | 100              |
| 35                           | 155R     | 8.5          | 12.0 | 16 | 0.78                        | 100              |
| 50                           | 156R     | 10.0         | 14.0 | 19 | 1.22                        | 100              |
| 70                           | 157R     | 12.0         | 16.5 | 19 | 1.62                        | 50               |
| 95                           | 158R     | 13.5         | 18.0 | 20 | 1.90                        | 50               |
| 120                          | 159R     | 15.0         | 19.5 | 22 | 2.28                        | 50               |
| 150                          | 160R     | 16.5         | 21.0 | 26 | 3.00                        | 50               |
| 185                          | 161R     | 19.0         | 24.0 | 30 | 4.37                        | 50               |
| 240                          | 162R     | 21.0         | 26.0 | 32 | 5.30                        | 25               |
| 300                          | 163R     | 23.5         | 29.5 | 36 | 8.05                        | 25               |

▶ The specified nominal cross section is in accordance with the total cross section of the cable.

▶ **Tools:** see chart page 55



## T-connectors, Cu, standard type



- ▶ For multi-stranded conductors e.g. VDE 0295 Class 2
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ Special version for cable tap conductors

### Characteristics

- Total cross-section: 1.5 - 240 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section<br>mm <sup>2</sup> | Part No. | Dimension mm |      |     |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|----------|--------------|------|-----|----|-----------------------------|------------------|
|                                          |          | d1           | d4   | l   | l1 |                             |                  |
| 1.5                                      | TV15     | 1.8          | 3.3  | 30  | 12 | 0.23                        | 50               |
| 2.5                                      | TV2.5    | 2.3          | 4.2  | 30  | 12 | 0.37                        | 50               |
| 4                                        | TV4      | 3.0          | 5.0  | 30  | 12 | 0.45                        | 50               |
| 6                                        | TV6      | 4.0          | 6.0  | 35  | 14 | 0.73                        | 50               |
| 10                                       | TV10     | 4.5          | 7.0  | 35  | 14 | 1.05                        | 50               |
| 16                                       | TV16     | 5.5          | 8.5  | 50  | 21 | 2.20                        | 50               |
| 25                                       | TV25     | 7.0          | 10.0 | 55  | 23 | 2.90                        | 25               |
| 35                                       | TV35     | 8.5          | 12.0 | 70  | 30 | 5.20                        | 25               |
| 50                                       | TV50     | 10.0         | 14.0 | 80  | 34 | 7.90                        | 25               |
| 70                                       | TV70     | 12.0         | 16.5 | 85  | 35 | 11.20                       | 10               |
| 95                                       | TV95     | 13.5         | 18.0 | 90  | 36 | 13.00                       | 10               |
| 120                                      | TV120    | 15.0         | 19.5 | 95  | 38 | 14.70                       | 10               |
| 150                                      | TV150    | 16.5         | 21.0 | 110 | 44 | 18.90                       | 10               |
| 185                                      | TV185    | 19.0         | 24.0 | 115 | 45 | 25.00                       | 5                |
| 240                                      | TV240    | 21.0         | 26.0 | 130 | 52 | 31.10                       | 5                |

ⓘ Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

▶ Tools: see chart page 55

## Cross-connectors, Cu, standard type

- ▶ For multi-stranded conductors e.g. VDE 0295 Class 2
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ Version for double cable tap conductors



### Characteristics

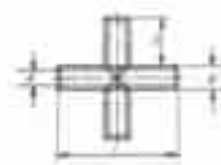
- Total cross-section: 1.5 - 240 mm²
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)



| Nominal cross section<br>mm² | Part No.     | Dimension mm |      |     |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------|--------------|--------------|------|-----|----|-----------------------------|------------------|
|                              |              | d1           | d4   | l   | l1 |                             |                  |
| 1.5                          | <b>KV15</b>  | 1.8          | 3.3  | 30  | 12 | 0.320                       | 25               |
| 2.5                          | <b>KV2.5</b> | 2.3          | 4.2  | 30  | 12 | 0.490                       | 25               |
| 4                            | <b>KV4</b>   | 3.0          | 5.0  | 30  | 12 | 0.650                       | 25               |
| 6                            | <b>KV6</b>   | 4.0          | 6.0  | 35  | 14 | 0.950                       | 25               |
| 10                           | <b>KV10</b>  | 4.5          | 7.0  | 35  | 14 | 1.350                       | 25               |
| 16                           | <b>KV16</b>  | 5.5          | 8.5  | 50  | 21 | 2.950                       | 25               |
| 25                           | <b>KV25</b>  | 7.0          | 10.0 | 55  | 23 | 4.000                       | 15               |
| 35                           | <b>KV35</b>  | 8.5          | 12.0 | 70  | 30 | 6.900                       | 15               |
| 50                           | <b>KV50</b>  | 10.0         | 14.0 | 80  | 34 | 10.400                      | 15               |
| 70                           | <b>KV70</b>  | 12.0         | 16.5 | 85  | 35 | 14.600                      | 15               |
| 95                           | <b>KV95</b>  | 13.5         | 18.0 | 90  | 36 | 17.100                      | 15               |
| 120                          | <b>KV120</b> | 15.0         | 19.5 | 95  | 38 | 19.400                      | 5                |
| 150                          | <b>KV150</b> | 16.5         | 21.0 | 110 | 44 | 24.100                      | 5                |
| 185                          | <b>KV185</b> | 19.0         | 24.0 | 115 | 45 | 32.100                      | 5                |
| 240                          | <b>KV240</b> | 21.0         | 26.0 | 130 | 52 | 41.100                      | 5                |

ⓘ Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

▶ **Tools: see chart page 55**

### Insulated tubular cable lugs, Cu, standard type



- ▶ For multi-stranded conductors e.g. VDE 0295 Class 2
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ No additional insulation of the crimped connection required

#### Characteristics

- Total cross-section: 10 - 150 mm<sup>2</sup>
- Is directly crimped with the insulation
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion
- Heat resistant to 105° C

#### Material

- Cable lug: Copper acc. to EN 13600
- Insulation sleeve: PA, halogen-free

#### Surface

- Tin-plated

#### Order info

- Also available with inspection hole, part number appendix "ms"

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Colour | Dimension mm |      |      |      |      | Weight 100 pcs. ~kg |       | Packing unit/ pcs |
|---------------------------------------|-------------------|----------|--------|--------------|------|------|------|------|---------------------|-------|-------------------|
|                                       |                   |          |        | d12          | d13  | d2   | G1   | I10  | Cu                  | Total |                   |
| 10                                    | M5                | 602R5    | ■      | 7.0          | 9.0  | 5.5  | 35.5 | 17.0 | 0.50                | 0.548 | 25                |
|                                       | M6                | 602R6    | ■      | 7.0          | 9.0  | 6.5  | 35.5 | 17.0 | 0.49                | 0.538 | 25                |
|                                       | M8                | 602R8    | ■      | 7.0          | 9.0  | 8.5  | 42.0 | 17.0 | 0.58                | 0.628 | 25                |
|                                       | M10               | 602R10   | ■      | 7.0          | 9.0  | 10.5 | 46.0 | 17.0 | 0.62                | 0.668 | 25                |
|                                       | M12               | 602R12   | ■      | 7.0          | 9.0  | 13.0 | 49.0 | 17.0 | 0.64                | 0.688 | 25                |
| 16                                    | M5                | 603R5    | ■      | 8.5          | 10.5 | 5.5  | 39.5 | 21.0 | 0.84                | 0.907 | 25                |
|                                       | M6                | 603R6    | ■      | 8.5          | 10.5 | 6.5  | 41.3 | 21.0 | 0.86                | 0.927 | 25                |
|                                       | M8                | 603R8    | ■      | 8.5          | 10.5 | 8.5  | 45.5 | 21.0 | 0.93                | 0.997 | 25                |
|                                       | M10               | 603R10   | ■      | 8.5          | 10.5 | 10.5 | 49.5 | 21.0 | 0.99                | 1.057 | 25                |
|                                       | M12               | 603R12   | ■      | 8.5          | 10.5 | 13.0 | 54.0 | 21.0 | 1.02                | 1.087 | 25                |
| 25                                    | M5                | 604R5    | ■      | 10.0         | 12.0 | 5.5  | 45.0 | 24.0 | 1.22                | 1.312 | 25                |
|                                       | M6                | 604R6    | ■      | 10.0         | 12.0 | 6.5  | 46.5 | 24.0 | 1.20                | 1.292 | 25                |
|                                       | M8                | 604R8    | ■      | 10.0         | 12.0 | 8.5  | 51.0 | 24.0 | 1.31                | 1.402 | 25                |
|                                       | M10               | 604R10   | ■      | 10.0         | 12.0 | 10.5 | 55.0 | 24.0 | 1.57                | 1.662 | 25                |
|                                       | M12               | 604R12   | ■      | 10.0         | 12.0 | 13.0 | 57.0 | 24.0 | 1.39                | 1.482 | 25                |
| 35                                    | M14               | 604R14   | ■      | 10.0         | 12.0 | 15.0 | 61.5 | 24.0 | 1.49                | 1.582 | 25                |
|                                       | M6                | 605R6    | ■      | 12.0         | 14.5 | 6.5  | 49.5 | 27.0 | 1.85                | 2.010 | 25                |
|                                       | M8                | 605R8    | ■      | 12.0         | 14.5 | 8.5  | 54.0 | 27.0 | 2.00                | 2.160 | 25                |
|                                       | M10               | 605R10   | ■      | 12.0         | 14.5 | 10.5 | 59.0 | 27.0 | 2.13                | 2.290 | 25                |
|                                       | M12               | 605R12   | ■      | 12.0         | 14.5 | 13.0 | 61.0 | 27.0 | 2.12                | 2.280 | 25                |
| 50                                    | M14               | 605R14   | ■      | 12.0         | 14.5 | 15.0 | 64.5 | 27.0 | 2.18                | 2.340 | 25                |
|                                       | M16               | 605R16   | ■      | 12.0         | 14.5 | 17.0 | 68.0 | 27.0 | 2.24                | 2.400 | 25                |
|                                       | M6                | 606R6    | ■      | 14.0         | 16.5 | 6.5  | 59.0 | 32.0 | 3.00                | 3.220 | 25                |
|                                       | M8                | 606R8    | ■      | 14.0         | 16.5 | 8.5  | 59.0 | 32.0 | 2.93                | 3.150 | 25                |
|                                       | M10               | 606R10   | ■      | 14.0         | 16.5 | 10.5 | 63.0 | 32.0 | 3.08                | 3.300 | 25                |
| 50                                    | M12               | 606R12   | ■      | 14.0         | 16.5 | 13.0 | 68.0 | 32.0 | 3.23                | 3.450 | 25                |
|                                       | M14               | 606R14   | ■      | 14.0         | 16.5 | 15.0 | 71.5 | 32.0 | 3.32                | 3.540 | 25                |
|                                       | M16               | 606R16   | ■      | 14.0         | 16.5 | 17.0 | 77.0 | 32.0 | 3.38                | 3.600 | 25                |
|                                       | M20               | 606R20   | ■      | 14.0         | 16.5 | 21.0 | 83.5 | 32.0 | 3.46                | 3.680 | 25                |

**Insulated tubular cable lugs, Cu, standard type**

| Nominal cross section mm² | Size of bolt dia. | Part No. | Colour | Dimension mm |      |      |       |      | Weight 100 pcs. ~kg |       | Packing unit/ pcs |
|---------------------------|-------------------|----------|--------|--------------|------|------|-------|------|---------------------|-------|-------------------|
|                           |                   |          |        | d12          | d13  | d2   | Gl1   | l10  | Cu                  | Total |                   |
| 70                        | M6                | 607R6    | ■      | 16.4         | 18.9 | 6.5  | 65.5  | 33.5 | 4.49                | 4.760 | 25                |
|                           | M8                | 607R8    | ■      | 16.4         | 18.9 | 8.5  | 65.5  | 33.5 | 4.38                | 4.650 | 25                |
|                           | M10               | 607R10   | ■      | 16.4         | 18.9 | 10.5 | 66.5  | 33.5 | 4.54                | 4.810 | 25                |
|                           | M12               | 607R12   | ■      | 16.4         | 18.9 | 13.0 | 70.5  | 33.5 | 4.63                | 4.900 | 25                |
|                           | M14               | 607R14   | ■      | 16.4         | 18.9 | 15.0 | 73.5  | 33.5 | 4.76                | 5.030 | 25                |
|                           | M16               | 607R16   | ■      | 16.4         | 18.9 | 17.0 | 78.5  | 33.5 | 4.24                | 4.510 | 25                |
| 95                        | M20               | 607R20   | ■      | 16.4         | 18.9 | 21.0 | 84.5  | 33.5 | 5.09                | 5.360 | 25                |
|                           | M8                | 608R8    | ■      | 17.8         | 20.8 | 8.5  | 74.0  | 40.0 | 5.44                | 5.85  | 25                |
|                           | M10               | 608R10   | ■      | 17.8         | 20.8 | 10.5 | 74.0  | 40.0 | 5.40                | 5.81  | 25                |
|                           | M12               | 608R12   | ■      | 17.8         | 20.8 | 13.0 | 76.0  | 40.0 | 5.56                | 5.97  | 25                |
|                           | M14               | 608R14   | ■      | 17.8         | 20.8 | 15.0 | 79.5  | 40.0 | 5.62                | 6.03  | 25                |
|                           | M16               | 608R16   | ■      | 17.8         | 20.8 | 17.0 | 84.0  | 40.0 | 5.82                | 6.23  | 25                |
| 120                       | M20               | 608R20   | ■      | 17.8         | 20.8 | 21.0 | 96.0  | 40.0 | 6.71                | 7.12  | 25                |
|                           | M8                | 609R8    | ■      | 19.3         | 22.3 | 8.5  | 80.5  | 41.5 | 6.72                | 7.18  | 10                |
|                           | M10               | 609R10   | ■      | 19.3         | 22.3 | 10.5 | 80.5  | 41.5 | 6.57                | 7.03  | 10                |
|                           | M12               | 609R12   | ■      | 19.3         | 22.3 | 13.0 | 80.5  | 41.5 | 6.38                | 6.84  | 10                |
|                           | M14               | 609R14   | ■      | 19.3         | 22.3 | 15.0 | 82.5  | 41.5 | 6.45                | 6.91  | 10                |
|                           | M16               | 609R16   | ■      | 19.3         | 22.3 | 17.0 | 85.5  | 41.5 | 6.51                | 6.97  | 10                |
| 150                       | M20               | 609R20   | ■      | 19.3         | 22.3 | 21.0 | 100.5 | 41.5 | 7.74                | 8.20  | 10                |
|                           | M8                | 610R8    | ■      | 20.8         | 23.8 | 8.5  | 88.0  | 48.0 | 7.78                | 8.36  | 10                |
|                           | M10               | 610R10   | ■      | 20.8         | 23.8 | 10.5 | 88.0  | 48.0 | 7.62                | 8.20  | 10                |
|                           | M12               | 610R12   | ■      | 20.8         | 23.8 | 13.0 | 89.0  | 48.0 | 7.73                | 8.31  | 10                |
|                           | M14               | 610R14   | ■      | 20.8         | 23.8 | 15.0 | 90.0  | 48.0 | 7.64                | 8.22  | 10                |
|                           | M16               | 610R16   | ■      | 20.8         | 23.8 | 17.0 | 92.0  | 48.0 | 7.53                | 8.11  | 10                |
|                           | M20               | 610R20   | ■      | 20.8         | 23.8 | 21.0 | 106.0 | 48.0 | 8.80                | 9.38  | 10                |

① Dimensions of tubular cable lugs can be found on page 34 and onwards

② Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

► Tools: see chart page 57

## Insulated butt connectors, Cu, standard type



- ▶ For multi-stranded conductors e.g. VDE 0295 Class 2
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ No additional insulation of the crimped connection required
- ▶ Is directly crimped with the insulation

### Characteristics

- Total cross-section: 10 - 150 mm²
- With buttmarks for precise cable insertion
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion
- Heat resistant to 105° C

### Material

- Connector: copper acc. to EN 13600
- Insulation sleeve: PA, halogen-free

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section mm² | Part No. | Colour | Dimension mm |      |     | Weight 100 pcs. ~kg |       | Packing unit/pcs |
|---------------------------|----------|--------|--------------|------|-----|---------------------|-------|------------------|
|                           |          |        | d12          | d13  | l10 | Cu                  | Total |                  |
| 10                        | 622R     | Red    | 7.0          | 9.0  | 42  | 0.72                | 0.84  | 25               |
| 16                        | 623R     | Blue   | 8.5          | 10.5 | 50  | 1.00                | 1.16  | 25               |
| 25                        | 624R     | Yellow | 10.0         | 12.0 | 57  | 1.41                | 1.63  | 25               |
| 35                        | 625R     | Red    | 12.0         | 14.4 | 65  | 2.24                | 2.60  | 25               |
| 50                        | 626R     | Blue   | 14.0         | 16.4 | 72  | 3.36                | 3.81  | 25               |
| 70                        | 627R     | Yellow | 16.4         | 19.0 | 80  | 4.87                | 5.46  | 25               |
| 95                        | 628R     | Red    | 17.8         | 20.8 | 87  | 5.91                | 6.74  | 25               |
| 120                       | 629R     | Blue   | 19.3         | 22.3 | 94  | 7.00                | 7.96  | 10               |
| 150                       | 630R     | Yellow | 20.8         | 23.8 | 103 | 8.12                | 9.32  | 10               |

① Dimensions of butt connectors can be found on page 40

② Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

▶ Tools: see chart page 57

**Tubular cable lugs, Cu, F-series**

- ▶ For fine stranded conductors, DIN EN 60228 (e.g. VDE 0295 Class 5 and 6)
- ▶ Tube dimensions suitable for fine stranded conductors
- ▶ Precise end machining and easy entry for cable insertion


**Characteristics**

- Total cross-section: 10 - 300 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Acc. to DIN EN 61373 class 1 B approved to vibration

**Material**

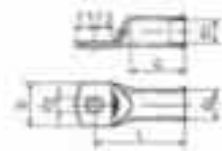
- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

**Order info**

- Also available with inspection hole, part number appendix "ms"



| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | d1   | a  | b  | d2   | d4   | c1    | c2   | l  | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------|------|----|----|------|------|-------|------|----|-----------------------|------------------|
| 10                                    | M5                | 702F5    | 5.5  | 14 | 12 | 5.3  | 8.0  | 6.25  | 7.5  | 27 | 0.72                  | 100              |
|                                       | M6                | 702F6    | 5.5  | 14 | 12 | 6.5  | 8.0  | 6.25  | 7.5  | 27 | 0.71                  | 100              |
|                                       | M8                | 702F8    | 5.5  | 14 | 16 | 8.5  | 8.0  | 8.50  | 9.5  | 29 | 0.77                  | 100              |
|                                       | M10               | 702F10   | 5.5  | 14 | 16 | 10.5 | 8.0  | 10.50 | 11.5 | 31 | 0.82                  | 100              |
|                                       | M12               | 702F12   | 5.5  | 14 | 19 | 13.0 | 8.0  | 12.00 | 13.0 | 32 | 0.82                  | 100              |
| 16                                    | M5                | 703F5    | 6.6  | 15 | 13 | 5.3  | 9.5  | 6.25  | 7.5  | 30 | 1.10                  | 100              |
|                                       | M6                | 703F6    | 6.6  | 15 | 13 | 6.5  | 9.5  | 6.25  | 7.5  | 30 | 1.07                  | 100              |
|                                       | M8                | 703F8    | 6.6  | 15 | 16 | 8.5  | 9.5  | 10.00 | 10.0 | 32 | 1.21                  | 100              |
|                                       | M10               | 703F10   | 6.6  | 15 | 17 | 10.5 | 9.5  | 12.00 | 12.0 | 34 | 1.28                  | 100              |
|                                       | M12               | 703F12   | 6.6  | 15 | 19 | 13.0 | 9.5  | 13.00 | 13.0 | 35 | 1.28                  | 100              |
| 25                                    | M5                | 704F5    | 7.9  | 17 | 15 | 5.3  | 11.0 | 7.50  | 7.5  | 32 | 1.52                  | 25               |
|                                       | M6                | 704F6    | 7.9  | 17 | 15 | 6.5  | 11.0 | 7.50  | 7.5  | 32 | 1.50                  | 100              |
|                                       | M8                | 704F8    | 7.9  | 17 | 17 | 8.5  | 11.0 | 10.00 | 10.0 | 34 | 1.61                  | 100              |
|                                       | M10               | 704F10   | 7.9  | 17 | 17 | 10.5 | 11.0 | 12.00 | 12.0 | 37 | 1.71                  | 100              |
|                                       | M12               | 704F12   | 7.9  | 17 | 19 | 13.0 | 11.0 | 13.00 | 13.0 | 38 | 1.74                  | 25               |
| 35                                    | M6                | 705F6    | 9.2  | 19 | 17 | 6.5  | 12.5 | 7.50  | 7.5  | 35 | 1.91                  | 100              |
|                                       | M8                | 705F8    | 9.2  | 19 | 18 | 8.5  | 12.5 | 10.00 | 10.0 | 37 | 2.08                  | 100              |
|                                       | M10               | 705F10   | 9.2  | 19 | 18 | 10.5 | 12.5 | 12.00 | 12.0 | 40 | 2.24                  | 100              |
|                                       | M12               | 705F12   | 9.2  | 19 | 19 | 13.0 | 12.5 | 13.00 | 13.0 | 41 | 2.22                  | 25               |
|                                       | M14               | 705F14   | 9.2  | 19 | 21 | 15.0 | 12.5 | 14.50 | 14.5 | 43 | 2.41                  | 25               |
| 50                                    | M6                | 706F6    | 11.0 | 21 | 21 | 6.5  | 15.0 | 10.00 | 10.0 | 41 | 3.54                  | 25               |
|                                       | M8                | 706F8    | 11.0 | 21 | 21 | 8.5  | 15.0 | 10.00 | 10.0 | 41 | 3.44                  | 50               |
|                                       | M10               | 706F10   | 11.0 | 21 | 21 | 10.5 | 15.0 | 12.00 | 12.0 | 43 | 3.64                  | 50               |
|                                       | M12               | 706F12   | 11.0 | 21 | 21 | 13.0 | 15.0 | 13.00 | 13.0 | 46 | 3.73                  | 50               |
|                                       | M14               | 706F14   | 11.0 | 21 | 23 | 15.0 | 15.0 | 14.50 | 14.5 | 48 | 3.89                  | 25               |
| 70                                    | M16               | 706F16   | 11.0 | 21 | 28 | 17.0 | 15.0 | 16.00 | 16.0 | 50 | 4.02                  | 25               |
|                                       | M8                | 707F8    | 13.0 | 25 | 25 | 8.5  | 17.0 | 10.00 | 10.0 | 46 | 4.46                  | 50               |
|                                       | M10               | 707F10   | 13.0 | 25 | 25 | 10.5 | 17.0 | 12.00 | 12.0 | 48 | 4.62                  | 50               |
|                                       | M12               | 707F12   | 13.0 | 25 | 25 | 13.0 | 17.0 | 13.00 | 13.0 | 50 | 4.71                  | 50               |
|                                       | M14               | 707F14   | 13.0 | 25 | 25 | 15.0 | 17.0 | 14.50 | 14.5 | 52 | 4.87                  | 25               |
| 95                                    | M16               | 707F16   | 13.0 | 25 | 25 | 17.0 | 17.0 | 16.00 | 16.0 | 54 | 5.85                  | 25               |
|                                       | M8                | 708F8    | 14.5 | 26 | 28 | 8.5  | 19.0 | 12.00 | 12.0 | 52 | 6.35                  | 25               |
|                                       | M10               | 708F10   | 14.5 | 26 | 28 | 10.5 | 19.0 | 12.00 | 12.0 | 52 | 6.23                  | 50               |
|                                       | M12               | 708F12   | 14.5 | 26 | 28 | 13.0 | 19.0 | 13.00 | 13.0 | 53 | 6.31                  | 50               |
|                                       | M14               | 708F14   | 14.5 | 26 | 28 | 15.0 | 19.0 | 14.50 | 14.5 | 55 | 6.46                  | 25               |
|                                       | M16               | 708F16   | 14.5 | 26 | 28 | 17.0 | 19.0 | 16.00 | 16.0 | 56 | 6.56                  | 50               |



## Tubular cable lugs, Cu, F-series

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Dimension mm |    |    |      |      |       |      |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------|--------------|----|----|------|------|-------|------|----|-----------------------|------------------|
|                                       |                   |          | d1           | a  | b  | d2   | d4   | c1    | c2   | l  |                       |                  |
| 120                                   | M10               | 709F10   | 16.2         | 30 | 30 | 10.5 | 21.0 | 14.00 | 14.0 | 57 | 8.31                  | 50               |
|                                       | M12               | 709F12   | 16.2         | 30 | 30 | 13.0 | 21.0 | 15.00 | 15.0 | 58 | 8.39                  | 50               |
|                                       | M14               | 709F14   | 16.2         | 30 | 30 | 15.0 | 21.0 | 15.00 | 15.0 | 58 | 8.06                  | 25               |
|                                       | M16               | 709F16   | 16.2         | 30 | 30 | 17.0 | 21.0 | 16.00 | 16.0 | 59 | 8.17                  | 50               |
|                                       | M20               | 709F20   | 16.2         | 30 | 36 | 21.0 | 21.0 | 22.00 | 22.0 | 66 | 9.56                  | 25               |
| 150                                   | M10               | 710F10   | 18.0         | 32 | 34 | 10.5 | 23.0 | 15.00 | 16.0 | 64 | 10.91                 | 10               |
|                                       | M12               | 710F12   | 18.0         | 32 | 34 | 13.0 | 23.0 | 16.00 | 17.0 | 65 | 10.89                 | 25               |
|                                       | M14               | 710F14   | 18.0         | 32 | 34 | 15.0 | 23.0 | 18.00 | 19.0 | 67 | 11.42                 | 10               |
|                                       | M16               | 710F16   | 18.0         | 32 | 34 | 17.0 | 23.0 | 19.00 | 20.0 | 68 | 11.30                 | 10               |
|                                       | M20               | 710F20   | 18.0         | 32 | 40 | 21.0 | 23.0 | 21.00 | 22.0 | 70 | 11.36                 | 10               |
| 185                                   | M12               | 711F12   | 20.6         | 35 | 39 | 13.0 | 26.0 | 21.50 | 19.0 | 72 | 15.40                 | 10               |
|                                       | M14               | 711F14   | 20.6         | 35 | 39 | 15.0 | 26.0 | 21.50 | 19.0 | 72 | 15.20                 | 10               |
|                                       | M16               | 711F16   | 20.6         | 35 | 39 | 17.0 | 26.0 | 21.50 | 19.0 | 72 | 15.00                 | 25               |
|                                       | M20               | 711F20   | 20.6         | 35 | 39 | 21.0 | 26.0 | 21.50 | 19.0 | 72 | 14.20                 | 10               |
| 240                                   | M10               | 712F10   | 23.1         | 44 | 41 | 10.5 | 28.0 | 16.00 | 17.0 | 80 | 16.50                 | 10               |
|                                       | M12               | 712F12   | 23.1         | 44 | 41 | 13.0 | 28.0 | 16.00 | 17.0 | 80 | 16.30                 | 10               |
|                                       | M14               | 712F14   | 23.1         | 44 | 41 | 15.0 | 28.0 | 19.00 | 20.0 | 83 | 16.80                 | 10               |
|                                       | M16               | 712F16   | 23.1         | 44 | 41 | 17.0 | 28.0 | 19.00 | 20.0 | 83 | 16.71                 | 25               |
|                                       | M20               | 712F20   | 23.1         | 44 | 41 | 21.0 | 28.0 | 21.00 | 22.0 | 85 | 17.12                 | 10               |
| 300                                   | M12               | 713F12   | 26.1         | 44 | 47 | 13.0 | 32.0 | 19.00 | 22.0 | 96 | 25.60                 | 5                |
|                                       | M14               | 713F14   | 26.1         | 44 | 47 | 15.0 | 32.0 | 19.00 | 22.0 | 96 | 26.56                 | 5                |
|                                       | M16               | 713F16   | 26.1         | 44 | 47 | 17.0 | 32.0 | 19.00 | 22.0 | 96 | 25.60                 | 5                |
|                                       | M20               | 713F20   | 26.1         | 44 | 47 | 21.0 | 32.0 | 22.00 | 22.0 | 96 | 26.24                 | 5                |

► Tools: see chart page 58

## Angle tubular cable lugs, Cu, 90° angled, F-series

- ▶ For fine stranded conductors, DIN EN 60228 (e.g. VDE 0295 Class 5 and 6)
- ▶ Precise end machining and easy entry for cable insertion
- ▶ Flat contact surface by special angle punching technology



### Characteristics

- Total cross-section: 10 - 240 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Tube dimensions suitable for fine stranded conductors

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

### Order info

- 45° angle version also available, part number appendix "45"
- Also available with inspection hole, part number appendix "ms"



| Nominal cross section<br>mm² | Size of bolt dia. | Part No. | Dimension mm |    |    |      |      |       |             |      | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|------------------------------|-------------------|----------|--------------|----|----|------|------|-------|-------------|------|-----------------------------|----------------------|
|                              |                   |          | d1           | a  | b  | d2   | d4   | c1    | min. for I3 |      |                             |                      |
| 10                           | M5                | 742F5    | 5.5          | 14 | 12 | 5.3  | 8.0  | 6.25  | 7.5         | 0.80 | 50                          |                      |
|                              | M6                | 742F6    | 5.5          | 14 | 12 | 6.5  | 8.0  | 6.25  | 7.5         | 0.78 | 50                          |                      |
|                              | M8                | 742F8    | 5.5          | 14 | 16 | 8.5  | 8.0  | 9.00  | 9.5         | 0.84 | 50                          |                      |
|                              | M10               | 742F10   | 5.5          | 14 | 16 | 10.5 | 8.0  | 10.50 | 12.0        | 0.88 | 50                          |                      |
|                              | M12               | 742F12   | 5.5          | 14 | 19 | 13.0 | 8.0  | 12.00 | 13.0        | 0.90 | 50                          |                      |
| 16                           | M5                | 743F5    | 6.6          | 15 | 13 | 5.3  | 9.5  | 6.25  | 7.5         | 1.12 | 50                          |                      |
|                              | M6                | 743F6    | 6.6          | 15 | 13 | 6.5  | 9.5  | 6.25  | 7.5         | 1.12 | 50                          |                      |
|                              | M8                | 743F8    | 6.6          | 15 | 16 | 8.5  | 9.5  | 10.00 | 10.0        | 1.30 | 50                          |                      |
|                              | M10               | 743F10   | 6.6          | 15 | 17 | 10.5 | 9.5  | 12.00 | 12.0        | 1.38 | 50                          |                      |
|                              | M12               | 743F12   | 6.6          | 15 | 19 | 13.0 | 9.5  | 13.00 | 13.0        | 1.34 | 50                          |                      |
| 25                           | M5                | 744F5    | 7.9          | 17 | 15 | 5.3  | 11.0 | 7.50  | 7.5         | 1.52 | 25                          |                      |
|                              | M6                | 744F6    | 7.9          | 17 | 15 | 6.5  | 11.0 | 7.50  | 7.5         | 1.54 | 25                          |                      |
|                              | M8                | 744F8    | 7.9          | 17 | 17 | 8.5  | 11.0 | 10.00 | 10.0        | 1.80 | 25                          |                      |
|                              | M10               | 744F10   | 7.9          | 17 | 17 | 10.5 | 11.0 | 12.00 | 12.0        | 1.79 | 25                          |                      |
|                              | M12               | 744F12   | 7.9          | 17 | 19 | 13.0 | 11.0 | 13.00 | 13.0        | 1.76 | 25                          |                      |
| 35                           | M6                | 745F6    | 9.2          | 19 | 17 | 6.5  | 12.5 | 7.50  | 7.5         | 2.02 | 25                          |                      |
|                              | M8                | 745F8    | 9.2          | 19 | 18 | 8.5  | 12.5 | 10.00 | 10.0        | 2.18 | 25                          |                      |
|                              | M10               | 745F10   | 9.2          | 19 | 18 | 10.5 | 12.5 | 12.00 | 12.0        | 2.30 | 25                          |                      |
|                              | M12               | 745F12   | 9.2          | 19 | 19 | 13.0 | 12.5 | 13.00 | 13.0        | 2.26 | 25                          |                      |
|                              | M14               | 745F14   | 9.2          | 19 | 21 | 15.0 | 12.5 | 14.50 | 14.5        | 2.65 | 25                          |                      |
| 50                           | M6                | 746F6    | 11.0         | 21 | 21 | 6.5  | 15.0 | 10.00 | 10.0        | 3.75 | 25                          |                      |
|                              | M8                | 746F8    | 11.0         | 21 | 21 | 8.5  | 15.0 | 10.00 | 10.0        | 3.57 | 25                          |                      |
|                              | M10               | 746F10   | 11.0         | 21 | 21 | 10.5 | 15.0 | 12.00 | 12.0        | 3.83 | 25                          |                      |
|                              | M12               | 746F12   | 11.0         | 21 | 21 | 13.0 | 15.0 | 13.00 | 13.0        | 3.74 | 25                          |                      |
|                              | M14               | 746F14   | 11.0         | 21 | 23 | 15.0 | 15.0 | 14.50 | 14.5        | 4.20 | 25                          |                      |
| 70                           | M16               | 746F16   | 11.0         | 21 | 28 | 17.0 | 15.0 | 16.00 | 16.0        | 4.35 | 25                          |                      |
|                              | M8                | 747F8    | 13.0         | 25 | 25 | 8.5  | 17.0 | 10.00 | 10.0        | 4.83 | 25                          |                      |
|                              | M10               | 747F10   | 13.0         | 25 | 25 | 11.0 | 17.0 | 12.00 | 12.0        | 5.18 | 25                          |                      |
|                              | M12               | 747F12   | 13.0         | 25 | 25 | 13.0 | 17.0 | 13.00 | 13.0        | 5.16 | 25                          |                      |
|                              | M14               | 747F14   | 13.0         | 25 | 25 | 15.0 | 17.0 | 14.50 | 14.5        | 5.38 | 25                          |                      |
| 95                           | M16               | 747F16   | 13.0         | 25 | 25 | 17.0 | 17.0 | 16.00 | 16.0        | 6.50 | 25                          |                      |
|                              | M8                | 748F8    | 14.5         | 26 | 28 | 8.5  | 19.0 | 12.00 | 12.0        | 6.66 | 25                          |                      |
|                              | M10               | 748F10   | 14.5         | 26 | 28 | 11.0 | 19.0 | 12.00 | 12.0        | 6.04 | 25                          |                      |
|                              | M12               | 748F12   | 14.5         | 26 | 28 | 13.0 | 19.0 | 13.00 | 13.0        | 6.58 | 25                          |                      |
|                              | M14               | 748F14   | 14.5         | 26 | 28 | 15.0 | 19.0 | 14.50 | 14.5        | 7.24 | 25                          |                      |
|                              | M16               | 748F16   | 14.5         | 26 | 28 | 17.0 | 19.0 | 16.00 | 16.0        | 7.34 | 25                          |                      |

## Angle tubular cable lugs, Cu, 90° angled, F-series

| Nominal cross section<br>mm² | Size of bolt dia. | Part No. | Dimension mm |    |    |      |      |       |             | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|------------------------------|-------------------|----------|--------------|----|----|------|------|-------|-------------|-----------------------------|----------------------|
|                              |                   |          | d1           | a  | b  | d2   | d4   | c1    | min. for l3 |                             |                      |
| 120                          | M10               | 749F10   | 16.2         | 30 | 30 | 11.0 | 21.0 | 14.00 | 14.0        | 8.76                        | 10                   |
|                              | M12               | 749F12   | 16.2         | 30 | 30 | 13.0 | 21.0 | 15.00 | 15.0        | 8.76                        | 10                   |
|                              | M14               | 749F14   | 16.2         | 30 | 30 | 15.0 | 21.0 | 15.00 | 15.0        | 9.15                        | 10                   |
|                              | M16               | 749F16   | 16.2         | 30 | 30 | 17.0 | 21.0 | 16.00 | 16.0        | 8.54                        | 10                   |
|                              | M20               | 749F20   | 16.2         | 30 | 36 | 21.0 | 21.0 | 22.00 | 22.0        | 9.60                        | 10                   |
| 150                          | M10               | 750F10   | 18.0         | 32 | 34 | 11.0 | 23.0 | 15.00 | 16.0        | 11.54                       | 10                   |
|                              | M12               | 750F12   | 18.0         | 32 | 34 | 13.0 | 23.0 | 16.00 | 18.0        | 11.58                       | 10                   |
|                              | M14               | 750F14   | 18.0         | 32 | 34 | 15.0 | 23.0 | 18.00 | 19.0        | 11.90                       | 10                   |
|                              | M16               | 750F16   | 18.0         | 32 | 34 | 17.0 | 23.0 | 19.00 | 20.0        | 11.80                       | 10                   |
|                              | M20               | 750F20   | 18.0         | 32 | 40 | 21.0 | 23.0 | 21.00 | 22.0        | 12.00                       | 10                   |
| 185                          | M12               | 751F12   | 20.6         | 35 | 39 | 13.0 | 26.0 | 21.50 | 19.0        | 16.36                       | 10                   |
|                              | M14               | 751F14   | 20.6         | 35 | 39 | 15.0 | 26.0 | 21.50 | 19.0        | 16.20                       | 10                   |
|                              | M16               | 751F16   | 20.6         | 35 | 39 | 17.0 | 26.0 | 21.50 | 19.0        | 15.36                       | 10                   |
|                              | M20               | 751F20   | 20.6         | 35 | 39 | 21.0 | 26.0 | 21.50 | 19.0        | 15.80                       | 10                   |
| 240                          | M16               | 752F16   | 23.1         | 44 | 41 | 17.0 | 28.0 | 19.00 | 20.0        | 17.80                       | 5                    |

► Tools: see chart page 58

## Butt connectors, Cu, F-series



- For fine stranded conductors, DIN EN 60228 (e.g. VDE 0295 Class 5 and 6)
- Precise end machining and easy entry for cable insertion

#### Characteristics

- Total cross-section: 10 - 185 mm²
- With buttmarks for precise cable insertion
- Annealed material optimises material and crimping properties
- Tube dimensions suitable for fine stranded conductors

#### Material

- Copper acc. to EN 13600

#### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section<br>mm² | Part No. | Dimension mm |      |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------|----------|--------------|------|----|-----------------------------|------------------|
|                              |          | d1           | d4   | l  |                             |                  |
| 10                           | 722F     | 5.5          | 8.0  | 38 | 0.90                        | 100              |
| 16                           | 723F     | 6.6          | 9.5  | 38 | 1.25                        | 100              |
| 25                           | 724F     | 7.9          | 11.0 | 38 | 1.56                        | 50               |
| 35                           | 725F     | 9.2          | 12.5 | 45 | 2.19                        | 50               |
| 50                           | 726F     | 11.0         | 15.0 | 45 | 3.37                        | 50               |
| 70                           | 727F     | 13.0         | 17.0 | 54 | 4.65                        | 50               |
| 95                           | 728F     | 14.5         | 19.0 | 56 | 6.05                        | 25               |
| 120                          | 729F     | 16.2         | 21.0 | 60 | 7.58                        | 25               |
| 150                          | 730F     | 18.0         | 23.0 | 68 | 9.83                        | 10               |
| 185                          | 731F     | 20.6         | 26.0 | 75 | 13.30                       | 10               |

► Tools: see chart page 58

**Tubular cable lugs, Cu, for solid conductors**

► For solid conductors e.g. VDE 0295 Class 1


**Characteristics**

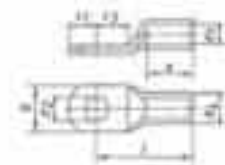
- Total cross-section: 6 - 50 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Flat contact surface by special punching technology
- Precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

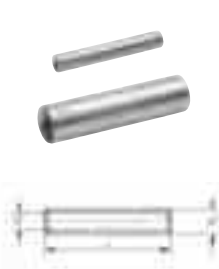
- Tin-plated to protect against corrosion (other surfaces available upon request)



| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Dimension mm |    |      |      |    |       |      |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------|--------------|----|------|------|----|-------|------|------|-----------------------|------------------|
|                                       |                   |          | d1           | a  | b    | d2   | d4 | c1    | c2   | l    |                       |                  |
| 6                                     | M5                | SR65     | 3.0          | 8  | 9.0  | 5.3  | 5  | 4.75  | 6.0  | 17.0 | 0.213                 | 25               |
|                                       | M6                | SR66     | 3.0          | 8  | 10.0 | 6.5  | 5  | 6.50  | 6.5  | 19.0 | 0.220                 | 25               |
| 10                                    | M6                | SR106    | 4.0          | 9  | 10.0 | 6.5  | 6  | 7.00  | 6.5  | 19.0 | 0.300                 | 25               |
|                                       | M8                | SR108    | 4.0          | 9  | 14.0 | 8.5  | 6  | 8.50  | 9.5  | 22.0 | 0.320                 | 25               |
| 16                                    | M6                | SR166    | 5.0          | 12 | 12.5 | 6.5  | 8  | 6.50  | 7.0  | 23.5 | 0.800                 | 25               |
|                                       | M8                | SR168    | 5.0          | 12 | 15.0 | 8.5  | 8  | 9.00  | 9.0  | 26.0 | 0.900                 | 25               |
| 25                                    | M6                | SR256    | 6.2          | 15 | 14.0 | 6.5  | 10 | 7.50  | 7.5  | 30.0 | 1.560                 | 25               |
|                                       | M8                | SR258    | 6.2          | 15 | 16.0 | 8.5  | 10 | 10.00 | 10.0 | 32.0 | 1.700                 | 25               |
| 35                                    | M6                | SR356    | 7.0          | 15 | 14.0 | 6.5  | 10 | 7.50  | 7.5  | 30.0 | 1.200                 | 25               |
|                                       | M8                | SR358    | 7.0          | 15 | 16.0 | 8.5  | 10 | 10.00 | 10.0 | 32.0 | 1.310                 | 25               |
|                                       | M10               | SR3510   | 7.0          | 15 | 18.0 | 10.5 | 10 | 12.00 | 12.0 | 34.0 | 1.570                 | 25               |
| 50                                    | M6                | SR506    | 8.5          | 17 | 17.0 | 6.5  | 12 | 7.50  | 7.5  | 32.0 | 1.850                 | 25               |
|                                       | M8                | SR508    | 8.5          | 17 | 17.0 | 8.5  | 12 | 10.00 | 10.0 | 34.0 | 2.000                 | 25               |
|                                       | M10               | SR5010   | 8.5          | 17 | 19.0 | 10.5 | 12 | 12.00 | 12.0 | 37.0 | 2.130                 | 25               |

► Tools: see chart page 60

## Butt connectors, Cu, for solid conductors



- ▶ For solid conductors e.g. VDE 0295 Class 1
- ▶ Tube dimensions suitable for solid conductors

**Characteristics**

- Total cross-section: 1.5 - 50 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section mm <sup>2</sup> | Part No. | Dimension mm |      |    |  | Wire dia. mm | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------------|------|----|--|--------------|-----------------------|------------------|
| 1.5-2.5                               | SV1525   | d1           | d4   | l  |  |              |                       |                  |
|                                       |          | 1.9          | 3.9  | 25 |  | 1.38/1.78    | 0.210                 | 100              |
| 4                                     | SV4      | 2.4          | 4.4  | 25 |  | 2.25         | 0.240                 | 100              |
| 6                                     | SV6      | 3.0          | 5.0  | 25 |  | 2.75         | 0.275                 | 100              |
| 10                                    | SV10     | 4.0          | 6.0  | 25 |  | 3.55         | 0.350                 | 100              |
| 16                                    | SV16     | 5.0          | 8.0  | 35 |  | 4.5          | 0.960                 | 100              |
| 25                                    | SV25     | 6.2          | 10.0 | 40 |  | 5.65         | 1.700                 | 50               |
| 35                                    | SV35     | 7.0          | 10.0 | 40 |  | 6.7          | 1.420                 | 50               |
| 50                                    | SV50     | 8.5          | 12.0 | 70 |  | 8            | 3.550                 | 50               |

► Tools: see chart page 60

## T-connectors, Cu, for solid conductors



- ▶ For solid conductors e.g. VDE 0295 Class 1
- ▶ Special version for cable tap conductors

**Characteristics**

- Total cross-section: 1.5 - 50 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section mm <sup>2</sup> | Part No. | Dimension mm |      |    |    | Wire dia. mm | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------------|------|----|----|--------------|-----------------------|------------------|
| 1.5-2.5                               | STV1525  | d1           | d4   | l  | l1 |              |                       |                  |
|                                       |          | 1.9          | 3.9  | 30 | 12 | 1.38/1.78    | 0.34                  | 50               |
| 4                                     | STV4     | 2.4          | 4.4  | 30 | 12 | 2.25         | 0.40                  | 50               |
| 6                                     | STV6     | 3.0          | 5.0  | 30 | 12 | 2.75         | 0.48                  | 50               |
| 10                                    | STV10    | 4.0          | 6.0  | 35 | 14 | 3.55         | 0.72                  | 50               |
| 16                                    | STV16    | 5.0          | 8.0  | 35 | 14 | 4.5          | 1.40                  | 50               |
| 25                                    | STV25    | 6.2          | 10.0 | 50 | 21 | 5.65         | 3.20                  | 25               |
| 35                                    | STV35    | 7.0          | 10.0 | 55 | 23 | 6.7          | 2.95                  | 25               |
| 50                                    | STV50    | 8.5          | 12.0 | 76 | 32 | 8            | 5.60                  | 25               |

► Tools: see chart page 60

## Cross connectors, Cu, for solid conductors

- ▶ For solid conductors e.g. VDE 0295 Class 1
- ▶ Special version for double cable tap conductors



### Characteristics

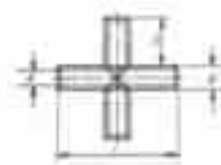
- Total cross-section: 1.5 - 50 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

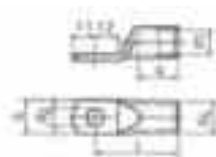
- Tin-plated to protect against corrosion (other surfaces available upon request)



| Nominal cross section mm <sup>2</sup> | Part No. | d1  | d4   | Dimension mm |    | Wire Ø mm | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|-----|------|--------------|----|-----------|-----------------------|------------------|
| 1.5-2.5                               | SKV1525  | 1.9 | 3.9  | 30           | 12 | 1.38/1.78 | 0.47                  | 25               |
| 4                                     | SKV4     | 2.4 | 4.4  | 30           | 12 | 2.25      | 0.56                  | 25               |
| 6                                     | SKV6     | 3.0 | 5.0  | 30           | 12 | 2.75      | 0.67                  | 25               |
| 10                                    | SKV10    | 4.0 | 6.0  | 35           | 14 | 3.55      | 0.92                  | 25               |
| 16                                    | SKV16    | 5.0 | 8.0  | 35           | 14 | 4.5       | 1.86                  | 25               |
| 25                                    | SKV25    | 6.2 | 10.0 | 50           | 21 | 5.65      | 4.20                  | 15               |
| 35                                    | SKV35    | 7.0 | 10.0 | 55           | 23 | 6.7       | 3.80                  | 15               |
| 50                                    | SKV50    | 8.5 | 12.0 | 76           | 32 | 8         | 7.35                  | 15               |

▶ Tools: see chart page 60

## Tubular cable lugs for switch gear connections, standard type



- ▶ For multi-stranded conductors e.g. VDE 0295 Class 2
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ For assembly in switch cabinets with reduced connecting space
- ▶ Narrow version owed to new manufacturing processes without material loss

**Characteristics**

- Total cross-section: 35 - 300 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Flat contact surface by special punching technology
- Precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

**Order info**

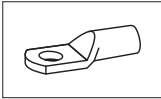
- Also available with inspection hole, part number appendix "ms"

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | d1   | a  | b    | d2   | d4   | c1   | c2   | l  | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------|------|----|------|------|------|------|------|----|-----------------------|------------------|
| 35                                    | M6                | 5SG6     | 8.5  | 17 | 15.0 | 6.5  | 12.0 | 7.5  | 7.5  | 32 | 1.78                  | 25               |
|                                       | M6                | 6SG6     | 10.0 | 19 | 15.0 | 6.5  | 14.0 | 10.0 | 10.0 | 37 | 2.95                  | 25               |
| 50                                    | M8                | 6SG8     | 10.0 | 19 | 17.0 | 8.5  | 14.0 | 10.0 | 10.0 | 37 | 2.82                  | 25               |
|                                       | M10               | 6SG10    | 10.0 | 19 | 19.0 | 10.5 | 14.0 | 11.5 | 12.0 | 39 | 3.08                  | 25               |
| 70                                    | M6                | 7SG6     | 12.0 | 21 | 17.0 | 6.5  | 16.5 | 10.0 | 10.0 | 43 | 4.22                  | 25               |
|                                       | M8                | 7SG8     | 12.0 | 21 | 17.0 | 8.5  | 16.5 | 10.0 | 10.0 | 43 | 4.10                  | 25               |
|                                       | M10               | 7SG10    | 12.0 | 21 | 19.0 | 10.5 | 16.5 | 11.5 | 12.0 | 44 | 4.45                  | 25               |
|                                       | M12               | 7SG12    | 12.0 | 21 | 19.0 | 13.0 | 16.5 | 13.0 | 13.0 | 46 | 4.22                  | 25               |
| 95                                    | M6                | 8SG6     | 13.5 | 25 | 19.0 | 6.5  | 18.0 | 11.5 | 12.0 | 48 | 5.49                  | 25               |
|                                       | M8                | 8SG8     | 13.5 | 25 | 19.0 | 8.5  | 18.0 | 11.5 | 12.0 | 48 | 5.46                  | 25               |
|                                       | M10               | 8SG10    | 13.5 | 25 | 19.0 | 10.5 | 18.0 | 11.5 | 12.0 | 48 | 5.13                  | 25               |
|                                       | M12               | 8SG12    | 13.5 | 25 | 19.0 | 13.0 | 18.0 | 13.0 | 13.0 | 49 | 5.15                  | 25               |
| 120                                   | M6                | 9SG6     | 15.0 | 26 | 19.0 | 6.5  | 19.5 | 11.5 | 14.0 | 51 | 6.16                  | 10               |
|                                       | M8                | 9SG8     | 15.0 | 26 | 19.0 | 8.5  | 19.5 | 11.5 | 14.0 | 51 | 5.94                  | 10               |
|                                       | M10               | 9SG10    | 15.0 | 26 | 19.0 | 10.5 | 19.5 | 11.5 | 14.0 | 51 | 5.81                  | 10               |
|                                       | M12               | 9SG12    | 15.0 | 26 | 19.0 | 13.0 | 19.5 | 14.0 | 14.0 | 51 | 5.92                  | 10               |
| 150                                   | M6                | 10SG6    | 16.5 | 30 | 19.0 | 6.5  | 21.0 | 11.5 | 14.0 | 56 | 6.85                  | 10               |
|                                       | M8                | 10SG8    | 16.5 | 30 | 19.0 | 8.5  | 21.0 | 11.5 | 14.0 | 56 | 6.80                  | 10               |
|                                       | M10               | 10SG10   | 16.5 | 30 | 19.0 | 10.5 | 21.0 | 11.5 | 14.0 | 56 | 6.75                  | 10               |
|                                       | M12               | 10SG12   | 16.5 | 30 | 19.0 | 13.0 | 21.0 | 15.0 | 15.0 | 57 | 7.15                  | 10               |
| 185                                   | M10               | 11SG10   | 19.0 | 30 | 24.5 | 10.5 | 24.0 | 11.5 | 18.0 | 65 | 10.59                 | 10               |
|                                       | M12               | 11SG12   | 19.0 | 30 | 31.0 | 13.0 | 24.0 | 18.0 | 18.0 | 65 | 11.09                 | 10               |
|                                       | M16               | 11SG16   | 19.0 | 30 | 31.0 | 17.0 | 24.0 | 18.0 | 18.0 | 65 | 9.76                  | 10               |
| 240                                   | M10               | 12SG10   | 21.0 | 35 | 31.0 | 10.5 | 26.0 | 11.5 | 19.0 | 72 | 12.70                 | 5                |
|                                       | M12               | 12SG12   | 21.0 | 35 | 31.0 | 13.0 | 26.0 | 21.5 | 19.0 | 72 | 13.72                 | 5                |
|                                       | M16               | 12SG16   | 21.0 | 35 | 31.0 | 17.0 | 26.0 | 21.5 | 19.0 | 72 | 13.28                 | 5                |
| 300                                   | M10               | 13SG10   | 23.5 | 44 | 31.0 | 10.5 | 30.0 | 11.5 | 24.0 | 87 | 19.70                 | 5                |
|                                       | M12               | 13SG12   | 23.5 | 44 | 31.0 | 13.0 | 30.0 | 24.0 | 24.0 | 87 | 22.72                 | 5                |
|                                       | M16               | 13SG16   | 23.5 | 44 | 31.0 | 17.0 | 30.0 | 24.0 | 24.0 | 87 | 22.50                 | 5                |

▶ **Tools: see chart page 55**

🔧 Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"



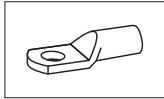


## ■ Tool application chart

**Tubular cable lugs, butt connectors, parallel connectors and T-connectors  
"standard type" and tubular cable lugs for switchgear connections made from Cu**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| <b>0.5-6</b>                                                        | K13            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ☺             | 240            |
| <b>0.75-2.5</b>                                                     | KP1            | +KP232                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 256            |
|                                                                     | KP1L           | +KP232                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 256            |
|                                                                     | EKP1           | +KP232                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☺             | 312            |
|                                                                     | TEKP1          | +KP232                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 281            |
|                                                                     | KPM15          | +KP232                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 282            |
| <b>0.75-10</b>                                                      | K50            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 259            |
|                                                                     | EK50ML         |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 278            |
|                                                                     | EK1550         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☺             | 308            |
|                                                                     | EK1550G        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☺             | 310            |
| <b>0.75-16</b>                                                      | K2             |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ☺             | 241            |
| <b>1-4</b>                                                          | K511           |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ☹             | 252            |
| <b>4-10</b>                                                         | KP1            | +KP242                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 256            |
|                                                                     | KP1L           | +KP242                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 256            |
|                                                                     | EKP1           | +KP242                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☺             | 312            |
|                                                                     | TEKP1          | +KP242                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 281            |
|                                                                     | KPM15          | +KP242                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☺             | 282            |
| <b>6-50</b>                                                         | K5             |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ☹             | 243            |
|                                                                     | K05            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ☹             | 247            |
| <b>6+10</b>                                                         | K512           |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ☹             | 252            |
| <b>6-150</b>                                                        | K354           |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☹             | 260            |
|                                                                     | EK354          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☹             | 314            |
|                                                                     | EK354L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☹             | 316            |
| <b>6-185</b>                                                        | K18            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ☹             | 262            |
|                                                                     | HK6018         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ☹             | 286            |
|                                                                     | EK5018L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☹             | 320            |
|                                                                     | PK18           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ☹             | 362            |
|                                                                     | THK18          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ☹             | 362            |
|                                                                     | HK60UNV        | + UA18                    |                              |                                                                                                     | •                                      |                                         |                                 |                               | ☹             | 354            |
|                                                                     | EK60UNVL       | + UA18                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☹             | 357            |
|                                                                     | EKM60UNVL      | + UA18                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☹             | 356            |
|                                                                     | PK60UNV        | + UA18                    |                              |                                                                                                     |                                        |                                         |                                 | •                             | ☹             | 355            |
| <b>6-240</b>                                                        | EK505L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ☹             | 318            |

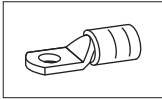
See next page



## ■ Tool application chart

Tubular cable lugs, butt connectors, parallel connectors and T-connectors "standard type" and tubular cable lugs for switchgear connections made from Cu

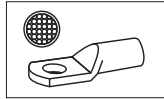
| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                               |                             | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------|-----------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimping<br>systems | Hydraulic crimping<br>heads |               |                |
| 6-300                                                               | K22            |                           |                              | •                                                                                                   |                                        |                                         |                               |                             | ⊗             | 264            |
|                                                                     | HK6022         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⊗             | 288            |
|                                                                     | EK6022L        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 324            |
|                                                                     | EKM6022L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 322            |
|                                                                     | PK22           |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⊗             | 364            |
|                                                                     | THK22          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⊗             | 364            |
|                                                                     | HK60UNV        | + UA22                    |                              |                                                                                                     | •                                      |                                         |                               |                             | ⊗             | 354            |
|                                                                     | EK60UNVL       | + UA22                    |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 357            |
|                                                                     | EKM60UNVL      | + UA22                    |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 356            |
|                                                                     | PK60UNV        | + UA22                    |                              |                                                                                                     |                                        |                                         |                               | •                           | ⊗             | 355            |
| 10-25                                                               | K04            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 246            |
| 10-120                                                              | K06            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 249            |
| 10-240                                                              | HK60VP         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⊗             | 290            |
|                                                                     | EK60VPL        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 326            |
|                                                                     | EKM60IDL       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 328            |
|                                                                     | PK60VP         |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⊗             | 366            |
| 16-95                                                               | K08            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 248            |
|                                                                     | K95            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 242            |
|                                                                     | TK95           |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 243            |
| 16-300                                                              | HK60VPFT       |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⊗             | 291            |
|                                                                     | EK60VPFTL      |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 327            |
|                                                                     | PK60VPFT       |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⊗             | 367            |
| 16-400                                                              | HK12030        |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⊗             | 292            |
|                                                                     | HK12042        |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⊗             | 294            |
|                                                                     | HK120U         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⊗             | 296            |
|                                                                     | EK12030L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 330            |
|                                                                     | EK12042L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 332            |
|                                                                     | EK120UL        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 334            |
|                                                                     | EK120UNVL      |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⊗             | 358            |
|                                                                     | HK122EL380     |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⊗             | 390            |
|                                                                     | PK12042        |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⊗             | 368            |
|                                                                     | PK120U         |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⊗             | 370            |
|                                                                     | HK252          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⊗             | 388            |
|                                                                     | HK252EL380     |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⊗             | 391            |
|                                                                     | PK252          |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⊗             | 372            |
| 25-150                                                              | K09            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 251            |
| 35-95                                                               | K8             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 245            |
| 50-120                                                              | K6             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 244            |
| 120-240                                                             | K7             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 245            |
| 185-400                                                             | K07            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ⊗             | 244            |



## ■ Tool application chart

### Insulated tubular cable lugs and butt connectors "standard type"

| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 10-70                                                   | K354           |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 260         |
|                                                         | EK354          |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 314         |
|                                                         | EK354L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 316         |
| 10-95                                                   | K18            |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 262         |
|                                                         | HK6018         |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 286         |
|                                                         | EK5018L        |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 320         |
|                                                         | EK505L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 318         |
|                                                         | PK18           |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 362         |
|                                                         | THK18          |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 362         |
|                                                         | HK60UNV        | + UA18                 |                           |                                                                                   | •                             |                                |                            |                          | ○             | 354         |
|                                                         | EK60UNVL       | + UA18                 |                           |                                                                                   |                               | •                              |                            |                          | ○             | 357         |
|                                                         | EKM60UNVL      | + UA18                 |                           |                                                                                   |                               | •                              |                            |                          | ○             | 356         |
|                                                         | PK60UNV        | + UA18                 |                           |                                                                                   |                               |                                |                            | •                        | ○             | 355         |
|                                                         |                |                        |                           |                                                                                   |                               |                                |                            |                          | ○             |             |
| 10-150                                                  | K22            |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 264         |
|                                                         | HK6022         |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 288         |
|                                                         | EK6022L        |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 324         |
|                                                         | EKM6022L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 322         |
|                                                         | PK22           |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 364         |
|                                                         | THK22          |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 364         |
|                                                         | HK60UNV        | + UA22                 |                           |                                                                                   | •                             |                                |                            |                          | ○             | 354         |
|                                                         | EK60UNVL       | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ○             | 357         |
|                                                         | EKM60UNVL      | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ○             | 356         |
|                                                         | PK60UNV        | + UA22                 |                           |                                                                                   |                               |                                |                            | •                        | ○             | 355         |
|                                                         |                |                        |                           |                                                                                   |                               |                                |                            |                          | ○             |             |
|                                                         | HK12030        |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 292         |
|                                                         | HK12042        |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 294         |
|                                                         | HK120U         |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 296         |
|                                                         | EK12030L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 330         |
|                                                         | EK12042L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 332         |
|                                                         | EK120UL        |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 334         |
|                                                         | EK120UNVL      |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 358         |
|                                                         | HK122EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 390         |
|                                                         | PK12042        |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 368         |
|                                                         | PK120U         |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 370         |
|                                                         | HK252          |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 388         |
|                                                         | HK252EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 391         |
|                                                         | PK252          |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 372         |

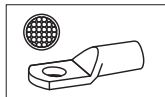


## ■ Tool application chart

### Tubular cable lugs and butt connectors for fine stranded conductors

| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 10-35                                                   | K354           |                        |                           | •                                                                                 |                               |                                |                            |                          |               | 260         |
| 10-50                                                   | EK354          |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 314         |
|                                                         | EK354L         |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 316         |
|                                                         | K5             |                        | •                         |                                                                                   |                               |                                |                            |                          |               | 243         |
|                                                         | K18            |                        |                           | •                                                                                 |                               |                                |                            |                          |               | 262         |
|                                                         | HK6018         |                        |                           |                                                                                   | •                             |                                |                            |                          |               | 286         |
|                                                         | EK505L         |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 318         |
|                                                         | EK5018L        |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 320         |
|                                                         | PK18           |                        |                           |                                                                                   |                               |                                |                            | •                        |               | 362         |
|                                                         | THK18          |                        |                           |                                                                                   |                               |                                | •                          |                          |               | 362         |
|                                                         | HK60UNV        | + UA18                 |                           |                                                                                   | •                             |                                |                            |                          |               | 354         |
|                                                         | EK60UNVL       | + UA18                 |                           |                                                                                   |                               | •                              |                            |                          |               | 357         |
|                                                         | EKM60UNVL      | + UA18                 |                           |                                                                                   |                               | •                              |                            |                          |               | 356         |
|                                                         | PK60UNV        | + UA18                 |                           |                                                                                   |                               |                                |                            | •                        |               | 355         |
| 10-70                                                   | K22            |                        |                           | •                                                                                 |                               |                                |                            |                          |               | 264         |
|                                                         | HK6022         |                        |                           |                                                                                   | •                             |                                |                            |                          |               | 288         |
|                                                         | EK6022L        |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 324         |
|                                                         | EKM6022L       |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 322         |
|                                                         | PK22           |                        |                           |                                                                                   |                               |                                |                            | •                        |               | 364         |
|                                                         | THK22          |                        |                           |                                                                                   |                               |                                | •                          |                          |               | 364         |
|                                                         | HK60UNV        | + UA22                 |                           |                                                                                   | •                             |                                |                            |                          |               | 354         |
|                                                         | EK60UNVL       | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          |               | 357         |
|                                                         | EKM60UNVL      | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          |               | 356         |
|                                                         | PK60UNV        | + UA22                 |                           |                                                                                   |                               |                                |                            | •                        |               | 355         |
| 10-240                                                  | HK60VP         |                        |                           |                                                                                   | •                             |                                |                            |                          |               | 290         |
|                                                         | EK60VPL        |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 326         |
|                                                         | EKM60IDL       |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 328         |
|                                                         | PK60VP         |                        |                           |                                                                                   |                               |                                |                            | •                        |               | 366         |
| 16-95                                                   | K95            |                        | •                         |                                                                                   |                               |                                |                            |                          |               | 242         |
|                                                         | TK95           |                        | •                         |                                                                                   |                               |                                |                            |                          |               | 243         |
| 16-150                                                  | HK12030        |                        |                           |                                                                                   | •                             |                                |                            |                          |               | 292         |
|                                                         | HK12042        |                        |                           |                                                                                   | •                             |                                |                            |                          |               | 294         |
|                                                         | HK120U         |                        |                           |                                                                                   | •                             |                                |                            |                          |               | 296         |
|                                                         | EK12030L       |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 330         |
|                                                         | EK12042L       |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 332         |
|                                                         | EK120UL        |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 334         |
|                                                         | EK120UNVL      |                        |                           |                                                                                   |                               | •                              |                            |                          |               | 358         |
|                                                         | PK12042        |                        |                           |                                                                                   |                               |                                |                            | •                        |               | 368         |
|                                                         | PK120U         |                        |                           |                                                                                   |                               |                                |                            | •                        |               | 370         |

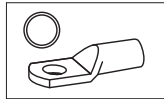
See next page



## ■ Tool application chart

### Tubular cable lugs and butt connectors for fine stranded conductors

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                               |                             | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------|-----------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimping<br>systems | Hydraulic crimping<br>heads |               |                |
| <b>16-300</b>                                                       | HK60VPFT       |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ☺             | 291            |
|                                                                     | HK252          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ☺             | 388            |
|                                                                     | HK252EL380     |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ☺             | 391            |
|                                                                     | EK60VPFTL      |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ☹             | 327            |
|                                                                     | PK60VPFT       |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ☹             | 367            |
|                                                                     | PK252          |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ☺             | 372            |
| <b>35-95</b>                                                        | K8             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ☹             | 245            |
| <b>50-120</b>                                                       | K6             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ☹             | 244            |
| <b>120-240</b>                                                      | K7             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ☹             | 245            |



## ■ Tool application chart

### Tubular cable lugs and compression joints for solid conductors

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools   |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               |    | Page<br>(Tool)                                                                      |     |
|---------------------------------------------------------------------|------------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|
|                                                                     | Tools            | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crim-<br>ping systems | Hydraulic crim-<br>ping heads |                                                                                     |                                                                                     |     |
| 0.75-16                                                             | K02              |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |    | 241                                                                                 |     |
| 1.5-4                                                               | K93              |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |    | 239                                                                                 |     |
| 1.5-10                                                              | K50              |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |    | 259                                                                                 |     |
|                                                                     | EK50ML           |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |    | 278                                                                                 |     |
|                                                                     | EK1550           |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |    | 308                                                                                 |     |
|                                                                     | EK1550G          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |    | 310                                                                                 |     |
| 1.5-16                                                              | K354             |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |    | 260                                                                                 |     |
|                                                                     | EK354            |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |    | 314                                                                                 |     |
|                                                                     | EK354L           |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |    | 316                                                                                 |     |
|                                                                     | K18              |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |    | 262                                                                                 |     |
|                                                                     | HK6018           |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |    | 286                                                                                 |     |
|                                                                     | EK5018L          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |    | 320                                                                                 |     |
|                                                                     | PK18             |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |    | 362                                                                                 |     |
|                                                                     | THK18            |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |    | 362                                                                                 |     |
|                                                                     | HK60UNV + UA18   |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |    | 354                                                                                 |     |
|                                                                     | EK60UNVL + UA18  |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |    | 357                                                                                 |     |
|                                                                     | EKM60UNVL + UA18 |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |    | 356                                                                                 |     |
|                                                                     | PK60UNV + UA18   |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |    | 355                                                                                 |     |
|                                                                     | K22              |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |                                                                                     |    | 264 |
|                                                                     | HK6022           |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |                                                                                     |  | 288 |
|                                                                     | EK6022L          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |                                                                                     |  | 324 |
|                                                                     | EKM6022L         |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |                                                                                     |  | 322 |
|                                                                     | PK22             |                           |                              |                                                                                                     |                                        |                                         |                                 |                               | •                                                                                   |  | 364 |
|                                                                     | THK22            |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |                                                                                     |  | 364 |
|                                                                     | HK60UNV + UA22   |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |                                                                                     |  | 354 |
|                                                                     | EK60UNVL + UA22  |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |                                                                                     |  | 357 |
|                                                                     | EKM60UNVL + UA22 |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |                                                                                     |  | 356 |
|                                                                     | PK60UNV + UA22   |                           |                              |                                                                                                     |                                        |                                         |                                 |                               | •                                                                                   |  | 355 |
| 6-10                                                                | K94              |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |  | 240                                                                                 |     |
| 25-50*                                                              | K05              |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |  | 247                                                                                 |     |

\*For sizes 25 + 35 mm², use the die size 25 mm².

For size 50 mm² use die size 35 mm².

We recommend 2 crimps on each side.



## Our specialists.

### Nickel and stainless steel tubular cable lugs.

Unique situations require unique solutions. This is especially true in most of the diverse industrial sectors. For example in furnace construction or in the steel industry: Temperatures of several hundred degrees Celsius are very common here. Connections also have to meet special requirements in the chemical, food and maritime industries.

Klauke meets this demand with a host of solutions in nickel and stainless steel. These materials guarantee consistent electrical, chemical and mechanical properties at extremely high temperatures.

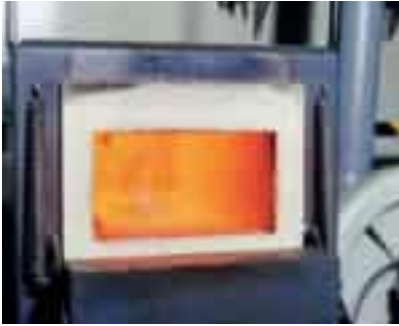


- Nickel tubular cable lugs and connectors, heat resistant to 650 °C.
- Acid and rust-resistant stainless steel tubular cable lugs and connectors, heat resistant to 400 °C.
- Special solutions for diverse applications.



*Nickel and stainless steel tubular cable lugs cover a diverse range of applications - such as industrial and shipbuilding.*





## ■ When it gets really hot: *Nickel.*

- ▶ **Heat resistant up to 650 °C.**
- ▶ Resistant to oxidation.

### **Benefits:**

- ▶ Nickel tubular cable lugs and butt connectors are most suitable for use in heating and annealing furnaces. They retain their conductivity and failures are excluded.
- ▶ Nickel connectors even guarantee safe electrical connections in aggressive environments.

▶ *More from Page 66.*

## ■ Oxidation-free and food-industry compliant: *Stainless steel.*

- ▶ Highly resistant to oxidation.
- ▶ Food industry-compliant.
- ▶ **Resistant to seawater, acids and solvents.**
- ▶ Heat resistant up to 400 °C.

### **Benefits:**

- ▶ The cable lugs are capable of meeting the most stringent hygiene requirements in food and pharmaceutical industries.
- ▶ Stainless steel cable lugs and connectors can also be used without hesitation in both the chemical and maritime industries.
- ▶ *More from Page 64.*



## ■ The adequate solutions *in nickel or stainless steel.*

- ▶ Up to 95 mm<sup>2</sup> nominal cross section in nickel and stainless steel.
- ▶ **Customised solutions upon request.**

### **Benefits:**

- ▶ We provide suitable cable lug in the fastest possible time for a host of applications.
- ▶ You can rely on Klauke's problem-solving skills, even when it comes to meeting the most complicated requirements.

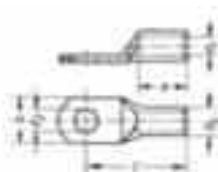


▶ *Checklist for special solutions (Page i-15)*

## Tubular cable lugs, stainless steel



- ▶ Ideal for aggressive environmental conditions, acid and rust-resistant
- ▶ Heat resistant to 400 °C



## Characteristics

- Total cross-section: 0.5 - 95 mm²
- Flat contact surface by special steel punching technology
- Precise end machining for easy cable insertion

## Material

- V2A

## Order info

- Also available in stainless steel (V4A)

| Nominal cross section mm² | Size of bolt dia. | Part No. | Dimension mm |    |      |      |      |    | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------|-------------------|----------|--------------|----|------|------|------|----|-----------------------|-------------------|
|                           |                   |          | d1           | a  | b    | d2   | d4   | l  |                       |                   |
| 0.5-1                     | M4                | 79V4     | 1.6          | 6  | 6.5  | 4.3  | 3.2  | 13 | 0.080                 | 100               |
|                           | M5                | 79V5     | 1.6          | 6  | 7.5  | 5.3  | 3.2  | 14 | 0.080                 | 100               |
|                           | M4                | 80V4     | 3.0          | 8  | 9.0  | 4.3  | 5.0  | 17 | 0.260                 | 100               |
| 1.5-2.5                   | M5                | 80V5     | 3.0          | 8  | 9.0  | 5.5  | 5.0  | 17 | 0.190                 | 100               |
|                           | M6                | 80V6     | 3.0          | 8  | 9.5  | 6.5  | 5.0  | 19 | 0.215                 | 100               |
|                           | M4                | 81V4     | 4.0          | 9  | 9.0  | 4.3  | 6.0  | 18 | 0.260                 | 100               |
| 4-6                       | M5                | 81V5     | 4.0          | 9  | 9.5  | 5.5  | 6.0  | 19 | 0.280                 | 100               |
|                           | M6                | 81V6     | 4.0          | 9  | 10.0 | 6.5  | 6.0  | 19 | 0.280                 | 100               |
| 10                        | M5                | 82V5     | 5.0          | 10 | 12.5 | 5.5  | 8.0  | 22 | 0.710                 | 100               |
|                           | M6                | 82V6     | 5.0          | 10 | 12.5 | 6.5  | 8.0  | 22 | 0.780                 | 100               |
|                           | M8                | 82V8     | 5.0          | 10 | 15.0 | 8.5  | 8.0  | 25 | 0.780                 | 100               |
| 16                        | M5                | 83V5     | 6.0          | 13 | 12.0 | 5.5  | 8.0  | 28 | 0.500                 | 50                |
|                           | M6                | 83V6     | 6.0          | 13 | 12.0 | 6.5  | 8.0  | 28 | 0.550                 | 50                |
|                           | M8                | 83V8     | 6.0          | 13 | 15.0 | 8.5  | 8.0  | 29 | 0.600                 | 50                |
| 25                        | M6                | 84V6     | 7.0          | 15 | 14.0 | 6.5  | 10.0 | 30 | 1.210                 | 50                |
|                           | M8                | 84V8     | 7.0          | 15 | 16.0 | 8.5  | 10.0 | 32 | 1.850                 | 50                |
| 35                        | M6                | 85V6     | 9.0          | 17 | 17.0 | 6.5  | 12.0 | 32 | 1.600                 | 50                |
|                           | M8                | 85V8     | 9.0          | 17 | 17.0 | 8.5  | 12.0 | 35 | 1.850                 | 50                |
|                           | M10               | 85V10    | 10.0         | 19 | 20.0 | 6.5  | 14.0 | 37 | 2.800                 | 50                |
| 50                        | M8                | 86V8     | 10.0         | 19 | 20.0 | 8.5  | 14.0 | 37 | 2.600                 | 50                |
|                           | M10               | 86V10    | 10.0         | 19 | 20.0 | 10.5 | 14.0 | 39 | 2.800                 | 50                |
|                           | M12               | 86V12    | 10.0         | 19 | 20.0 | 13.0 | 14.0 | 43 | 2.960                 | 50                |
| 70                        | M8                | 87V8     | 12.0         | 21 | 23.0 | 8.5  | 16.0 | 43 | 3.650                 | 25                |
|                           | M10               | 87V10    | 12.0         | 21 | 23.0 | 10.5 | 16.0 | 44 | 3.930                 | 25                |
|                           | M12               | 87V12    | 12.0         | 21 | 23.0 | 13.0 | 16.0 | 46 | 3.850                 | 25                |
|                           | M16               | 87V16    | 12.0         | 21 | 26.0 | 17.0 | 16.0 | 46 | 3.960                 | 25                |
| 95                        | M8                | 88V8     | 14.0         | 25 | 26.0 | 8.5  | 18.0 | 48 | 4.650                 | 25                |
|                           | M10               | 88V10    | 14.0         | 25 | 26.0 | 10.5 | 18.0 | 48 | 5.610                 | 25                |
|                           | M12               | 88V12    | 14.0         | 25 | 26.0 | 13.0 | 18.0 | 49 | 5.540                 | 25                |

► Tools: see chart page 68

**Butt connectors, stainless steel**

- ▶ Ideal for aggressive environmental conditions, acid and rust-resistant
- ▶ Heat resistant to 400 °C


**Characteristics**

- Total cross-section: 0.5 - 95 mm<sup>2</sup>
- With buttmarks for precise cable insertion
- Precise end machining for easy cable insertion

**Material**

- V2A

**Order info**

- Also available in stainless steel (V4A)



| Nominal cross section<br>mm <sup>2</sup> | Part No.   | Dimension mm |      |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|------------|--------------|------|----|-----------------------------|------------------|
|                                          |            | d1           | d4   | l  |                             |                  |
| 0.5-1                                    | <b>79R</b> | 1.6          | 3.2  | 25 | 0.135                       | 50               |
| 1.5-2.5                                  | <b>80R</b> | 3.0          | 5.0  | 25 | 0.250                       | 50               |
| 4-6                                      | <b>81R</b> | 4.0          | 6.0  | 25 | 0.325                       | 50               |
| 10                                       | <b>82R</b> | 5.0          | 8.0  | 25 | 0.360                       | 50               |
| 16                                       | <b>83R</b> | 6.0          | 8.0  | 30 | 0.510                       | 50               |
| 25                                       | <b>84R</b> | 7.0          | 10.0 | 35 | 1.100                       | 25               |
| 35                                       | <b>85R</b> | 9.0          | 12.0 | 40 | 1.560                       | 25               |
| 50                                       | <b>86R</b> | 10.0         | 14.0 | 45 | 2.670                       | 25               |
| 70                                       | <b>87R</b> | 12.0         | 16.0 | 50 | 3.400                       | 25               |
| 95                                       | <b>88R</b> | 14.0         | 18.0 | 55 | 4.300                       | 25               |

▶ Tools: see chart page 68

## Tubular cable lug, Ni



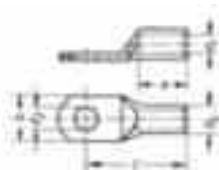
► Suitable for high temperatures to 650 °C

### Characteristics

- Total cross-section: 0.5 - 95 mm<sup>2</sup>
- Flat contact surface by special steel punching technology
- Precise end machining for easy cable insertion

### Material

- High-grade nickel



| Nominal cross section<br>mm <sup>2</sup> | Size of bolt<br>dia. | Part No. | Dimension mm |    |      |      |      |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|------------------------------------------|----------------------|----------|--------------|----|------|------|------|----|-----------------------------|----------------------|
|                                          |                      |          | d1           | a  | b    | d2   | d4   | l  |                             |                      |
| 0.5-1                                    | M4                   | 56N4     | 1.6          | 6  | 6.5  | 4.3  | 3.2  | 13 | 0.080                       | 100                  |
|                                          | M5                   | 56N5     | 1.6          | 6  | 7.5  | 5.3  | 3.2  | 14 | 0.080                       | 100                  |
|                                          | M4                   | 57N4     | 2.3          | 6  | 7.0  | 4.3  | 3.9  | 13 | 0.105                       | 100                  |
| 1.5-2.5                                  | M5                   | 57N5     | 2.3          | 6  | 7.5  | 5.3  | 3.9  | 14 | 0.105                       | 100                  |
|                                          | M6                   | 57N6     | 2.3          | 6  | 9.5  | 6.5  | 3.9  | 16 | 0.130                       | 100                  |
|                                          | M4                   | 58N4     | 3.6          | 9  | 9.5  | 4.3  | 5.6  | 18 | 0.275                       | 100                  |
| 4-6                                      | M5                   | 58N5     | 3.6          | 9  | 9.5  | 5.3  | 5.6  | 19 | 0.275                       | 100                  |
|                                          | M6                   | 58N6     | 3.6          | 9  | 9.5  | 6.5  | 5.6  | 19 | 0.260                       | 100                  |
| 10                                       | M5                   | 59N5     | 4.5          | 10 | 12.0 | 5.5  | 6.5  | 21 | 0.340                       | 100                  |
|                                          | M6                   | 59N6     | 4.5          | 10 | 12.0 | 6.5  | 6.5  | 22 | 0.360                       | 100                  |
| 16                                       | M5                   | 60N5     | 5.5          | 13 | 12.0 | 5.5  | 7.5  | 26 | 0.470                       | 100                  |
|                                          | M6                   | 60N6     | 5.5          | 13 | 12.0 | 6.5  | 7.5  | 27 | 0.480                       | 100                  |
|                                          | M8                   | 60N8     | 5.5          | 13 | 13.5 | 8.5  | 7.5  | 29 | 0.560                       | 100                  |
| 25                                       | M6                   | 61N6     | 7.0          | 15 | 14.0 | 6.5  | 10.0 | 30 | 1.200                       | 50                   |
|                                          | M8                   | 61N8     | 7.0          | 15 | 16.0 | 8.5  | 10.0 | 32 | 1.320                       | 50                   |
|                                          | M6                   | 62N6     | 8.5          | 17 | 17.0 | 6.5  | 12.0 | 32 | 1.850                       | 50                   |
| 35                                       | M8                   | 62N8     | 8.5          | 17 | 17.0 | 8.5  | 12.0 | 34 | 2.000                       | 50                   |
|                                          | M8                   | 63N8     | 10.0         | 19 | 20.0 | 8.5  | 14.0 | 37 | 2.900                       | 50                   |
| 50                                       | M10                  | 63N10    | 10.0         | 19 | 20.0 | 10.5 | 14.0 | 39 | 3.100                       | 50                   |
|                                          | M10                  | 64N10    | 12.0         | 21 | 23.0 | 10.5 | 16.5 | 44 | 4.600                       | 25                   |
|                                          | M12                  | 64N12    | 12.0         | 21 | 23.0 | 13.0 | 16.5 | 46 | 4.660                       | 25                   |
| 95                                       | M10                  | 65N10    | 13.5         | 25 | 26.0 | 10.5 | 18.0 | 48 | 5.550                       | 25                   |
|                                          | M12                  | 65N12    | 13.5         | 25 | 26.0 | 13.0 | 18.0 | 49 | 5.600                       | 25                   |

► Tools: see chart page 68

**Tubular cable lugs, Ni, fork type**

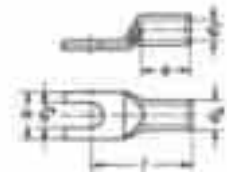
- ▶ Suitable for high temperatures to 650 °C
- ▶ Fork-type version for simple and direct screw mounting


**Characteristics**

- Total cross-section: 0.5 - 16 mm²
- Flat contact surface by special steel punching technology
- Precise end machining for easy cable insertion

**Material**

- High-grade nickel



| Nominal cross section<br>mm² | Size of bolt<br>dia. | Part No. | Dimension mm |    |      |     |     |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|------------------------------|----------------------|----------|--------------|----|------|-----|-----|----|-----------------------------|----------------------|
|                              |                      |          | d1           | a  | b    | d2  | d4  | l  |                             |                      |
| 0.5-1                        | M4                   | 56C4     | 1.6          | 6  | 6.5  | 4.3 | 3.2 | 13 | 0.070                       | 50                   |
|                              | M5                   | 56C5     | 1.6          | 6  | 7.5  | 5.3 | 3.2 | 14 | 0.075                       | 50                   |
| 1.5-2.5                      | M4                   | 57C4     | 2.3          | 6  | 7.0  | 4.3 | 3.9 | 13 | 0.095                       | 50                   |
|                              | M5                   | 57C5     | 2.3          | 6  | 7.5  | 5.3 | 3.9 | 14 | 0.095                       | 50                   |
|                              | M6                   | 57C6     | 2.3          | 6  | 9.5  | 6.5 | 3.9 | 16 | 0.110                       | 50                   |
|                              | M4                   | 58C4     | 3.6          | 9  | 9.5  | 4.3 | 5.6 | 18 | 0.250                       | 50                   |
| 4-6                          | M5                   | 58C5     | 3.6          | 9  | 9.5  | 5.3 | 5.6 | 19 | 0.255                       | 50                   |
|                              | M6                   | 58C6     | 3.6          | 9  | 9.5  | 6.5 | 5.6 | 19 | 0.235                       | 50                   |
| 10                           | M5                   | 59C5     | 4.5          | 10 | 12.0 | 5.5 | 6.5 | 21 | 0.320                       | 50                   |
|                              | M6                   | 59C6     | 4.5          | 10 | 12.0 | 6.5 | 6.5 | 22 | 0.340                       | 50                   |
| 16                           | M5                   | 60C5     | 5.5          | 13 | 12.0 | 5.5 | 7.5 | 26 | 0.440                       | 50                   |
|                              | M6                   | 60C6     | 5.5          | 13 | 12.0 | 6.5 | 7.5 | 27 | 0.450                       | 50                   |
|                              | M8                   | 60C8     | 5.5          | 13 | 13.5 | 8.5 | 7.5 | 29 | 0.520                       | 50                   |

▶ Tools: see chart page 68

**Butt connectors, Ni**

- ▶ Suitable for high temperatures to 650 °C


**Characteristics**

- Total cross-section: 0.5 - 16 mm²
- With buttmarks for precise cable insertion
- Precise end machining for easy cable insertion

**Material**

- High-grade nickel



| Nominal cross section<br>mm² | Part No. | Dimension mm |     |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------|----------|--------------|-----|----|-----------------------------|------------------|
|                              |          | d1           | d4  | l  |                             |                  |
| 0.5-1                        | 62R      | 1.6          | 3.2 | 25 | 0.135                       | 50               |
| 1.5-2.5                      | 63R      | 2.3          | 3.9 | 25 | 0.170                       | 50               |
| 4-6                          | 64R      | 3.6          | 5.6 | 25 | 0.325                       | 50               |
| 10                           | 65R      | 4.5          | 6.5 | 25 | 0.360                       | 50               |
| 16                           | 66R      | 5.5          | 7.5 | 30 | 0.510                       | 50               |

▶ Tools: see chart page 68

[illegible][illegible]

### ■ Tool application chart



## **Best connections** *entirely to standard.*



- Compression cable lugs to DIN 46235 up to 1000 mm<sup>2</sup>.
- Angled compression cable lugs to DIN dimensions.
- Compression joints for non-tension connections to DIN.
- Sleeves and reducing sleeves for compacted conductors.

### **Copper compression cable lugs and connectors to DIN.**

In project business, customers often request use of standardised materials. Utilities, for example, often specify use of compression cable lugs and connectors according to DIN standards. Klauke offers numerous standard-compliant solutions.

Contrary to popular belief, DIN cable lugs differ from tubular cable lugs not only in terms of dimensions. Markings and standardised coding specify the number of crimps.



*DIN-compliant compression cable lugs with specified identification marks for crimps.*



## ■ Always to **DIN** standards.

- ▶ **Nominal cross sections up to 1000 mm<sup>2</sup>.**
- ▶ Conforming to DIN standards, tested to IEC.
- ▶ Tin-plated or bright finish available.
- ▶ Also with barrier.

### Benefits:

- ▶ The Klauke range includes DIN compression cable lugs and connectors to suit every application.
- ▶ Bright finish versions are especially suitable for installations in overvoltage or lightning protection systems.



▶ More from Page 72.



## ■ Simply angled, improved fit.

- ▶ Compression cable lugs angled at 45° and 90°.
- ▶ Nominal cross sections up to 240 mm<sup>2</sup>.

### Benefits:

- ▶ You will find the right solution. **Even for confined and awkward situations.**
- ▶ More from Page 74.

## ■ Correct crimping mark by mark.

- ▶ All DIN compression cable lugs and connectors have markings for correct crimping.
- ▶ Designation for narrow and wide crimping.
- ▶ Engraved code, cross-section and hole diameter for fast assignment.
- ▶ All compression cable lugs are annealed to optimise material and crimping characteristics.
- ▶ Manufacturer's identification for simple re-ordering.

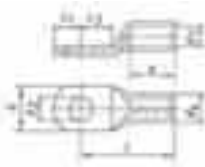
### Benefits:

- ▶ The designated crimp markings show you at a glance where and how often the connecting material has to be crimped.
- ▶ The annealed material flows more efficiently around the conductor during the crimping operation, so creating a secure connection.
- ▶ Crimping is made much easier and the tools' service life is extended due to the low mechanical strain.



- ▶ **Klauke connecting materials to DIN are designated by two different crimp markings.**  
One for narrow crimps with 6-ton tools and the other for wide crimps with 12-ton tools.

## Compression cable lugs acc. to DIN, Cu



- ▶ Acc. to DIN 46235
- ▶ With code number for clear tool assignment
- ▶ For round conductors e.g VDE 0295 Class 1, 2, 5 and 6
- ▶ For pre-rounded multi-stranded sector shaped conductors

**Characteristics**

- Total cross-section: 6 - 1000 mm<sup>2</sup>
- With crimp markings for correct crimping
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

**Order info**

- Bright finish version also available, part number appendix "bk"
- Item in barrier design upon request

| Nominal cross section<br>mm <sup>2</sup> | Size of bolt dia. | Part No. | Code | a  | b    | d1   | d2   | d4   | c1   | c2   | l  | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------------------------------------|-------------------|----------|------|----|------|------|------|------|------|------|----|-----------------------------|---------------------|
| 6                                        | M 5               | 101R5    | 5    | 10 | 8.5  | 3.8  | 5.3  | 5.5  | 6.5  | 7.5  | 24 | 0.24                        | 100                 |
|                                          | M 6               | 101R6    | 5    | 10 | 8.5  | 3.8  | 6.4  | 5.5  | 7.5  | 8.0  | 24 | 0.30                        | 100                 |
|                                          | M 8               | *101R8   | 5    | 10 | 13.0 | 3.8  | 8.4  | 5.5  | 10.0 | 10.0 | 24 | 0.34                        | 100                 |
| 10                                       | M 5               | 102R5    | 6    | 10 | 9.0  | 4.5  | 5.3  | 6.0  | 7.0  | 8.5  | 27 | 0.37                        | 100                 |
|                                          | M 6               | 102R6    | 6    | 10 | 9.0  | 4.5  | 6.4  | 6.0  | 7.5  | 8.5  | 27 | 0.36                        | 100                 |
|                                          | M 8               | *102R8   | 6    | 10 | 13.0 | 4.5  | 8.4  | 6.0  | 10.0 | 10.0 | 27 | 0.38                        | 100                 |
| 16                                       | M 6               | 103R6    | 8    | 20 | 13.0 | 5.5  | 6.4  | 8.5  | 7.5  | 8.0  | 36 | 1.19                        | 100                 |
|                                          | M 8               | 103R8    | 8    | 20 | 13.0 | 5.5  | 8.4  | 8.5  | 10.0 | 10.0 | 36 | 1.22                        | 100                 |
|                                          | M 10              | 103R10   | 8    | 20 | 17.0 | 5.5  | 10.5 | 8.5  | 12.0 | 12.0 | 36 | 1.30                        | 100                 |
| 25                                       | M 12              | *103R12  | 8    | 20 | 18.0 | 5.5  | 13.0 | 8.5  | 13.0 | 13.0 | 36 | 1.27                        | 100                 |
|                                          | M 6               | 104R6    | 10   | 20 | 14.0 | 7.0  | 6.4  | 10.0 | 7.5  | 8.0  | 38 | 1.51                        | 50                  |
|                                          | M 8               | 104R8    | 10   | 20 | 16.0 | 7.0  | 8.4  | 10.0 | 10.0 | 10.0 | 38 | 1.54                        | 50                  |
| 35                                       | M 10              | 104R10   | 10   | 20 | 17.0 | 7.0  | 10.5 | 10.0 | 12.0 | 12.0 | 38 | 1.62                        | 50                  |
|                                          | M 12              | 104R12   | 10   | 20 | 19.0 | 7.0  | 13.0 | 10.0 | 13.0 | 13.0 | 38 | 1.66                        | 25                  |
|                                          | M 6               | *105R6   | 12   | 20 | 17.0 | 8.2  | 6.4  | 12.5 | 7.5  | 8.0  | 42 | 2.77                        | 50                  |
| 50                                       | M 8               | 105R8    | 12   | 20 | 17.0 | 8.2  | 8.4  | 12.5 | 10.0 | 10.0 | 42 | 2.85                        | 50                  |
|                                          | M 10              | 105R10   | 12   | 20 | 19.0 | 8.2  | 10.5 | 12.5 | 12.0 | 12.0 | 42 | 2.84                        | 50                  |
|                                          | M 12              | 105R12   | 12   | 20 | 21.0 | 8.2  | 13.0 | 12.5 | 13.0 | 13.0 | 42 | 2.79                        | 50                  |
| 70                                       | M 14              | *105R14  | 12   | 20 | 21.0 | 8.2  | 15.0 | 12.5 | 14.5 | 14.5 | 42 | 2.70                        | 25                  |
|                                          | M 8               | 106R8    | 14   | 28 | 20.0 | 10.0 | 8.4  | 14.5 | 10.0 | 10.0 | 52 | 4.46                        | 50                  |
|                                          | M 10              | 106R10   | 14   | 28 | 22.0 | 10.0 | 10.5 | 14.5 | 12.0 | 12.0 | 52 | 4.48                        | 50                  |
| 95                                       | M 12              | 106R12   | 14   | 28 | 24.0 | 10.0 | 13.0 | 14.5 | 13.0 | 13.0 | 52 | 4.40                        | 50                  |
|                                          | M 14              | *106R14  | 14   | 28 | 24.0 | 10.0 | 15.0 | 14.5 | 14.5 | 14.5 | 52 | 4.30                        | 25                  |
|                                          | M 16              | 106R16   | 14   | 28 | 28.0 | 10.0 | 17.0 | 14.5 | 16.0 | 16.0 | 52 | 4.57                        | 25                  |
| 120                                      | M 8               | 107R8    | 16   | 28 | 24.0 | 11.5 | 8.4  | 16.5 | 10.0 | 10.0 | 55 | 5.92                        | 50                  |
|                                          | M 10              | 107R10   | 16   | 28 | 24.0 | 11.5 | 10.5 | 16.5 | 12.0 | 12.0 | 55 | 6.02                        | 50                  |
|                                          | M 12              | 107R12   | 16   | 28 | 24.0 | 11.5 | 13.0 | 16.5 | 13.0 | 13.0 | 55 | 5.89                        | 50                  |
| 150                                      | M 14              | *107R14  | 16   | 28 | 24.0 | 11.5 | 15.0 | 16.5 | 14.5 | 14.5 | 55 | 5.80                        | 25                  |
|                                          | M 16              | 107R16   | 16   | 28 | 30.0 | 11.5 | 17.0 | 16.5 | 16.0 | 16.0 | 55 | 6.13                        | 25                  |
|                                          | M 8               | 108R8*   | 18   | 35 | 28.0 | 13.5 | 8.4  | 19.0 | 12.0 | 12.0 | 65 | 9.21                        | 25                  |
| 185                                      | M 10              | 108R10   | 18   | 35 | 28.0 | 13.5 | 10.5 | 19.0 | 12.0 | 12.0 | 65 | 8.97                        | 50                  |
|                                          | M 12              | 108R12   | 18   | 35 | 28.0 | 13.5 | 13.0 | 19.0 | 13.0 | 13.0 | 65 | 8.62                        | 50                  |
|                                          | M 14              | *108R14  | 18   | 35 | 28.0 | 13.5 | 15.0 | 19.0 | 14.5 | 14.5 | 65 | 8.78                        | 25                  |
| 240                                      | M 16              | 108R16   | 18   | 35 | 32.0 | 13.5 | 17.0 | 19.0 | 16.0 | 16.0 | 65 | 9.00                        | 50                  |

**Compression cable lugs acc. to DIN, Cu**

| Nominal cross section mm² | Size of bolt dia. | Part No.       | Code | a   | b    | d1   | d2   | d4   | c1   | c2   | l   | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------|-------------------|----------------|------|-----|------|------|------|------|------|------|-----|-----------------------|------------------|
| 120                       | M 10              | <b>109R10</b>  | 20   | 35  | 32.0 | 15.5 | 10.5 | 21.0 | 15.0 | 16.0 | 70  | 11.40                 | 50               |
|                           | M 12              | <b>109R12</b>  | 20   | 35  | 32.0 | 15.5 | 13.0 | 21.0 | 16.0 | 17.0 | 70  | 11.31                 | 50               |
|                           | M 14              | <b>*109R14</b> | 20   | 35  | 32.0 | 15.5 | 15.0 | 21.0 | 18.0 | 19.0 | 70  | 11.45                 | 25               |
|                           | M 16              | <b>109R16</b>  | 20   | 35  | 32.0 | 15.5 | 17.0 | 21.0 | 19.0 | 20.0 | 70  | 11.24                 | 50               |
|                           | M 20              | <b>109R20</b>  | 20   | 35  | 38.0 | 15.5 | 21.0 | 21.0 | 21.0 | 22.0 | 70  | 11.03                 | 25               |
| 150                       | M 10              | <b>110R10</b>  | 22   | 35  | 34.0 | 17.0 | 10.5 | 23.5 | 15.0 | 16.0 | 78  | 16.38                 | 10               |
|                           | M 12              | <b>110R12</b>  | 22   | 35  | 34.0 | 17.0 | 13.0 | 23.5 | 16.0 | 17.0 | 78  | 16.29                 | 25               |
|                           | M 14              | <b>*110R14</b> | 22   | 35  | 34.0 | 17.0 | 15.0 | 23.5 | 19.0 | 20.0 | 78  | 16.38                 | 10               |
|                           | M 16              | <b>110R16</b>  | 22   | 35  | 34.0 | 17.0 | 17.0 | 23.5 | 19.0 | 20.0 | 78  | 16.17                 | 10               |
|                           | M 20              | <b>110R20</b>  | 22   | 35  | 40.0 | 17.0 | 21.0 | 23.5 | 21.0 | 22.0 | 78  | 15.90                 | 10               |
| 185                       | M 10              | <b>111R10</b>  | 25   | 40  | 37.0 | 19.0 | 10.5 | 25.5 | 15.0 | 16.0 | 82  | 18.96                 | 10               |
|                           | M 12              | <b>111R12</b>  | 25   | 40  | 37.0 | 19.0 | 13.0 | 25.5 | 16.0 | 17.0 | 82  | 18.11                 | 10               |
|                           | M 14              | <b>*111R14</b> | 25   | 40  | 37.0 | 19.0 | 15.0 | 25.5 | 19.0 | 20.0 | 82  | 19.21                 | 10               |
|                           | M 16              | <b>111R16</b>  | 25   | 40  | 37.0 | 19.0 | 17.0 | 25.5 | 19.0 | 20.0 | 82  | 18.74                 | 25               |
|                           | M 20              | <b>111R20</b>  | 25   | 40  | 40.0 | 19.0 | 21.0 | 25.5 | 21.0 | 22.0 | 82  | 18.69                 | 10               |
| 240                       | M 12              | <b>112R12</b>  | 28   | 40  | 42.0 | 21.5 | 13.0 | 29.0 | 16.0 | 17.0 | 92  | 27.00                 | 10               |
|                           | M 14              | <b>*112R14</b> | 28   | 40  | 42.0 | 21.5 | 15.0 | 29.0 | 19.0 | 20.0 | 92  | 27.58                 | 10               |
|                           | M 16              | <b>112R16</b>  | 28   | 40  | 42.0 | 21.5 | 17.0 | 29.0 | 19.0 | 20.0 | 92  | 27.37                 | 25               |
|                           | M 20              | <b>112R20</b>  | 28   | 40  | 45.0 | 21.5 | 21.0 | 29.0 | 21.0 | 22.0 | 92  | 26.88                 | 10               |
|                           | M 14              | <b>*113R14</b> | 32   | 50  | 46.0 | 24.5 | 15.0 | 32.0 | 19.0 | 22.0 | 100 | 33.29                 | 5                |
| 300                       | M 16              | <b>113R16</b>  | 32   | 50  | 46.0 | 24.5 | 17.0 | 32.0 | 19.0 | 22.0 | 100 | 32.94                 | 5                |
|                           | M 20              | <b>113R20</b>  | 32   | 50  | 46.0 | 24.5 | 21.0 | 32.0 | 22.0 | 22.0 | 100 | 33.24                 | 5                |
|                           | M 14              | <b>*114R14</b> | 38   | 70  | 54.0 | 27.5 | 15.0 | 38.5 | 25.0 | 25.0 | 115 | 69.38                 | 5                |
| 400                       | M 16              | <b>114R16</b>  | 38   | 70  | 54.0 | 27.5 | 17.0 | 38.5 | 25.0 | 25.0 | 115 | 68.54                 | 5                |
|                           | M 20              | <b>114R20</b>  | 38   | 70  | 54.0 | 27.5 | 21.0 | 38.5 | 25.0 | 25.0 | 115 | 65.40                 | 5                |
|                           | M 16              | <b>*115R16</b> | 42   | 70  | 60.0 | 31.0 | 17.0 | 42.0 | 25.0 | 25.0 | 125 | 83.31                 | 1                |
| 500                       | M 20              | <b>115R20</b>  | 42   | 70  | 60.0 | 31.0 | 21.0 | 42.0 | 25.0 | 25.0 | 125 | 81.58                 | 1                |
|                           | M 16              | <b>*116R16</b> | 44   | 80  | 64.0 | 34.5 | 17.0 | 44.0 | 25.0 | 25.0 | 135 | 79.60                 | 1                |
| 625                       | M 20              | <b>116R20</b>  | 44   | 80  | 64.0 | 34.5 | 21.0 | 44.0 | 25.0 | 25.0 | 135 | 79.69                 | 1                |
|                           | M 16              | <b>*117R16</b> | 52   | 100 | 75.0 | 40.0 | 17.0 | 52.0 | 30.0 | 30.0 | 165 | 150.00                | 1                |
| 800                       | M 20              | <b>117R20</b>  | 52   | 100 | 75.0 | 40.0 | 21.0 | 52.0 | 30.0 | 30.0 | 165 | 149.00                | 1                |
|                           | M 16              | <b>*118R16</b> | 58   | 100 | 83.0 | 44.0 | 17.0 | 58.0 | 30.0 | 30.0 | 165 | 199.00                | 1                |
|                           | M 20              | <b>118R20</b>  | 58   | 100 | 83.0 | 44.0 | 21.0 | 58.0 | 30.0 | 30.0 | 165 | 195.00                | 1                |

► \* = not standardized

► 10-800 mm² IEC tested

🔗 Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

► **Tools: see chart page 84**

## Angle compression cable lugs, Cu, 90° angled



- ▶ Tube dimensions according to DIN 46235
- ▶ With code number for clear tool assignment
- ▶ For round conductors e.g VDE 0295 Class 1, 2, 5 and 6
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ Flat contact surface by special angle punching process

## Characteristics

- Total cross-section: 6 - 240 mm<sup>2</sup>
- With crimp markings for correct crimping
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

## Material

- Copper acc. to EN 13600

## Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

## Order info

- Bright finish version also available, part number appendix "bk"

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Code | a  | b    | d1   | d2   | d4   | c1   | l3 | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------|------|----|------|------|------|------|------|----|-----------------------|------------------|
| 6                                     | M 5               | 161R5    | 5    | 10 | 8.5  | 3.8  | 5.3  | 5.5  | 6.5  | 9  | 0.28                  | 50               |
|                                       | M 6               | 161R6    | 5    | 10 | 8.5  | 3.8  | 6.4  | 5.5  | 7.5  | 10 | 0.32                  | 50               |
| 10                                    | M 5               | 162R5    | 6    | 10 | 9.0  | 4.5  | 5.3  | 6.0  | 7.0  | 10 | 0.34                  | 50               |
|                                       | M 6               | 162R6    | 6    | 10 | 9.0  | 4.5  | 6.4  | 6.0  | 7.5  | 10 | 0.35                  | 50               |
| 16                                    | M 8               | 162R8    | 6    | 10 | 13.0 | 4.5  | .0   | 6.0  | 10.0 | 13 | 0.37                  | 50               |
|                                       | M 6               | 163R6    | 8    | 20 | 13.0 | 5.5  | 6.4  | 8.5  | 7.5  | 11 | 1.20                  | 50               |
|                                       | M 8               | 163R8    | 8    | 20 | 13.0 | 5.5  | 8.4  | 8.5  | 10.0 | 13 | 1.30                  | 50               |
|                                       | M 10              | 163R10   | 8    | 20 | 17.0 | 5.5  | 10.5 | 8.5  | 12.0 | 15 | 1.40                  | 50               |
| 25                                    | M 12              | 163R12   | 8    | 20 | 18.0 | 5.5  | 13.0 | 8.5  | 13.0 | 18 | 1.33                  | 50               |
|                                       | M 6               | 164R6    | 10   | 20 | 14.0 | 7.0  | 6.4  | 10.0 | 7.5  | 11 | 1.54                  | 25               |
|                                       | M 8               | 164R8    | 10   | 20 | 16.0 | 7.0  | 8.4  | 10.0 | 10.0 | 13 | 1.60                  | 25               |
|                                       | M 10              | 164R10   | 10   | 20 | 17.0 | 7.0  | 10.5 | 10.0 | 12.0 | 15 | 1.63                  | 25               |
| 35                                    | M 12              | 164R12   | 10   | 20 | 19.0 | 7.0  | 13.0 | 10.0 | 13.0 | 18 | 1.70                  | 25               |
|                                       | M 8               | 165R8    | 12   | 20 | 17.0 | 8.2  | 8.4  | 12.5 | 10.0 | 13 | 2.72                  | 25               |
|                                       | M 10              | 165R10   | 12   | 20 | 19.0 | 8.2  | 10.5 | 12.5 | 12.0 | 15 | 2.76                  | 25               |
|                                       | M 12              | 165R12   | 12   | 20 | 21.0 | 8.2  | 13.0 | 12.5 | 13.0 | 18 | 2.85                  | 25               |
| 50                                    | M 14              | 165R14   | 12   | 20 | 21.0 | 8.2  | 15.0 | 12.5 | 14.5 | 20 | 2.92                  | 25               |
|                                       | M 8               | 166R8    | 14   | 28 | 20.0 | 10.0 | 8.4  | 14.5 | 10.0 | 16 | 4.39                  | 25               |
|                                       | M 10              | 166R10   | 14   | 28 | 22.0 | 10.0 | 10.5 | 14.5 | 12.0 | 16 | 4.46                  | 25               |
|                                       | M 12              | 166R12   | 14   | 28 | 24.0 | 10.0 | 13.0 | 14.5 | 13.0 | 18 | 4.49                  | 25               |
| 70                                    | M 14              | 166R14   | 14   | 28 | 24.0 | 10.0 | 15.0 | 14.5 | 14.5 | 20 | 4.73                  | 25               |
|                                       | M 16              | 166R16   | 14   | 28 | 28.0 | 10.0 | 17.0 | 14.5 | 16.0 | 22 | 4.66                  | 25               |
|                                       | M 8               | 167R8    | 16   | 28 | 24.0 | 11.5 | 8.4  | 16.5 | 10.0 | 14 | 5.92                  | 25               |
|                                       | M 10              | 167R10   | 16   | 28 | 24.0 | 11.5 | 10.5 | 16.5 | 12.0 | 16 | 6.31                  | 25               |
| 95                                    | M 12              | 167R12   | 16   | 28 | 24.0 | 11.5 | 13.0 | 16.5 | 13.0 | 18 | 6.34                  | 25               |
|                                       | M 14              | 167R14   | 16   | 28 | 24.0 | 11.5 | 15.0 | 16.5 | 14.5 | 20 | 6.50                  | 25               |
|                                       | M 16              | 167R16   | 16   | 28 | 30.0 | 11.5 | 17.0 | 16.5 | 16.0 | 22 | 6.63                  | 25               |
|                                       | M 10              | 168R10   | 18   | 35 | 28.0 | 13.5 | 10.5 | 19.0 | 12.0 | 17 | 9.03                  | 25               |
| 95                                    | M 12              | 168R12   | 18   | 35 | 28.0 | 13.5 | 13.0 | 19.0 | 13.0 | 18 | 9.27                  | 25               |
|                                       | M 14              | 168R14   | 18   | 35 | 28.0 | 13.5 | 15.0 | 19.0 | 14.5 | 20 | 9.06                  | 25               |
|                                       | M 16              | 168R16   | 18   | 35 | 32.0 | 13.5 | 17.0 | 19.0 | 16.0 | 22 | 9.18                  | 25               |

**Angle compression cable lugs, Cu, 90° angled**

| Nominal cross section<br>mm² | Size of bolt<br>dia. | Part No.      | Code | Dimension mm |      |      |      |      |      |    | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------------------------|----------------------|---------------|------|--------------|------|------|------|------|------|----|-----------------------------|---------------------|
|                              |                      |               |      | a            | b    | d1   | d2   | d4   | c1   | l3 |                             |                     |
| 120                          | M 10                 | <b>169R10</b> | 20   | 35           | 32.0 | 15.5 | 10.5 | 21.0 | 15.0 | 17 | 10.41                       | 10                  |
|                              | M 12                 | <b>169R12</b> | 20   | 35           | 32.0 | 15.5 | 13.0 | 21.0 | 16.0 | 18 | 10.65                       | 10                  |
|                              | M 14                 | <b>169R14</b> | 20   | 35           | 32.0 | 15.5 | 15.0 | 21.0 | 18.0 | 20 | 10.75                       | 10                  |
|                              | M 16                 | <b>169R16</b> | 20   | 35           | 32.0 | 15.5 | 17.0 | 21.0 | 19.0 | 22 | 10.72                       | 10                  |
|                              | M 20                 | <b>169R20</b> | 20   | 35           | 38.0 | 15.5 | 21.0 | 21.0 | 21.0 | 24 | 11.00                       | 10                  |
| 150                          | M 10                 | <b>170R10</b> | 22   | 35           | 34.0 | 17.0 | 10.5 | 23.5 | 15.0 | 17 | 14.18                       | 10                  |
|                              | M 12                 | <b>170R12</b> | 22   | 35           | 34.0 | 17.0 | 13.0 | 23.5 | 16.0 | 18 | 14.33                       | 10                  |
|                              | M 14                 | <b>170R14</b> | 22   | 35           | 34.0 | 17.0 | 15.0 | 23.5 | 19.0 | 20 | 15.60                       | 10                  |
|                              | M 16                 | <b>170R16</b> | 22   | 35           | 34.0 | 17.0 | 17.0 | 23.5 | 19.0 | 22 | 15.24                       | 10                  |
|                              | M 20                 | <b>170R20</b> | 22   | 35           | 40.0 | 17.0 | 21.0 | 23.5 | 21.0 | 24 | 15.70                       | 10                  |
| 185                          | M 10                 | <b>171R10</b> | 25   | 40           | 37.0 | 19.0 | 10.5 | 25.5 | 15.0 | 22 | 18.60                       | 10                  |
|                              | M 12                 | <b>171R12</b> | 25   | 40           | 37.0 | 19.0 | 13.0 | 25.5 | 16.0 | 22 | 18.69                       | 10                  |
|                              | M 14                 | <b>171R14</b> | 25   | 40           | 37.0 | 19.0 | 15.0 | 25.5 | 19.0 | 22 | 19.10                       | 10                  |
|                              | M 16                 | <b>171R16</b> | 25   | 40           | 37.0 | 19.0 | 17.0 | 25.5 | 19.0 | 22 | 19.00                       | 10                  |
|                              | M 20                 | <b>171R20</b> | 25   | 40           | 40.0 | 19.0 | 21.0 | 25.5 | 21.0 | 24 | 18.72                       | 10                  |
| 240                          | M 12                 | <b>172R12</b> | 28   | 40           | 42.0 | 21.5 | 13.0 | 29.0 | 16.0 | 22 | 25.09                       | 10                  |
|                              | M 14                 | <b>172R14</b> | 28   | 40           | 42.0 | 21.5 | 15.0 | 29.0 | 19.0 | 22 | 25.70                       | 10                  |
|                              | M 16                 | <b>172R16</b> | 28   | 40           | 42.0 | 21.5 | 17.0 | 29.0 | 19.0 | 22 | 24.96                       | 10                  |
|                              | M 20                 | <b>172R20</b> | 28   | 40           | 45.0 | 21.5 | 21.0 | 29.0 | 21.0 | 24 | 25.26                       | 10                  |

▶ 10-240 mm² IEC tested

⚠ Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

▶ Tools: see chart page 84

## Angle compression cable lugs, Cu, 45° angled



- ▶ Tube dimensions according to DIN 46235
- ▶ With code number for clear tool assignment
- ▶ For round conductors e.g VDE 0295 Class 1, 2, 5 and 6
- ▶ For pre-rounded multi-stranded sector shaped conductors
- ▶ Flat contact surface by special angle punching process

### Characteristics

- Total cross-section: 6 - 240 mm<sup>2</sup>
- With crimp markings for correct crimping
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

### Order info

- Bright finish version also available, part number appendix "bk"

| Nominal cross section<br>mm² | Size of bolt dia. | Part No. | Code | Dimension mm |      |      |      |      |      |    | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------------------------|-------------------|----------|------|--------------|------|------|------|------|------|----|-----------------------------|---------------------|
|                              |                   |          |      | a            | b    | d1   | d2   | d4   | c1   | l3 |                             |                     |
| 6                            | M 5               | 161R545  | 5    | 10           | 8.5  | 3.8  | 5.5  | 5.5  | 6.5  | 9  | 0.32                        | 50                  |
|                              | M 6               | 161R645  | 5    | 10           | 8.5  | 3.8  | 6.5  | 5.5  | 7.5  | 10 | 0.34                        | 50                  |
| 10                           | M 5               | 162R545  | 6    | 10           | 9.0  | 4.5  | 5.5  | 6.0  | 7.0  | 10 | 0.36                        | 50                  |
|                              | M 6               | 162R645  | 6    | 10           | 9.0  | 4.5  | 6.5  | 6.0  | 7.5  | 10 | 0.35                        | 50                  |
| 16                           | M 8               | 162R845  | 6    | 10           | 13.0 | 4.5  | 8.5  | 6.0  | 10.0 | 13 | 0.39                        | 50                  |
|                              | M 6               | 163R645  | 8    | 20           | 13.0 | 5.5  | 6.5  | 8.5  | 7.5  | 11 | 1.20                        | 50                  |
| 16                           | M 8               | 163R845  | 8    | 20           | 13.0 | 5.5  | 8.5  | 8.5  | 10.0 | 13 | 0.28                        | 50                  |
|                              | M 10              | 163R1045 | 8    | 20           | 17.0 | 5.5  | 10.5 | 8.5  | 12.0 | 15 | 1.34                        | 50                  |
| 25                           | M 12              | 163R1245 | 8    | 20           | 18.0 | 5.5  | 13.0 | 8.5  | 13.0 | 18 | 1.35                        | 50                  |
|                              | M 6               | 164R645  | 10   | 20           | 14.0 | 7.0  | 6.5  | 10.0 | 7.5  | 11 | 1.49                        | 25                  |
| 25                           | M 8               | 164R845  | 10   | 20           | 16.0 | 7.0  | 8.5  | 10.0 | 10.0 | 13 | 1.60                        | 25                  |
|                              | M 10              | 164R1045 | 10   | 20           | 17.0 | 7.0  | 10.5 | 10.0 | 12.0 | 15 | 1.64                        | 25                  |
| 35                           | M 12              | 164R1245 | 10   | 20           | 19.0 | 7.0  | 13.0 | 10.0 | 13.0 | 18 | 1.73                        | 25                  |
|                              | M 8               | 165R845  | 12   | 20           | 17.0 | 8.2  | 8.5  | 12.5 | 10.0 | 13 | 2.72                        | 25                  |
| 35                           | M 10              | 165R1045 | 12   | 20           | 19.0 | 8.2  | 10.5 | 12.5 | 12.0 | 15 | 2.92                        | 25                  |
|                              | M 12              | 165R1245 | 12   | 20           | 21.0 | 8.2  | 13.0 | 12.5 | 13.0 | 18 | 2.98                        | 25                  |
| 50                           | M 14              | 165R1445 | 12   | 20           | 21.0 | 8.2  | 15.0 | 12.5 | 14.5 | 20 | 3.03                        | 25                  |
|                              | M 8               | 166R845  | 14   | 28           | 20.0 | 10.0 | 8.5  | 14.5 | 10.0 | 13 | 4.63                        | 25                  |
| 50                           | M 10              | 166R1045 | 14   | 28           | 22.0 | 10.0 | 10.5 | 14.5 | 12.0 | 16 | 4.84                        | 25                  |
|                              | M 12              | 166R1245 | 14   | 28           | 24.0 | 10.0 | 13.0 | 14.5 | 13.0 | 18 | 4.94                        | 25                  |
| 70                           | M 14              | 166R1445 | 14   | 28           | 24.0 | 10.0 | 15.0 | 14.5 | 14.5 | 20 | 4.96                        | 25                  |
|                              | M 16              | 166R1645 | 14   | 28           | 28.0 | 10.0 | 17.0 | 14.5 | 16.0 | 22 | 4.92                        | 25                  |
| 70                           | M 8               | 167R845  | 16   | 28           | 24.0 | 11.5 | 8.5  | 16.5 | 10.0 | 14 | 6.40                        | 25                  |
|                              | M 10              | 167R1045 | 16   | 28           | 24.0 | 11.5 | 10.5 | 16.5 | 12.0 | 16 | 6.76                        | 25                  |
| 95                           | M 12              | 167R1245 | 16   | 28           | 24.0 | 11.5 | 13.0 | 16.5 | 13.0 | 18 | 6.90                        | 25                  |
|                              | M 14              | 167R1445 | 16   | 28           | 24.0 | 11.5 | 15.0 | 16.5 | 14.5 | 20 | 6.72                        | 25                  |
| 95                           | M 16              | 167R1645 | 16   | 28           | 30.0 | 11.5 | 17.0 | 16.5 | 16.0 | 22 | 6.96                        | 25                  |
|                              | M 10              | 168R1045 | 18   | 35           | 28.0 | 13.5 | 10.5 | 19.0 | 12.0 | 17 | 9.64                        | 25                  |
| 95                           | M 12              | 168R1245 | 18   | 35           | 28.0 | 13.5 | 13.0 | 19.0 | 13.0 | 18 | 9.21                        | 25                  |
|                              | M 14              | 168R1445 | 18   | 35           | 28.0 | 13.5 | 15.0 | 19.0 | 14.5 | 20 | 9.51                        | 25                  |
| 95                           | M 16              | 168R1645 | 18   | 35           | 32.0 | 13.5 | 17.0 | 19.0 | 16.0 | 22 | 9.40                        | 25                  |

## Angle compression cable lugs, Cu, 45° angled

| Nominal cross section<br>mm² | Size of bolt<br>dia. | Part No. | Code | Dimension mm |      |      |      |      |      |    | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------------------------|----------------------|----------|------|--------------|------|------|------|------|------|----|-----------------------------|---------------------|
|                              |                      |          |      | a            | b    | d1   | d2   | d4   | c1   | l3 |                             |                     |
| 120                          | M 10                 | 169R1045 | 20   | 35           | 32.0 | 15.5 | 10.5 | 21.0 | 15.0 | 17 | 11.09                       | 10                  |
|                              | M 12                 | 169R1245 | 20   | 35           | 32.0 | 15.5 | 13.0 | 21.0 | 16.0 | 18 | 11.45                       | 10                  |
|                              | M 14                 | 169R1445 | 20   | 35           | 32.0 | 15.5 | 15.0 | 21.0 | 18.0 | 20 | 11.55                       | 10                  |
|                              | M 16                 | 169R1645 | 20   | 35           | 32.0 | 15.5 | 17.0 | 21.0 | 19.0 | 22 | 11.76                       | 10                  |
|                              | M 20                 | 169R2045 | 20   | 35           | 38.0 | 15.5 | 21.0 | 21.0 | 21.0 | 24 | 11.55                       | 10                  |
| 150                          | M 10                 | 170R1045 | 22   | 35           | 34.0 | 17.0 | 10.5 | 23.5 | 15.0 | 17 | 15.93                       | 10                  |
|                              | M 12                 | 170R1245 | 22   | 35           | 34.0 | 17.0 | 13.0 | 23.5 | 16.0 | 18 | 16.08                       | 10                  |
|                              | M 14                 | 170R1445 | 22   | 35           | 34.0 | 17.0 | 15.0 | 23.5 | 19.0 | 20 | 16.38                       | 10                  |
|                              | M 16                 | 170R1645 | 22   | 35           | 34.0 | 17.0 | 17.0 | 23.5 | 19.0 | 22 | 16.90                       | 10                  |
|                              | M 20                 | 170R2045 | 22   | 35           | 40.0 | 17.0 | 21.0 | 23.5 | 21.0 | 24 | 16.49                       | 10                  |
| 185                          | M 10                 | 171R1045 | 25   | 40           | 37.0 | 19.0 | 10.5 | 25.5 | 15.0 | 22 | 20.16                       | 10                  |
|                              | M 12                 | 171R1245 | 25   | 40           | 37.0 | 19.0 | 13.0 | 25.5 | 16.0 | 22 | 19.60                       | 10                  |
|                              | M 14                 | 171R1445 | 25   | 40           | 37.0 | 19.0 | 15.0 | 25.5 | 19.0 | 22 | 20.05                       | 10                  |
|                              | M 16                 | 171R1645 | 25   | 40           | 37.0 | 19.0 | 17.0 | 25.5 | 19.0 | 22 | 19.68                       | 10                  |
|                              | M 20                 | 171R2045 | 25   | 40           | 40.0 | 19.0 | 21.0 | 25.5 | 21.0 | 24 | 19.95                       | 10                  |
| 240                          | M 12                 | 172R1245 | 28   | 40           | 42.0 | 21.5 | 13.0 | 29.0 | 16.0 | 22 | 26.46                       | 10                  |
|                              | M 14                 | 172R1445 | 28   | 40           | 42.0 | 21.5 | 15.0 | 29.0 | 19.0 | 22 | 26.99                       | 10                  |
|                              | M 16                 | 172R1645 | 28   | 40           | 42.0 | 21.5 | 17.0 | 29.0 | 19.0 | 22 | 26.92                       | 10                  |
|                              | M 20                 | 172R2045 | 28   | 40           | 45.0 | 21.5 | 21.0 | 29.0 | 21.0 | 24 | 26.88                       | 10                  |

► 10-240 mm² IEC tested

► Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

► Tools: see chart page 84

## Compression cable lugs DIN special type, Cu, with 2 long holes

- Tube dimensions according to DIN 46235
- With code number for clear tool assignment
- For round conductors e.g VDE 0295 Class 1, 2, 5 and 6
- For pre-rounded multi-stranded sector shaped conductors



### Characteristics

- Total cross-section: 70 - 240 mm²
- With crimp markings for correct crimping
- Annealed material optimises material and crimping properties
- Flat contact surface by special pressing technique
- Precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

### Order info

- Bright finish version also available, part number appendix "bk"

| Nominal cross section mm² | Size of bolt dia. | Dimension mm |      |    |    |      |    |      |    |    |    |         | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------|-------------------|--------------|------|----|----|------|----|------|----|----|----|---------|-----------------------|------------------|
|                           |                   | Part No.     | Code | a  | b  | d1   | d2 | d4   | c1 | c2 | l  | l2      |                       |                  |
| 70                        | 2 x M 12          | 147D212      | 16   | 28 | 24 | 11.5 | 13 | 16.5 | 13 | 13 | 55 | 50 - 62 | 10.82                 | 5                |
| 95                        |                   | 148D212      | 18   | 35 | 28 | 13.5 | 13 | 19.0 | 13 | 13 | 65 | 50 - 62 | 15.24                 | 5                |
| 120                       |                   | 149D212      | 20   | 35 | 32 | 15.5 | 13 | 21.0 | 16 | 17 | 70 | 50 - 62 | 18.62                 | 5                |
| 150                       |                   | 150D212      | 22   | 35 | 34 | 17.0 | 13 | 23.5 | 16 | 17 | 78 | 50 - 62 | 26.10                 | 5                |
| 185                       |                   | 151D212      | 25   | 40 | 37 | 19.0 | 13 | 25.5 | 16 | 17 | 82 | 50 - 62 | 30.48                 | 5                |
| 240                       |                   | 152D212      | 28   | 40 | 42 | 21.5 | 13 | 29.0 | 16 | 17 | 92 | 50 - 62 | 41.52                 | 5                |

► Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

► Tools: see chart page 84

### Compression cable lugs, special type, Cu, with one hole, double crimping



► Special design for mounting of 2 multi-stranded cables according to VDE 0295 Class 2



#### Characteristics

- Total cross-section: 2 x 50 - 2 x 120 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

#### Material

- Copper acc. to EN 13600

#### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

#### Order info

- Bright finish version also available, part number appendix "bk"

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No.       | Code  | Dimension mm |    |    |    |    |     |      |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|----------------|-------|--------------|----|----|----|----|-----|------|----|-----------------------|------------------|
| 2 x 50                                | M 12              | <b>136DP12</b> | 22 DP | a            | b  | d2 | c1 | c2 | l   | H    | B  |                       |                  |
| 2 x 70                                |                   | <b>137DP12</b> | 24 DP | 35           | 34 | 13 | 16 | 17 | 78  | 10.0 | 20 | 16.30                 | 5                |
| 2 x 95                                |                   | <b>138DP12</b> | 29 DP | 40           | 37 | 13 | 16 | 17 | 82  | 11.5 | 23 | 18.90                 | 5                |
| 2 x 120                               |                   | <b>139DP12</b> | 32 DP | 40           | 42 | 13 | 16 | 17 | 92  | 13.5 | 27 | 27.12                 | 5                |
|                                       |                   |                |       | 50           | 48 | 13 | 19 | 22 | 100 | 15.5 | 31 | 33.50                 | 5                |

► Tools: see chart page 85

### Compression cable lugs, special type, Cu, with two long holes, double crimping



► Special design for mounting of 2 multi-stranded cables according to VDE 0295 Class 2



#### Characteristics

- Total cross-section: 2 x 50 - 2 x 120 mm<sup>2</sup>
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion
- Flat contact surface by special pressing technique

#### Material

- Copper acc. to EN 13600

#### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

#### Order info

- Bright finish version also available, part number appendix "bk"

| Nominal cross section<br>mm² | Size of bolt dia. | Dimension mm    |       |    |    |    |    |    |     |         |      |    | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------------------------|-------------------|-----------------|-------|----|----|----|----|----|-----|---------|------|----|-----------------------------|---------------------|
|                              |                   | Part No.        | Code  | a  | b  | d2 | c1 | c2 | l   | l2      | H    | B  |                             |                     |
| 2 x 50                       | 2 x M 12          | <b>136DP212</b> | 22 DP | 35 | 34 | 13 | 16 | 17 | 78  | 50 - 62 | 10.0 | 20 | 23.20                       | 5                   |
| 2 x 70                       |                   | <b>137DP212</b> | 24 DP | 40 | 37 | 13 | 16 | 17 | 82  | 50 - 62 | 11.5 | 23 | 29.64                       | 5                   |
| 2 x 95                       |                   | <b>138DP212</b> | 29 DP | 40 | 42 | 13 | 16 | 17 | 92  | 50 - 62 | 13.5 | 27 | 38.50                       | 5                   |
| 2 x 120                      |                   | <b>139DP212</b> | 32 DP | 50 | 48 | 13 | 19 | 22 | 100 | 50 - 62 | 15.5 | 31 | 45.80                       | 5                   |

► Tools: see chart page 85



**Compression joints acc. to DIN, Cu**

- ▶ Acc. to DIN 46267, part 1
- ▶ With code number for clear tool assignment
- ▶ With crimp markings for correct crimping


**Characteristics**

- Total cross-section: 6 - 1000 mm<sup>2</sup>
- With buttmarks for precise cable insertion
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated

**Order info**

- Bright finish version also available, part number appendix "bk"

| Nominal cross section<br>mm <sup>2</sup> | Part No.    | Code | Dimension mm |      |     | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|-------------|------|--------------|------|-----|-----------------------------|------------------|
|                                          |             |      | d1           | d4   | l   |                             |                  |
| 6                                        | <b>121R</b> | 5    | 3.8          | 5.5  | 30  | 0.31                        | 100              |
| 10                                       | <b>122R</b> | 6    | 4.5          | 6.0  | 30  | 0.34                        | 100              |
| 16                                       | <b>123R</b> | 8    | 5.5          | 8.5  | 50  | 1.45                        | 100              |
| 25                                       | <b>124R</b> | 10   | 7.0          | 10.0 | 50  | 1.77                        | 50               |
| 35                                       | <b>125R</b> | 12   | 8.2          | 12.5 | 50  | 2.89                        | 50               |
| 50                                       | <b>126R</b> | 14   | 10.0         | 14.5 | 56  | 4.26                        | 50               |
| 70                                       | <b>127R</b> | 16   | 11.5         | 16.5 | 56  | 5.41                        | 50               |
| 95                                       | <b>128R</b> | 18   | 13.5         | 19.0 | 70  | 8.62                        | 25               |
| 120                                      | <b>129R</b> | 20   | 15.5         | 21.0 | 70  | 9.66                        | 25               |
| 150                                      | <b>130R</b> | 22   | 17.0         | 23.5 | 80  | 14.50                       | 10               |
| 185                                      | <b>131R</b> | 25   | 19.0         | 25.5 | 85  | 17.00                       | 10               |
| 240                                      | <b>132R</b> | 28   | 21.5         | 29.0 | 90  | 23.41                       | 10               |
| 300                                      | <b>133R</b> | 32   | 24.5         | 32.0 | 100 | 29.23                       | 5                |
| 400                                      | <b>134R</b> | 38   | 27.5         | 38.5 | 150 | 74.32                       | 5                |
| 500                                      | <b>135R</b> | 42   | 31.0         | 42.0 | 160 | 89.09                       | 1                |
| 625                                      | <b>136R</b> | 44   | 34.5         | 44.0 | 160 | 79.10                       | 1                |
| 800                                      | <b>137R</b> | 52   | 40.0         | 52.0 | 200 | 151.00                      | 1                |
| 1000                                     | <b>138R</b> | 58   | 44.0         | 58.0 | 200 | 198.00                      | 1                |

▶ 10-800 mm<sup>2</sup> IEC tested

① Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

② Reduction sleeves to connect different cross sections can be found on page 83

▶ **Tools: see chart page 84**

## Compression joints, Cu



- ▶ Barrier design with oil stop
- ▶ Tube dimension to DIN 46267 part 1
- ▶ With code number for clear tool assignment

**Characteristics**

- Total cross-section: 16 - 625 mm<sup>2</sup>
- For non-tension connections
- With crimp markings for correct crimping
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

**Order info**

- Bright finish version also available, part number appendix "bk"

| Nominal cross section<br>mm <sup>2</sup> | Part No. | Code | Dimension mm |      |     | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|----------|------|--------------|------|-----|-----------------------------|------------------|
|                                          |          |      | d1           | d4   | l   |                             |                  |
| 16                                       | 523R     | 8    | 5.5          | 8.5  | 50  | 1.54                        | 25               |
| 25                                       | 524R     | 10   | 7.0          | 10.0 | 50  | 1.84                        | 25               |
| 35                                       | 525R     | 12   | 8.2          | 12.5 | 50  | 2.99                        | 25               |
| 50                                       | 526R     | 14   | 10.0         | 14.5 | 56  | 4.46                        | 25               |
| 70                                       | 527R     | 16   | 11.5         | 16.5 | 56  | 5.61                        | 25               |
| 95                                       | 528R     | 18   | 13.5         | 19.0 | 70  | 8.88                        | 25               |
| 120                                      | 529R     | 20   | 15.5         | 21.0 | 70  | 10.06                       | 5                |
| 150                                      | 530R     | 22   | 17.0         | 23.5 | 80  | 14.89                       | 5                |
| 185                                      | 531R     | 25   | 19.0         | 25.5 | 85  | 17.57                       | 5                |
| 240                                      | 532R     | 28   | 21.5         | 29.0 | 90  | 24.23                       | 5                |
| 300                                      | 533R     | 32   | 24.5         | 32.0 | 100 | 30.15                       | 5                |
| 400                                      | 534R     | 38   | 27.5         | 38.5 | 150 | 75.60                       | 5                |
| 500                                      | 535R     | 42   | 31.0         | 42.0 | 160 | 92.00                       | 1                |
| 625                                      | 536R     | 44   | 34.5         | 44.0 | 160 | 81.50                       | 1                |

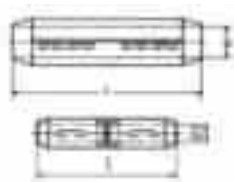
① Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

① Reduction sleeves to connect different cross sections can be found at 83

▶ **Tools: see chart page 84**

## Compression joint for cable connections 10-30 kV, copper

- ▶ Tube dimension to DIN 46267 part 1
- ▶ With code number for clear tool assignment
- ▶ For copper medium-voltage cable connections 10-30 kV
- ▶ With bevelled edges for reduced winding expenditure for the assembly



### Characteristics

- Total cross-section: 25 - 400 mm<sup>2</sup>
- For non-tension connections
- Also available as barrier design with oil stop
- With crimp markings for correct crimping
- Annealed material optimises material and crimping properties
- Precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

- Bright finished

### Order info

- Tinned version also available, part number appendix "v"

| Nominal cross section mm² | Part No. | Code | Dimension mm |     | Number of crimps |       | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------|----------|------|--------------|-----|------------------|-------|-----------------------|------------------|
|                           |          |      | d1           | l   | mech.            | hydr. |                       |                  |
| Standard type             |          |      |              |     |                  |       |                       |                  |
| 25                        | 504R     | 12   | 7.5          | 60  | 2/2              | 1/1   | 4.08                  | 10               |
| 35                        | 505R     | 12   | 8.2          | 60  | 2/2              | 1/1   | 3.56                  | 10               |
| 50                        | 506R     | 14   | 10.0         | 65  | 3/3              | 1/1   | 4.90                  | 10               |
| 70                        | 507R     | 16   | 11.5         | 65  | 3/3              | 1/1   | 6.10                  | 10               |
| 95                        | 508R     | 18   | 13.5         | 90  | 4/4              | 2/2   | 10.98                 | 10               |
| 120                       | 509R     | 20   | 15.5         | 90  | 4/4              | 2/2   | 12.68                 | 5                |
| 150                       | 510R     | 22   | 17.0         | 105 | 4/4              | 2/2   | 18.09                 | 5                |
| 185                       | 511R     | 25   | 19.0         | 105 | 4/4              | 2/2   | 20.35                 | 5                |
| 240                       | 512R     | 28   | 21.5         | 125 |                  | 2/2   | 31.64                 | 5                |
| 300                       | 513R     | 32   | 24.5         | 125 |                  | 2/2   | 35.40                 | 1                |
| 400                       | 514R     | 38   | 27.5         | 160 |                  | 3/3   | 75.42                 | 1                |
| Barrier version           |          |      |              |     |                  |       |                       |                  |
| 25                        | 504RLD   | 12   | 7.5          | 60  | 2/2              | 1/1   | 4.08                  | 25               |
| 35                        | 505RLD   | 12   | 8.2          | 60  | 2/2              | 1/1   | 3.56                  | 10               |
| 50                        | 506RLD   | 14   | 10.0         | 65  | 3/3              | 1/1   | 4.90                  | 10               |
| 70                        | 507RLD   | 16   | 11.5         | 65  | 3/3              | 1/1   | 6.40                  | 10               |
| 95                        | 508RLD   | 18   | 13.5         | 90  | 4/4              | 2/2   | 10.98                 | 10               |
| 120                       | 509RLD   | 20   | 15.5         | 90  | 4/4              | 2/2   | 12.68                 | 5                |
| 150                       | 510RLD   | 22   | 17.0         | 105 | 4/4              | 2/2   | 18.84                 | 5                |
| 185                       | 511RLD   | 25   | 19.0         | 105 | 4/4              | 2/2   | 20.35                 | 5                |
| 240                       | 512RLD   | 28   | 21.5         | 125 |                  | 2/2   | 31.64                 | 5                |
| 300                       | 513RLD   | 32   | 24.5         | 125 |                  | 2/2   | 35.40                 | 1                |
| 400                       | 514RLD   | 38   | 27.5         | 160 |                  | 3/3   | 75.42                 | 1                |

ⓘ Reduction sleeves to connect different cross sections can be found at page 83

▶ Tools: see chart page 84

### Compression joints acc. to DIN, Cu



- ▶ For full tension cable connections
- ▶ Acc. to DIN 48085, part 1
- ▶ With code number for clear tool assignment

#### Characteristics

- Total cross-section: 6 - 300 mm<sup>2</sup>
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

#### Material

- Copper acc. to EN 13600

#### Surface

- Bright finished

| Nominal cross section mm <sup>2</sup> | Part No. | Code | Dimension mm |      |     | Number of crimps |       | Conductor dia. mm | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|----------|------|--------------|------|-----|------------------|-------|-------------------|-----------------------|-------------------|
|                                       |          |      | d1           | d4   | l   | mech.            | hydr. |                   |                       |                   |
| 6                                     | *181R    | 6    | 3.5          | 6.5  | 65  | 4/4              |       | 3.00              | 1.4                   | 10                |
| 10                                    | 182R     | 8    | 4.5          | 8.5  | 80  | 5/5              |       | 4.05              | 3.0                   | 10                |
| 16                                    | 183R     | 8    | 5.5          | 8.5  | 95  | 5/5              |       | 5.10              | 2.8                   | 10                |
| 25                                    | 184R     | 10   | 7.0          | 10.0 | 95  | 5/5              |       | 6.30              | 3.4                   | 10                |
| 35                                    | 185R     | 12   | 8.2          | 12.5 | 95  | 5/5              |       | 7.50              | 5.6                   | 10                |
| 50                                    | 186R     | 14   | 10.0         | 14.5 | 110 | 5/5              |       | 9.00              | 8.6                   | 10                |
| 70                                    | 187R     | 16   | 11.5         | 16.5 | 110 | 5/5              |       | 10.50             | 10.8                  | 10                |
| 95                                    | 188R     | 20   | 13.5         | 21.0 | 145 | 8/8              | 4/4   | 12.50             | 26.2                  | 10                |
| 120                                   | 189R     | 22   | 15.0         | 23.5 | 160 | 8/8              | 4/4   | 14.00             | 36.8                  | 10                |
| 150                                   | 190R     | 25   | 16.5         | 25.5 | 180 | 8/8              | 4/4   | 15.70             | 47.5                  | 5                 |
| 185                                   | *191R    | 32   | 18.5         | 31.5 | 260 |                  | 5/5   | 17.50             | 118.0                 | 5                 |
| 240                                   | *192R    | 34   | 21.0         | 34.5 | 310 |                  | 6/6   | 20.20             | 163.0                 | 5                 |
| 300                                   | *193R    | 38   | 23.5         | 38.5 | 360 |                  |       | 22.50             | 235.0                 | 1                 |

▶ \* = not standardized

▶ 16-70 mm<sup>2</sup> IEC tested

▶ Tools: see chart page 84

## Reduction sleeves, Cu

- ▶ For multi-stranded conductors e.g. VDE 0295 Class 2
- ▶ For connecting different conductor cross-sections
- ▶ For use in DIN compression joints and connectors, standard type

### Characteristics

- Total cross-section: 25 - 400 mm<sup>2</sup>
- For non-tension connections
- Precise end machining for easy cable insertion

### Material

- Copper acc. to EN 13600

### Surface

- Bright finished



| Part No. | Nominal<br>cross section mm <sup>2</sup><br>from | Nominal<br>cross section mm <sup>2</sup><br>to | Dimension mm |      |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|----------|--------------------------------------------------|------------------------------------------------|--------------|------|----|-----------------------------|------------------|
|          |                                                  |                                                | d1           | d4   | l  |                             |                  |
| RH2510   | 25                                               | 10                                             | 4.6          | 6.6  | 25 | 0.358                       | 25               |
| RH2516   | 25                                               | 16                                             | 5.5          | 6.6  | 25 | 0.350                       | 25               |
| RH3510   | 35                                               | 10                                             | 4.5          | 8.0  | 25 | 0.707                       | 25               |
| RH3516   | 35                                               | 16                                             | 5.5          | 8.0  | 25 | 0.570                       | 25               |
| RH3525   | 35                                               | 25                                             | 7.0          | 8.0  | 25 | 0.253                       | 25               |
| RH5016   | 50                                               | 16                                             | 5.5          | 9.5  | 33 | 1.326                       | 25               |
| RH5025   | 50                                               | 25                                             | 7.0          | 9.5  | 33 | 0.923                       | 25               |
| RH5035   | 50                                               | 35                                             | 8.5          | 9.5  | 33 | 0.404                       | 25               |
| RH7025   | 70                                               | 25                                             | 7.0          | 11.0 | 33 | 1.580                       | 25               |
| RH7035   | 70                                               | 35                                             | 8.5          | 11.0 | 33 | 1.102                       | 25               |
| RH7050   | 70                                               | 50                                             | 10.0         | 11.0 | 33 | 0.486                       | 25               |
| RH9535   | 95                                               | 35                                             | 8.5          | 13.0 | 45 | 2.940                       | 25               |
| RH9550   | 95                                               | 50                                             | 10.0         | 13.0 | 45 | 2.136                       | 25               |
| RH9570   | 95                                               | 70                                             | 11.5         | 13.0 | 45 | 1.100                       | 25               |
| RH12050  | 120                                              | 50                                             | 10.0         | 15.0 | 45 | 3.802                       | 25               |
| RH12070  | 120                                              | 70                                             | 11.5         | 15.0 | 45 | 2.874                       | 25               |
| RH12095  | 120                                              | 95                                             | 13.5         | 15.0 | 45 | 1.340                       | 25               |
| RH15070  | 150                                              | 70                                             | 11.5         | 16.5 | 53 | 5.008                       | 5                |
| RH15095  | 150                                              | 95                                             | 13.5         | 16.5 | 53 | 3.212                       | 5                |
| RH150120 | 150                                              | 120                                            | 15.5         | 16.5 | 53 | 1.248                       | 5                |
| RH18595  | 185                                              | 95                                             | 13.5         | 18.5 | 53 | 5.824                       | 5                |
| RH185120 | 185                                              | 120                                            | 15.5         | 18.5 | 53 | 3.756                       | 5                |
| RH185150 | 185                                              | 150                                            | 17.0         | 18.5 | 53 | 1.660                       | 5                |
| RH240120 | 240                                              | 120                                            | 15.5         | 21.0 | 55 | 7.412                       | 5                |
| RH240150 | 240                                              | 150                                            | 17.0         | 21.0 | 55 | 5.740                       | 5                |
| RH240185 | 240                                              | 185                                            | 19.0         | 21.0 | 55 | 3.036                       | 5                |
| RH300150 | 300                                              | 150                                            | 17.0         | 24.0 | 58 | 11.200                      | 5                |
| RH300185 | 300                                              | 185                                            | 19.0         | 24.0 | 58 | 8.390                       | 5                |
| RH300240 | 300                                              | 240                                            | 21.5         | 24.0 | 58 | 4.526                       | 5                |
| RH400185 | 400                                              | 185                                            | 19.0         | 27.0 | 80 | 20.100                      | 5                |
| RH400240 | 400                                              | 240                                            | 21.5         | 27.0 | 80 | 14.270                      | 5                |
| RH400300 | 400                                              | 300                                            | 24.5         | 27.0 | 80 | 8.800                       | 5                |

ⓘ Please observe instructions in technical appendix / notes for fitting of connecting materials on page i-7

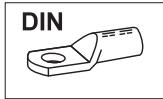
## DIN



## ■ Tool application chart

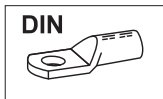
## Compression cable lugs and compression joints

| Crimping range corresponds to nominal cross-section mm² | Crimping tools   |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|------------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools            | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 6-50                                                    | K05D             |                        | •                         |                                                                                   |                               |                                |                            |                          | ⬡             | 247         |
| 6-120                                                   | K354             |                        |                           | •                                                                                 |                               |                                |                            |                          | ⬡             | 260         |
|                                                         | EK354            |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 314         |
|                                                         | EK354L           |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 316         |
| 6-185                                                   | K18              |                        |                           | •                                                                                 |                               |                                |                            |                          | ⬡             | 262         |
|                                                         | HK6018           |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 286         |
|                                                         | EK505L           |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 318         |
|                                                         | EK5018L          |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 320         |
|                                                         | PK18             |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 362         |
|                                                         | THK18            |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 362         |
|                                                         | HK60UNV + UA18   |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 354         |
|                                                         | EK60UNVL + UA18  |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 357         |
|                                                         | EKM60UNVL + UA18 |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 356         |
|                                                         | PK60UNV + UA18   |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 355         |
| 6-240                                                   | K22              |                        |                           | •                                                                                 |                               |                                |                            |                          | ⬡             | 264         |
|                                                         | HK6022           |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 288         |
|                                                         | EK6022L          |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 324         |
|                                                         | EKM6022L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 322         |
|                                                         | PK22             |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 364         |
|                                                         | THK22            |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 364         |
|                                                         | HK60UNV + UA22   |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 354         |
|                                                         | EK60UNVL + UA22  |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 357         |
|                                                         | EKM60UNVL + UA22 |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 356         |
|                                                         | PK60UNV + UA22   |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 355         |
|                                                         | HK12030          |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 292         |
|                                                         | HK12042          |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 294         |
|                                                         | HK120U           |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 296         |
|                                                         | EK12030L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 330         |
|                                                         | EK12042L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 332         |
|                                                         | EK120UL          |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 334         |
|                                                         | HK122EL380       |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 390         |
|                                                         | PK12042          |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 368         |
|                                                         | PK120U           |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 370         |
| 10-120                                                  | K06D             |                        | •                         |                                                                                   |                               |                                |                            |                          | ⬡             | 250         |
| 16-95                                                   | K08D             |                        | •                         |                                                                                   |                               |                                |                            |                          | ⬡             | 248         |
| 16-300                                                  | EK120UNVL        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 358         |
| 16-625                                                  | HK252            |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 388         |
|                                                         | HK252EL380       |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 391         |
|                                                         | PK252            |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 372         |



## ■ Tool application chart

| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 25-150                                                  | K09D           |                        | •                         |                                                                                   |                               |                                |                            |                          | ⬡             | 251         |
| 120-1000                                                | HK45           |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 389         |
|                                                         | PK45           |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 374         |



## ■ Tool application chart

### Double compression cable lugs

| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 2x50-2x70                                               | K22            |                        |                           | •                                                                                 |                               |                                |                            |                          | ⬢             | 264         |
|                                                         | HK6022         |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬢             | 288         |
|                                                         | EK6022L        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬢             | 324         |
|                                                         | EKM6022L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬢             | 322         |
|                                                         | PK22           |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬢             | 364         |
|                                                         | THK22          |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬢             | 364         |
|                                                         | HK60UNV        | + UA22                 |                           |                                                                                   | •                             |                                |                            |                          | ⬢             | 354         |
|                                                         | EK60UNVL       | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ⬢             | 357         |
|                                                         | EKM60UNVL      | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ⬢             | 356         |
|                                                         | PK60UNV        | + UA22                 |                           |                                                                                   |                               |                                |                            | •                        | ⬢             | 355         |
| 2x50-2x95                                               | HK12030        |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬢             | 292         |
|                                                         | HK12042        |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬢             | 294         |
|                                                         | HK120U         |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬢             | 296         |
|                                                         | EK12030L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬢             | 330         |
|                                                         | EK12042L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬢             | 332         |
|                                                         | EK120UL        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬢             | 334         |
|                                                         | EK120UNVL      |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬢             | 358         |
|                                                         | HK122EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬢             | 390         |
|                                                         | PK12042        |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬢             | 368         |
|                                                         | PK120U         |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬢             | 370         |
| 2x50-2x120                                              | HK252          |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬢             | 388         |
|                                                         | HK252EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬢             | 391         |
|                                                         | PK252          |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬢             | 372         |

# One design, a host of quality features.



## Solderless terminals to DIN 46234 and pin terminals to DIN 46230.

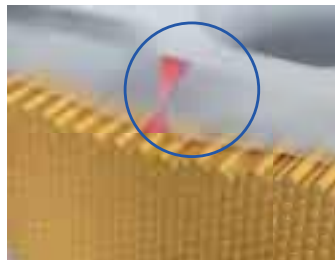
Klauke solderless terminals to DIN 46234 are the ideal solution for processing multi-stranded, fine stranded and superfine stranded conductors. Depending on the application, Klauke pin terminals to DIN 46230 are also the ideal solution for multi-stranded and fine stranded conductors. Special fork-type versions are also available.

All cable lugs are punched from highly conductive copper plate, hard soldered in the crimping area and equipped with a special grooved profile. The tin-plated finish ensures optimised protection against oxidation. The material is designed for continuous operation up to 120 °C.



*The hard-soldered crimping area guarantees optimised stability. The soldering shows no signs of cracking, even after the crimping operation and the corresponding mechanical strain.*

- Hard-soldered solderless terminals and pin terminals with a grooved profile in the crimping area.
- Versions with halogen-free polyamide insulation.
- Special design for meter connections.
- Special connectors to DIN 46341 Form A and B.





## ■ *Quality in detail.*

- ▶ With grooved profile on the inside.
- ▶ **Hard-soldered in the crimping area.**
- ▶ Solderless terminals with nominal cross sections from 0.5 mm<sup>2</sup> to 240 mm<sup>2</sup>.
- ▶ Pin terminals with nominal cross sections from 0.5 mm<sup>2</sup> to 95 mm<sup>2</sup>.

### **Benefits:**

- ▶ Higher tensile strength due to internal grooved profile.
- ▶ No splitting of terminals during indent crimping on the soldered seam.
- ▶ Multi-stranded, fine stranded and superfine stranded conductors allow quick and trouble-free assembly.
- ▶ This comparatively short design is the ideal solution for control cabinet connections.



## ■ *A host of advantages with polyamide insulation.*



- ▶ Cable lugs with halogen-free insulating sleeve.
- ▶ No abutting edge for "easy-entry".
- ▶ Burr-free edges.
- ▶ Entire surface tin-plated.

### **Benefits:**

- ▶ No hydrochloric acid-containing vapours in case of fire.
- ▶ **Fine stranded conductors can be inserted quickly** without individual wires being bent back.
- ▶ No reduction of cross section by bent wires.
- ▶ No insulation damage during crimping.
- ▶ The connecting materials do not break even when crimping on the soldered seam.

▶ *More from Page 90.*

## ■ *Meters to be connected better.*

- ▶ Special designs for meter connection.

### **Benefits:**

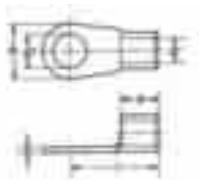
- ▶ The fork-type cable lugs can be connected to meters **quickly and simply**, even in tight areas.

▶ *More on Page 94.*



▶ *We highly recommend indent crimping for solderless terminals and pin terminals to guarantee optimal hold. Specific information can be found in the cross references on the product pages.*

## Solderless terminals acc. to DIN - Cu



- ▶ Acc. to DIN 46234
- ▶ For conductors e.g. to VDE 0295 Class 2, 5 and 6
- ▶ Hard soldered in crimping area

### Characteristics

- Total cross-section: 0.5 - 240 mm<sup>2</sup>
- With grooved profile for improved contact characteristics

### Material

- Cu-ETP

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

### Order info

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section mm <sup>2</sup> | Nominal size to DIN | Part No. | Dimension mm |    |     |      |    |     | Weight/100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|---------------------|----------|--------------|----|-----|------|----|-----|----------------------|-------------------|
|                                       |                     |          | a            | b  | d1  | d2   | l  | s   |                      |                   |
| 0.5 - 1                               | 2.5 - 1             | 162025   | 5            | 6  | 1.6 | 2.8  | 11 | 0.8 | 0.060                | 100               |
|                                       | 3 - 1               | 16203    | 5            | 6  | 1.6 | 3.2  | 11 | 0.8 | 0.060                | 100               |
|                                       | 3.5 - 1             | 162035   | 5            | 6  | 1.6 | 3.7  | 11 | 0.8 | 0.055                | 100               |
|                                       | 4 - 1               | 16204    | 5            | 8  | 1.6 | 4.3  | 12 | 0.8 | 0.070                | 100               |
|                                       | 5 - 1               | 16205    | 5            | 10 | 1.6 | 5.3  | 13 | 0.8 | 0.090                | 100               |
|                                       | 6 - 1               | *16206   | 5            | 11 | 1.6 | 6.5  | 15 | 0.8 | 0.080                | 100               |
|                                       | 8 - 1               | *16208   | 5            | 14 | 1.6 | 8.4  | 17 | 0.8 | 0.130                | 100               |
|                                       | 10 - 1              | *162010  | 5            | 18 | 1.6 | 10.5 | 19 | 0.8 | 0.130                | 100               |
| 1.5 - 2.5                             | 3 - 2.5             | 16303    | 5            | 6  | 2.3 | 3.2  | 11 | 0.8 | 0.065                | 100               |
|                                       | 3.5 - 2.5           | 163035   | 5            | 6  | 2.3 | 3.7  | 11 | 0.8 | 0.065                | 100               |
|                                       | 4 - 2.5             | 16304    | 5            | 8  | 2.3 | 4.3  | 12 | 0.8 | 0.080                | 100               |
|                                       | 5 - 2.5             | 16305    | 5            | 10 | 2.3 | 5.3  | 14 | 0.8 | 0.090                | 100               |
|                                       | 6 - 2.5             | 16306    | 5            | 11 | 2.3 | 6.5  | 16 | 0.8 | 0.110                | 100               |
|                                       | 8 - 2.5             | 16308    | 5            | 14 | 2.3 | 8.4  | 17 | 0.8 | 0.130                | 100               |
|                                       | 10 - 2.5            | *163010  | 5            | 15 | 2.3 | 10.5 | 17 | 0.8 | 0.160                | 100               |
|                                       | 12 - 2.5            | *163012  | 5            | 18 | 2.3 | 13.0 | 19 | 0.8 | 0.160                | 100               |
| 4 - 6                                 | 4 - 6               | 16504    | 6            | 8  | 3.6 | 4.3  | 14 | 1.0 | 0.140                | 100               |
|                                       | 5 - 6               | 16505    | 6            | 10 | 3.6 | 5.3  | 15 | 1.0 | 0.160                | 100               |
|                                       | 6 - 6               | 16506    | 6            | 11 | 3.6 | 6.5  | 16 | 1.0 | 0.170                | 100**             |
|                                       | 8 - 6               | 16508    | 6            | 14 | 3.6 | 8.4  | 19 | 1.0 | 0.220                | 100               |
|                                       | 10 - 6              | 165010   | 6            | 18 | 3.6 | 10.5 | 21 | 1.0 | 0.290                | 100               |
|                                       | 12 - 6              | *165012  | 6            | 18 | 3.6 | 13.0 | 21 | 1.0 | 0.280                | 100               |
|                                       | 5 - 10              | 16525    | 8            | 10 | 4.5 | 5.3  | 16 | 1.1 | 0.230                | 100               |
|                                       | 6 - 10              | 16526    | 8            | 11 | 4.5 | 6.5  | 17 | 1.1 | 0.240                | 100               |
| 10                                    | 8 - 10              | 16528    | 8            | 14 | 4.5 | 8.4  | 20 | 1.1 | 0.290                | 100**             |
|                                       | 10 - 10             | 165210   | 8            | 18 | 4.5 | 10.5 | 21 | 1.1 | 0.340                | 100               |
|                                       | 12 - 10             | 165212   | 8            | 22 | 4.5 | 13.0 | 23 | 1.1 | 0.420                | 100               |
|                                       | 5 - 16              | 16535    | 10           | 11 | 5.8 | 5.3  | 20 | 1.2 | 0.390                | 100               |
| 16                                    | 6 - 16              | 16536    | 10           | 11 | 5.8 | 6.5  | 20 | 1.2 | 0.380                | 100               |
|                                       | 8 - 16              | 16538    | 10           | 14 | 5.8 | 8.4  | 22 | 1.2 | 0.430                | 100**             |
|                                       | 10 - 16             | 165310   | 10           | 18 | 5.8 | 10.5 | 24 | 1.2 | 0.500                | 100               |
|                                       | 12 - 16             | 165312   | 10           | 22 | 5.8 | 13.0 | 26 | 1.2 | 0.580                | 100               |

**Solderless terminals acc. to DIN - Cu**

| Nominal cross section mm² | Nominal size to DIN | Part No.      | Dimension mm |    |      |      |    |     | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------|---------------------|---------------|--------------|----|------|------|----|-----|-----------------------|-------------------|
|                           |                     |               | a            | b  | d1   | d2   | l  | s   |                       |                   |
| 25                        | 5 - 25              | <b>16545</b>  | 11           | 12 | 7.5  | 5.3  | 25 | 1.5 | 0.750                 | 100               |
|                           | 6 - 25              | <b>16546</b>  | 11           | 12 | 7.5  | 6.5  | 25 | 1.5 | 0.690                 | 100               |
|                           | 8 - 25              | <b>16548</b>  | 11           | 16 | 7.5  | 8.4  | 25 | 1.5 | 0.750                 | 100**             |
|                           | 10 - 25             | <b>165410</b> | 11           | 18 | 7.5  | 10.5 | 26 | 1.5 | 0.760                 | 100               |
|                           | 12 - 25             | <b>165412</b> | 11           | 22 | 7.5  | 13.0 | 31 | 1.5 | 0.920                 | 100               |
|                           | 16 - 25             | <b>165416</b> | 11           | 28 | 7.5  | 17.0 | 35 | 1.5 | 1.320                 | 100               |
| 35                        | 6 - 35              | <b>16556</b>  | 12           | 15 | 9.0  | 6.5  | 26 | 1.6 | 1.010                 | 100               |
|                           | 8 - 35              | <b>16558</b>  | 12           | 16 | 9.0  | 8.4  | 26 | 1.6 | 0.980                 | 100**             |
|                           | 10 - 35             | <b>165510</b> | 12           | 18 | 9.0  | 10.5 | 27 | 1.6 | 1.000                 | 100               |
|                           | 12 - 35             | <b>165512</b> | 12           | 22 | 9.0  | 13.0 | 31 | 1.6 | 1.260                 | 100               |
|                           | 16 - 35             | <b>165516</b> | 12           | 28 | 9.0  | 17.0 | 36 | 1.6 | 1.550                 | 100               |
| 50                        | 6 - 50              | <b>16566</b>  | 16           | 18 | 11.0 | 6.5  | 34 | 1.8 | 1.650                 | 100               |
|                           | 8 - 50              | <b>16568</b>  | 16           | 18 | 11.0 | 8.4  | 34 | 1.8 | 1.650                 | 100**             |
|                           | 10 - 50             | <b>165610</b> | 16           | 18 | 11.0 | 10.5 | 34 | 1.8 | 1.600                 | 100               |
|                           | 12 - 50             | <b>165612</b> | 16           | 22 | 11.0 | 13.0 | 36 | 1.8 | 1.800                 | 100               |
|                           | 16 - 50             | <b>165616</b> | 16           | 28 | 11.0 | 17.0 | 40 | 1.8 | 2.100                 | 100               |
| 70                        | 6 - 70              | <b>16576</b>  | 18           | 22 | 13.0 | 6.5  | 38 | 2.0 | 2.600                 | 50                |
|                           | 8 - 70              | <b>16578</b>  | 18           | 22 | 13.0 | 8.4  | 38 | 2.0 | 2.500                 | 50                |
|                           | 10 - 70             | <b>165710</b> | 18           | 22 | 13.0 | 10.5 | 38 | 2.0 | 2.500                 | 50                |
|                           | 12 - 70             | <b>165712</b> | 18           | 22 | 13.0 | 13.0 | 38 | 2.0 | 2.400                 | 50                |
|                           | 16 - 70             | <b>165716</b> | 18           | 28 | 13.0 | 17.0 | 42 | 2.0 | 2.700                 | 50                |
| 95                        | 8 - 95              | <b>16588</b>  | 20           | 24 | 15.0 | 8.4  | 42 | 2.5 | 4.300                 | 50                |
|                           | 10 - 95             | <b>165810</b> | 20           | 24 | 15.0 | 10.5 | 42 | 2.5 | 4.100                 | 50                |
|                           | 12 - 95             | <b>165812</b> | 20           | 24 | 15.0 | 13.0 | 42 | 2.5 | 3.900                 | 50                |
|                           | 16 - 95             | <b>165816</b> | 20           | 28 | 15.0 | 17.0 | 44 | 2.5 | 4.100                 | 50                |
| 120                       | 8 - 120             | <b>16598</b>  | 22           | 24 | 17.0 | 8.4  | 44 | 3.0 | 5.601                 | 50                |
|                           | 10 - 120            | <b>165910</b> | 22           | 24 | 17.0 | 10.5 | 44 | 3.0 | 5.600                 | 50                |
|                           | 12 - 120            | <b>165912</b> | 22           | 24 | 17.0 | 13.0 | 44 | 3.0 | 5.400                 | 50                |
|                           | 16 - 120            | <b>165916</b> | 22           | 28 | 17.0 | 17.0 | 48 | 3.0 | 5.800                 | 50                |
| 150                       | 10 - 150            | <b>166010</b> | 24           | 30 | 19.0 | 10.5 | 50 | 3.2 | 7.600                 | 50                |
|                           | 12 - 150            | <b>166012</b> | 24           | 30 | 19.0 | 13.0 | 50 | 3.2 | 7.600                 | 50                |
|                           | 16 - 150            | <b>166016</b> | 24           | 30 | 19.0 | 17.0 | 50 | 3.2 | 7.500                 | 50                |
| 185                       | 12 - 185            | <b>166112</b> | 28           | 36 | 21.0 | 13.0 | 50 | 3.5 | 11.300                | 50                |
|                           | 16 - 185            | <b>166116</b> | 28           | 36 | 21.0 | 17.0 | 50 | 3.5 | 11.300                | 50                |
| 240                       | 12 - 240            | <b>166212</b> | 32           | 38 | 23.5 | 13.0 | 56 | 4.0 | 15.900                | 25                |
|                           | 16 - 240            | <b>166216</b> | 32           | 38 | 23.5 | 17.0 | 56 | 4.0 | 15.900                | 25                |

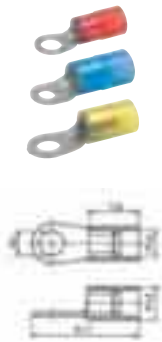
▶ \* = not standardized

▶ \*\* = Also available in small handy packs

▶ 0.5 - 6 mm² not UL certified

 ▶ **Tools: see chart page 97**

## Insulated solderless terminals, Cu, Easy entry



- ▶ For conductors e.g. to VDE 0295 Class 2, 5 and 6
- ▶ High-quality brazing process in the crimp area

## Characteristics

- Total cross-section: 10 - 150 mm<sup>2</sup>
- Insulation sleeve PA, halogen-free with easy-entry cable insertion
- Dimensions in tube according to DIN 46234
- With grooved profile for improved contact characteristics
- Cross-section-dependent colour-coding
- Heat resistant to 105° C

## Material

- Cu-ETP

## Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |      |      |      |      | weight 100 pcs. ~kg |       | Packing unit/ pcs |
|---------------------------------------|----------|--------|--------------|------|------|------|------|---------------------|-------|-------------------|
|                                       |          |        | d12          | d13  | d2   | Gl1  | l10  | Cu                  | Total |                   |
| 10                                    | 6525     | Red    | 6.7          | 8.6  | 5.3  | 34.0 | 19.0 | 0.27                | 0.27  | 100               |
|                                       | 6526     | Red    | 6.7          | 8.6  | 6.5  | 34.0 | 19.0 | 0.24                | 0.28  | 100               |
|                                       | 6528     | Red    | 6.7          | 8.6  | 8.4  | 37.5 | 19.0 | 0.29                | 0.33  | 100               |
|                                       | 65210    | Red    | 6.7          | 8.6  | 10.5 | 41.5 | 19.0 | 0.34                | 0.38  | 100               |
|                                       | 65212    | Red    | 6.7          | 8.6  | 13.0 | 45.5 | 19.0 | 0.42                | 0.46  | 100               |
| 16                                    | 6535     | Blue   | 7.7          | 9.6  | 5.3  | 39.5 | 20.5 | 0.39                | 0.44  | 100               |
|                                       | 6536     | Blue   | 7.7          | 9.6  | 6.5  | 39.5 | 20.5 | 0.38                | 0.43  | 100               |
|                                       | 6538     | Blue   | 7.7          | 9.6  | 8.4  | 41.5 | 20.5 | 0.43                | 0.48  | 100               |
|                                       | 65310    | Blue   | 7.7          | 9.6  | 10.5 | 43.5 | 20.5 | 0.50                | 0.55  | 100               |
|                                       | 65312    | Blue   | 7.7          | 9.6  | 13.0 | 50.5 | 20.5 | 0.58                | 0.63  | 100               |
| 25                                    | 6545     | Yellow | 11.0         | 13.0 | 5.3  | 40.0 | 20.0 | 0.75                | 0.84  | 50                |
|                                       | 6546     | Yellow | 11.0         | 13.0 | 6.5  | 42.5 | 20.0 | 0.69                | 0.78  | 50                |
|                                       | 6548     | Yellow | 11.0         | 13.0 | 8.4  | 43.0 | 20.0 | 0.75                | 0.84  | 50                |
|                                       | 65410    | Yellow | 11.0         | 13.0 | 10.5 | 45.0 | 20.0 | 0.80                | 0.89  | 50                |
|                                       | 65412    | Yellow | 11.0         | 13.0 | 13.0 | 51.0 | 20.0 | 0.92                | 1.00  | 50                |
| 35                                    | 65416    | Yellow | 11.0         | 13.0 | 17.0 | 59.0 | 20.0 | 1.32                | 1.40  | 50                |
|                                       | 6556     | Red    | 12.7         | 15.0 | 6.5  | 44.0 | 22.5 | 1.01                | 1.14  | 50                |
|                                       | 6558     | Red    | 12.7         | 15.0 | 8.4  | 44.5 | 22.5 | 0.98                | 1.10  | 50                |
|                                       | 65510    | Red    | 12.7         | 15.0 | 10.5 | 46.5 | 22.5 | 1.00                | 1.12  | 50                |
|                                       | 65512    | Red    | 12.7         | 15.0 | 13.0 | 52.5 | 22.5 | 1.26                | 1.38  | 50                |
| 50                                    | 65516    | Red    | 12.7         | 15.0 | 17.0 | 54.5 | 22.5 | 1.55                | 1.67  | 50                |
|                                       | 6566     | Blue   | 15.4         | 18.0 | 6.5  | 54.5 | 27.5 | 1.65                | 1.90  | 50                |
|                                       | 6568     | Blue   | 15.4         | 18.0 | 8.4  | 60.5 | 27.5 | 1.65                | 1.90  | 50                |
|                                       | 65610    | Blue   | 15.4         | 18.0 | 10.5 | 60.5 | 27.5 | 1.60                | 1.85  | 50                |
|                                       | 65612    | Blue   | 15.4         | 18.0 | 13.0 | 60.5 | 27.5 | 1.80                | 2.05  | 50                |
| 70                                    | 65616    | Blue   | 15.4         | 18.0 | 17.0 | 67.5 | 27.5 | 2.10                | 2.35  | 50                |
|                                       | 6576     | Yellow | 17.4         | 20.0 | 6.5  | 61.5 | 30.5 | 2.60                | 2.90  | 50                |
|                                       | 6578     | Yellow | 17.4         | 20.0 | 8.4  | 61.5 | 30.5 | 2.50                | 2.80  | 50                |
|                                       | 65710    | Yellow | 17.4         | 20.0 | 10.5 | 66.5 | 30.5 | 2.50                | 2.80  | 50                |
|                                       | 65712    | Yellow | 17.4         | 20.0 | 13.0 | 66.5 | 30.5 | 2.40                | 2.70  | 50                |
| 95                                    | 65716    | Yellow | 17.4         | 20.0 | 17.0 | 70.5 | 30.5 | 2.70                | 3.00  | 50                |
|                                       | 65810    | Red    | 20.5         | 23.5 | 10.5 | 70.0 | 34.0 | 4.10                | 4.50  | 25                |
|                                       | 65812    | Red    | 20.5         | 23.5 | 13.0 | 70.0 | 34.0 | 3.90                | 4.40  | 25                |
|                                       | 65816    | Red    | 20.5         | 23.5 | 17.0 | 76.0 | 34.0 | 4.10                | 4.50  | 25                |

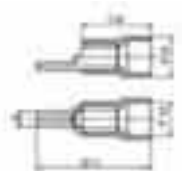
**Insulated solderless terminals, Cu, Easy entry**

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |      |      |      |      |  | weight 100 pcs. ~kg |       | Packing unit/ pcs |
|---------------------------------------|----------|--------|--------------|------|------|------|------|--|---------------------|-------|-------------------|
|                                       |          |        | d12          | d13  | d2   | Gl1  | l10  |  | Cu                  | Total |                   |
| 120                                   | 65910    | ■      | 23.5         | 26.7 | 10.5 | 79.0 | 36.0 |  | 5.60                | 6.10  | 25                |
|                                       | 65912    | ■      | 23.5         | 26.7 | 13.0 | 82.0 | 36.0 |  | 5.40                | 5.90  | 25                |
|                                       | 65916    | ■      | 23.5         | 26.7 | 17.0 | 90.0 | 36.0 |  | 5.80                | 6.30  | 25                |
| 150                                   | 66010    | ■      | 26.0         | 29.2 | 10.5 | 80.0 | 39.0 |  | 7.60                | 8.40  | 25                |
|                                       | 66012    | ■      | 26.0         | 29.2 | 13.0 | 83.0 | 39.0 |  | 7.60                | 8.40  | 25                |
|                                       | 66016    | ■      | 26.0         | 29.2 | 17.0 | 83.0 | 39.0 |  | 7.50                | 8.30  | 25                |

► Tools: see chart page 99

**Insulated pin terminals, Cu, Easy entry**

- For conductors e.g. VDE 0295 Class 2
- High-quality brazing process in the crimp area


**Characteristics**

- Total cross-section: 10 - 95 mm<sup>2</sup>
- Insulation sleeve PA, halogen-free with easy-entry cable insertion
- With grooved profile for improved contact characteristics
- Cross-section-dependent colour-coding
- Heat resistant to 105° C

**Material**

- Cu-ETP

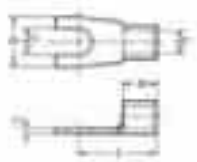
**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |      |      |      |      |  | Weight 100 pcs. ~kg |       | Packing unit/ pcs |
|---------------------------------------|----------|--------|--------------|------|------|------|------|--|---------------------|-------|-------------------|
|                                       |          |        | b            | d12  | d13  | Gl1  | l10  |  | Cu                  | Total |                   |
| 10                                    | ST1716IS | ■      | 4.3          | 7.4  | 9.4  | 33.0 | 19.0 |  | 0.27                | 0.31  | 100               |
| 16                                    | ST1717IS | ■      | 5.5          | 8.6  | 10.6 | 38.0 | 20.0 |  | 0.39                | 0.44  | 100               |
| 25                                    | ST1718IS | ■      | 6.8          | 12.5 | 14.5 | 43.5 | 23.5 |  | 0.63                | 0.73  | 50                |
| 35                                    | ST1719IS | ■      | 8.0          | 14.0 | 16.4 | 51.5 | 27.5 |  | 1.17                | 1.34  | 50                |
| 50                                    | ST1720IS | ■      | 9.5          | 15.5 | 18.0 | 59.0 | 33.0 |  | 1.79                | 2.10  | 50                |
| 70                                    | ST1721IS | ■      | 11.0         | 18.0 | 20.5 | 69.0 | 38.0 |  | 2.92                | 3.20  | 50                |
| 95                                    | ST1722IS | ■      | 12.5         | 20.7 | 23.5 | 71.0 | 40.0 |  | 4.30                | 4.70  | 25                |

► Tools: see chart page 99

## Solderless terminals Cu, fork type



- ▶ Dimensions in tube to 6 mm<sup>2</sup> to DIN 46234
- ▶ Fork-type version for simple and direct screw mounting
- ▶ High-quality brazing process in the crimp area

### Characteristics

- Total cross-section: 0.5 - 16 mm<sup>2</sup>
- With grooved profile for improved contact characteristics

### Material

- Cu-ETP

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section mm <sup>2</sup> | Nominal size to DIN | Part No. | Dimension mm |      |     |     |      |     | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|---------------------|----------|--------------|------|-----|-----|------|-----|-----------------------|-------------------|
|                                       |                     |          | a            | b    | d1  | d2  | l    | s   |                       |                   |
| 0.5 - 1                               | 3 - 1               | 1620C3   | 5.0          | 6.0  | 1.6 | 3.2 | 11.0 | 0.8 | 0.060                 | 100               |
|                                       | 3.5 - 1             | 1620C35  | 5.0          | 6.0  | 1.6 | 3.7 | 11.0 | 0.8 | 0.060                 | 100               |
|                                       | 4 - 1               | 1620C4   | 5.0          | 6.8  | 1.6 | 4.3 | 12.0 | 0.8 | 0.070                 | 100               |
|                                       | 5 - 1               | 1620C5   | 5.0          | 10.0 | 1.6 | 5.3 | 13.0 | 0.8 | 0.090                 | 100               |
|                                       | 6 - 1               | 1620C6   | 5.0          | 11.0 | 1.6 | 6.5 | 15.0 | 0.8 | 0.080                 | 100               |
| 1.5 - 2.5                             | 3 - 2.5             | 1630C3   | 5.0          | 5.5  | 2.3 | 3.2 | 13.8 | 0.8 | 0.065                 | 100               |
|                                       | 3.5 - 2.5           | 1630C35  | 5.0          | 6.0  | 2.3 | 3.7 | 11.0 | 0.8 | 0.065                 | 100               |
|                                       | 4 - 2.5             | 1630C4   | 5.0          | 6.8  | 2.3 | 4.3 | 12.0 | 0.8 | 0.080                 | 100               |
|                                       | 5 - 2.5             | 1630C5   | 5.0          | 10.0 | 2.3 | 5.3 | 14.0 | 0.8 | 0.090                 | 100               |
|                                       | 6 - 2.5             | 1630C6   | 5.0          | 11.0 | 2.3 | 6.5 | 16.0 | 0.8 | 0.110                 | 100               |
| 4 - 6                                 | 4 - 6               | 1650C4   | 6.0          | 8.0  | 3.6 | 4.3 | 14.0 | 1.0 | 0.140                 | 100               |
|                                       | 5 - 6               | 1650C5   | 6.0          | 10.0 | 3.6 | 5.3 | 15.0 | 1.0 | 0.160                 | 100               |
|                                       | 6 - 6               | 1650C6   | 6.0          | 11.0 | 3.6 | 6.5 | 16.0 | 1.0 | 0.170                 | 100               |
|                                       | 8 - 6               | 1650C8   | 6.0          | 14.0 | 3.6 | 8.4 | 19.0 | 1.0 | 0.220                 | 100               |
| 10                                    | 5 - 10              | 1652C5   | 10.0         | 10.0 | 4.3 | 5.3 | 19.0 | 1.0 | 0.240                 | 100               |
|                                       | 6 - 10              | 1652C6   | 10.0         | 11.0 | 4.3 | 6.4 | 21.0 | 1.0 | 0.260                 | 100               |
| 16                                    | 6 - 16              | 1653C6   | 11.5         | 11.0 | 5.4 | 6.4 | 24.0 | 1.0 | 0.350                 | 100               |
|                                       | 8 - 16              | 1653C8   | 11.5         | 15.0 | 5.4 | 8.4 | 27.0 | 1.0 | 0.420                 | 100               |

▶ 0.5 - 6 mm<sup>2</sup> not UL certified

▶ Tools: see chart page 97

**Pin terminals acc. to DIN, Cu**

- ▶ Nominal cross-sections 0.5 - 6 mm<sup>2</sup> to DIN 46230
- ▶ For conductors e.g. VDE 0295 Class 2
- ▶ High-quality brazing process in the crimp area


**Characteristics**

- Total cross-section: 0.5 - 95 mm<sup>2</sup>
- With grooved profile for improved contact characteristics

**Material**

- Cu-ETP

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)



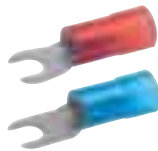
| Nominal cross section mm <sup>2</sup> | Nominal size to DIN | Part No.       | Typ | Dimension mm |      |      |     |      |    |     |     | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|---------------------|----------------|-----|--------------|------|------|-----|------|----|-----|-----|-----------------------|------------------|
|                                       |                     |                |     | a            | b    | d1   | d2  | l1   | l2 | s   | h   |                       |                  |
| 0.5 - 1                               | 1                   | <b>ST1705</b>  | A   | 5.0          | --   | 1.8  | 1.9 | 17.0 | 10 | 0.8 | --  | 0.060                 | 100              |
| 1.5 - 2.5                             | 2.5                 | <b>ST1710</b>  | A   | 5.0          | --   | 2.3  | 1.9 | 17.0 | 10 | 0.8 | --  | 0.072                 | 100              |
| 4 - 6                                 | 6                   | <b>ST1715</b>  | A   | 6.0          | --   | 3.6  | 2.7 | 20.0 | 11 | 1.0 | --  | 0.160                 | 100              |
| 10                                    | --                  | <b>*ST1716</b> | B   | 10.0         | 4.3  | 4.3  | --  | 24.5 | 11 | 1.0 | 2.0 | 0.270                 | 100              |
| 16                                    |                     | <b>*ST1717</b> | B   | 11.5         | 5.8  | 5.4  | --  | 29.5 | 15 | 1.0 | 2.0 | 0.390                 | 100              |
| 25                                    |                     | <b>*ST1718</b> | B   | 13.5         | 6.8  | 6.7  | --  | 33.5 | 15 | 1.2 | 2.4 | 0.630                 | 100              |
| 35                                    |                     | <b>*ST1719</b> | B   | 16.0         | 8.0  | 8.2  | --  | 40.5 | 20 | 1.5 | 3.2 | 1.170                 | 50               |
| 50                                    |                     | <b>*ST1720</b> | B   | 19.0         | 9.5  | 9.5  | --  | 45.0 | 20 | 1.8 | 3.6 | 1.790                 | 50               |
| 70                                    |                     | <b>*ST1721</b> | B   | 24.0         | 11.0 | 11.2 | --  | 55.0 | 23 | 2.0 | 4.0 | 2.920                 | 50               |
| 95                                    |                     | <b>*ST1722</b> | B   | 24.0         | 12.5 | 13.5 | --  | 55.0 | 23 | 2.5 | 5.0 | 4.300                 | 50               |

▶ \* = not standardized

▶ 0.5 - 6 mm<sup>2</sup> not UL certified

▶ **Tools: see chart page 97**

## Insulated terminals for meter connections, Cu, fork type



- ▶ Special design for meter connection
- ▶ Fork-type version for simple and direct screw mounting
- ▶ High-quality brazing process in the crimp area

### Characteristics

- Total cross-section: 10 - 16 mm<sup>2</sup>
- No additional insulation of the crimped connection required
- With grooved profile for improved contact characteristics
- Insulation sleeve PA, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant to 105° C

### Material

- Cu-ETP

### Surface

- Tin-plated to protect against corrosion

| Nominal cross section mm² | Part No. | Colour                                                                            | Dimension mm |      |     |      |      | Weight 100 pcs. ~kg |       | Packing unit/ pcs |
|---------------------------|----------|-----------------------------------------------------------------------------------|--------------|------|-----|------|------|---------------------|-------|-------------------|
|                           |          |                                                                                   | d12          | d13  | d2  | Gl1  | l10  | Cu                  | Total |                   |
| 10                        | 652C5    |  | 7.0          | 9.6  | 5.3 | 33.5 | 19.0 | 0.24                | 0.28  | 100               |
|                           | 652C6    |  | 7.0          | 9.6  | 6.4 | 33.5 | 19.0 | 0.26                | 0.30  | 100               |
| 16                        | 653C6    |  | 8.6          | 10.6 | 6.4 | 37.5 | 20.5 | 0.35                | 0.40  | 100               |

► Tools: see chart page 99



**Solderless connectors acc. to DIN, Cu, short type**

- ▶ Acc. to DIN 46341 part 1, form A
- ▶ For conductors e.g. VDE 0295 Class 2, 5 and 6
- ▶ Ideal for connecting differing conductor cross-sections


**Characteristics**

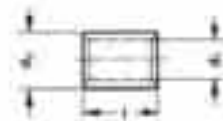
- Total cross-section: 0.5 - 150 mm<sup>2</sup>
- Precise end machining for easy cable insertion
- Annealed material optimises material and crimping properties

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)



| Nominal cross section mm <sup>2</sup> | Nominal size to DIN | Part No. | Dimension mm |      |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|---------------------|----------|--------------|------|----|-----------------------|------------------|
|                                       |                     |          | d1           | d4   | l  |                       |                  |
| 0.5 - 1                               | 1                   | 1620K    | 1.6          | 3.2  | 8  | 0.045                 | 100              |
| 1.5 - 2.5                             | 2.5                 | 1630K    | 2.3          | 3.9  | 8  | 0.055                 | 100              |
| 4 - 6                                 | 6                   | 1650K    | 3.6          | 5.6  | 9  | 0.090                 | 100              |
| 10                                    | 10                  | 1652K    | 4.5          | 6.7  | 10 | 0.170                 | 100              |
| 16                                    | 16                  | 1653K    | 5.8          | 8.2  | 11 | 0.260                 | 100              |
| 25                                    | 25                  | 1654K    | 7.5          | 10.5 | 14 | 0.510                 | 100              |
| 35                                    | 35                  | 1655K    | 9.0          | 12.2 | 16 | 0.730                 | 100              |
| 50                                    | 50                  | 1656K    | 11.0         | 14.6 | 19 | 1.200                 | 100              |
| 70                                    | 70                  | 1657K    | 13.0         | 17.0 | 19 | 1.530                 | 50               |
| 95                                    | 95                  | 1658K    | 15.0         | 20.0 | 20 | 2.370                 | 50               |
| 120                                   | 120                 | 1659K    | 16.5         | 22.5 | 22 | 3.450                 | 50               |
| 150                                   | 150                 | 1660K    | 19.0         | 25.4 | 26 | 5.060                 | 50               |

▶ Tools: see chart page 97

## Solderless connectors acc. to DIN, Cu, long type



- ▶ Acc. to DIN 46341 part 1, form B
- ▶ For conductors e.g. VDE 0295 Class 2, 5 and 6

### Characteristics

- Total cross-section: 0.5 - 150 mm<sup>2</sup>
- With buttmarks for precise cable insertion
- Precise end machining for easy cable insertion
- Annealed material optimises material and crimping properties

### Material

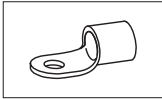
- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section<br>mm <sup>2</sup> | Nominal size<br>to DIN | Part No. | Dimension mm |      |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|------------------------|----------|--------------|------|----|-----------------------------|------------------|
|                                          |                        |          | d1           | d4   | l  |                             |                  |
| 0.5 - 1                                  | 1                      | 1620L    | 1.6          | 3.2  | 15 | 0.08                        | 100              |
| 1.5 - 2.5                                | 2.5                    | 1630L    | 2.3          | 3.9  | 15 | 0.10                        | 100              |
| 4 - 6                                    | 6                      | 1650L    | 3.6          | 5.6  | 15 | 0.19                        | 100              |
| 10                                       | 10                     | 1652L    | 4.5          | 6.7  | 21 | 0.36                        | 100              |
| 16                                       | 16                     | 1653L    | 5.8          | 8.2  | 26 | 0.62                        | 100              |
| 25                                       | 25                     | 1654L    | 7.5          | 10.5 | 29 | 1.11                        | 100              |
| 35                                       | 35                     | 1655L    | 9.0          | 12.2 | 32 | 1.50                        | 100              |
| 50                                       | 50                     | 1656L    | 11.0         | 14.6 | 38 | 2.44                        | 100              |
| 70                                       | 70                     | 1657L    | 13.0         | 17.0 | 42 | 3.54                        | 50               |
| 95                                       | 95                     | 1658L    | 15.0         | 20.0 | 48 | 5.87                        | 50               |
| 120                                      | 120                    | 1659L    | 16.5         | 22.5 | 52 | 8.46                        | 50               |
| 150                                      | 150                    | 1660L    | 19.0         | 25.4 | 56 | 10.86                       | 50               |

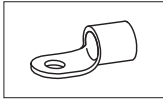
► Tools: see chart page 97



## ■ Tool application chart

**Solderless terminals to DIN 46234,  
pin terminals to DIN 46230,  
solderless connectors to DIN 46341, part 1**

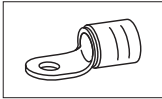
| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| <b>0.5-6</b>                                                        | K13            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 240            |
| <b>0.5-10</b>                                                       | K50            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 259            |
|                                                                     | EK50ML         |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 278            |
|                                                                     | EK1550         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 308            |
|                                                                     | EK1550G        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 310            |
| <b>0.5-16</b>                                                       | K25            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 242            |
| <b>0.75-2.5</b>                                                     | KP1            | +KP232                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | KP1L           | +KP232                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | EKP1           | +KP232                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 312            |
|                                                                     | TEKP1          | +KP232                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 281            |
|                                                                     | KPM15          | +KP232                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 282            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
| <b>4-10</b>                                                         | KP1            | +KP242                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | KP1L           | +KP242                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | EKP1           | +KP242                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 312            |
|                                                                     | TEKP1          | +KP242                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 281            |
|                                                                     | KPM15          | +KP242                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 282            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
| <b>10-35</b>                                                        | K354           |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 260            |
|                                                                     | EK354          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 314            |
|                                                                     | EK354L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 316            |
| <b>10-50</b>                                                        | EK505L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 318            |
| <b>10-70</b>                                                        | K18            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 262            |
|                                                                     | HK6018         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 286            |
|                                                                     | EK5018L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 320            |
|                                                                     | PK18           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 362            |
|                                                                     | THK18          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |               | 362            |
|                                                                     | HK60UNV        | + UA18                    |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 354            |
|                                                                     | EK60UNVL       | + UA18                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 357            |
|                                                                     | EKM60UNVL      | + UA18                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 356            |
|                                                                     | PK60UNV        | + UA18                    |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 355            |
|                                                                     | K22            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 264            |
|                                                                     | HK6022         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 288            |
|                                                                     | EK6022L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 324            |
|                                                                     | EKM6022L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 322            |
|                                                                     | PK22           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 364            |
|                                                                     | THK22          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |               | 364            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |



## ■ Tool application chart

**Solderless terminals to DIN 46234,  
pin terminals to DIN 46230,  
solderless connectors to DIN 46341, part 1**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| <b>16-95</b>                                                        | K95            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 242            |
|                                                                     | TK95           |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 243            |
| <b>16-150</b>                                                       | HK12030        |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 292            |
|                                                                     | HK12042        |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 294            |
|                                                                     | HK120U         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 296            |
|                                                                     | EK12030L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 330            |
|                                                                     | EK12042L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 332            |
|                                                                     | EK120UL        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 334            |
|                                                                     | EK120UNVL      |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 358            |
|                                                                     | HK122EL380     |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |               | 390            |
|                                                                     | PK12042        |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 368            |
|                                                                     | PK120U         |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 370            |
| <b>16-240</b>                                                       | HK252          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |               | 388            |
|                                                                     | HK252EL380     |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |               | 391            |
|                                                                     | PK252          |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 372            |



## ■ Tool application chart

**Insulated solderless terminals**  
**Insulated pin terminals**

| Crimping range corresponds to nominal cross-section mm² | Crimping tools   |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|------------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools            | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| <b>10-16</b>                                            | K16              |                        | •                         |                                                                                   |                               |                                |                            |                          | ○             | 234         |
|                                                         | K50              |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 259         |
|                                                         | EK50ML           |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 278         |
|                                                         | K354             |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 260         |
|                                                         | EK1550           |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 308         |
|                                                         | EK1550G          |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 310         |
|                                                         | EK354            |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 314         |
|                                                         | EK354L           |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 316         |
| <b>10-50</b>                                            | K18              |                        |                           | •                                                                                 |                               |                                |                            |                          | ⌢             | 262         |
|                                                         | HK6018           |                        |                           |                                                                                   | •                             |                                |                            |                          | ⌢             | 286         |
|                                                         | EK5018L          |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 320         |
|                                                         | PK18             |                        |                           |                                                                                   |                               |                                |                            | •                        | ⌢             | 362         |
|                                                         | THK18            |                        |                           |                                                                                   |                               |                                | •                          |                          | ⌢             | 362         |
|                                                         | HK60UNV + UA18   |                        |                           |                                                                                   | •                             |                                |                            |                          | ⌢             | 354         |
|                                                         | EK60UNVL + UA18  |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 357         |
|                                                         | EKM60UNVL + UA18 |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 356         |
|                                                         | PK60UNV + UA18   |                        |                           |                                                                                   |                               |                                |                            | •                        | ⌢             | 355         |
| <b>10-70</b>                                            | K22              |                        |                           | •                                                                                 |                               |                                |                            |                          | ⌢             | 264         |
|                                                         | HK6022           |                        |                           |                                                                                   | •                             |                                |                            |                          | ⌢             | 288         |
|                                                         | EK6022L          |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 324         |
|                                                         | EKM6022L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 322         |
|                                                         | PK22             |                        |                           |                                                                                   |                               |                                |                            | •                        | ⌢             | 364         |
|                                                         | THK22            |                        |                           |                                                                                   |                               |                                | •                          |                          | ⌢             | 364         |
|                                                         | HK60UNV + UA22   |                        |                           |                                                                                   | •                             |                                |                            |                          | ⌢             | 354         |
|                                                         | EK60UNVL + UA22  |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 357         |
|                                                         | EKM60UNVL + UA22 |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 356         |
|                                                         | PK60UNV + UA22   |                        |                           |                                                                                   |                               |                                |                            | •                        | ⌢             | 355         |
| <b>10-95</b>                                            | HK12030          |                        |                           |                                                                                   | •                             |                                |                            |                          | ⌢             | 292         |
|                                                         | HK12042          |                        |                           |                                                                                   | •                             |                                |                            |                          | ⌢             | 294         |
|                                                         | HK120U           |                        |                           |                                                                                   | •                             |                                |                            |                          | ⌢             | 296         |
|                                                         | EK12030L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 330         |
|                                                         | EK12042L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 332         |
|                                                         | EK120UL          |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 334         |
|                                                         | EK120UNVL        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⌢             | 358         |
|                                                         | PK12042          |                        |                           |                                                                                   |                               |                                |                            | •                        | ⌢             | 368         |
|                                                         | PK120U           |                        |                           |                                                                                   |                               |                                |                            | •                        | ⌢             | 370         |
| <b>10-150</b>                                           | HK252            |                        |                           |                                                                                   |                               |                                | •                          |                          | ⌢             | 388         |
|                                                         | PK252            |                        |                           |                                                                                   |                               |                                |                            | •                        | ⌢             | 372         |

## ***Brings compacted conductors*** *to volume.*

### **Sleeves for copper compacted round conductors and sector-shaped conductors.**

With the same nominal cross-section, the diameters of compacted round conductors are narrower than those of uncompacted round conductors. This causes problems with cable assembly, since the corresponding cable lug or connector cannot be fitted as specified in the standards.

Problems occur with sector shaped conductors when round connecting material is applied to sector shaped conductors. Often, both cable lugs and connectors are damaged - or the conductors break. The conductors can be crimped round using sleeves for sector-shaped conductors, making them easier to process.

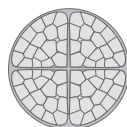


- **For cables with compacted round conductors.**
- **For 3 core sector-shaped cables (120° angle).**
- **For 4 core sector-shaped cables (90° angle).**

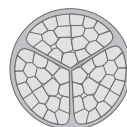


*Round-crimping sector sleeves in three steps.*

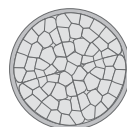
*The appropriate cable types for our sleeves in cross section:*



*4 core sector-shaped cables*



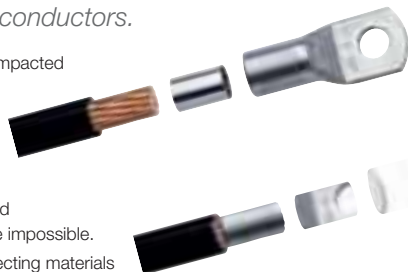
*3 core sector-shaped cables*



*compacted round conductors*

## ■ A nice piece of work *for compacted conductors.*

- ▶ **Sleeves for cross section compensation** on cables with compacted conductors with nominal cross sections up to 400 mm<sup>2</sup>.
- ▶ For copper tubular and compression cable lugs and connectors.



### **Benefits:**

- ▶ Connecting materials can be efficiently crimped onto compacted conductors using Klauke crimping tools - faulty connections are impossible.
- ▶ Existing crimping tools can be used. Storing of additional connecting materials or expensive special solutions is not necessary.

## ■ *Bringing sector-shaped conductors* **into the right form.**



- ▶ Sleeves for sector-shaped conductors with nominal cross sections up to 240 mm<sup>2</sup>.
- ▶ For 3 and 4 sector-shaped conductors with angles of 120° and 90° respectively.

### **Benefits:**

- ▶ 3 and 4 sector-shaped conductors with nominal cross sections up to 240 mm<sup>2</sup> can be crimped round without breaking and then processed using standard connecting materials.
- ▶ No special cable lugs or special tools are required.

▶ *More from Page 104.*



- ▶ *To guarantee optimum hold of sleeves for compacted or sector-shaped conductors and connecting materials, the sleeves must be crimped onto the conductors using pre-rounding dies.*

*The connecting material can then be crimped in the usual manner.*

- ▶ *As well as the sleeve applications for tubular cable lugs in the standard version as shown, we also offer a new series of cable lugs called "blue connection®" without the use of sleeves.*
- ▶ *More from Page 24.*

***blue connection***®

## Sleeves for compacted conductors, for tubular cable lugs and connectors, standard type



- ▶ For multi-stranded, compacted conductors e.g. VDE 0295 Class 2
- ▶ Allows the use of Klauke tubular cable lugs and connectors, standard type for compacted conductors

**Characteristics**

- Total cross-section: 16 - 400 mm<sup>2</sup>
- Annealed material optimises material and crimping properties

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion



| Nominal cross section<br>mm <sup>2</sup> | Part No. | Dimension mm |      |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|----------|--------------|------|----|-----------------------------|------------------|
|                                          |          | d1           | d4   | l  |                             |                  |
| 16                                       | VHR16    | 5.0          | 5.3  | 11 | 0.024                       | 100              |
| 25                                       | VHR25    | 6.4          | 6.7  | 14 | 0.038                       | 100              |
| 35                                       | VHR35    | 7.7          | 8.2  | 15 | 0.083                       | 100              |
| 50                                       | VHR50    | 9.0          | 9.5  | 18 | 0.118                       | 50               |
| 70                                       | VHR70    | 10.6         | 11.2 | 19 | 0.173                       | 50               |
| 95                                       | VHR95    | 12.4         | 13.0 | 21 | 0.223                       | 50               |
| 120                                      | VHR120   | 13.9         | 14.5 | 22 | 0.261                       | 50               |
| 150                                      | VHR150   | 15.4         | 16.0 | 26 | 0.342                       | 25               |
| 185                                      | VHR185   | 17.6         | 18.2 | 26 | 0.396                       | 25               |
| 240                                      | VHR240   | 19.9         | 20.5 | 30 | 0.508                       | 25               |
| 300                                      | VHR300   | 22.4         | 23.0 | 38 | 0.723                       | 10               |
| 400                                      | VHR400   | 25.4         | 26.2 | 38 | 1.108                       | 10               |

ⓘ Please observe instructions in technical appendix on page i-7



## Sleeves for compacted conductors, for tubular compression cable lugs and connectors DIN type

- ▶ For multi-stranded, compacted conductors e.g. VDE 0295 Class 2
- ▶ Allows the use of Klauke DIN compression cable lugs and connectors for compacted conductors



### Characteristics

- Total cross-section: 16 - 400 mm<sup>2</sup>
- Annealed material optimises material and crimping properties

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion

| Nominal cross section<br>mm <sup>2</sup> | Part No.      | Dimension mm |      |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|---------------|--------------|------|----|-----------------------------|------------------|
|                                          |               | d1           | d4   | l  |                             |                  |
| 16                                       | <b>VHD16</b>  | 5.0          | 5.3  | 16 | 0.035                       | 100              |
| 25                                       | <b>VHD25</b>  | 6.4          | 6.7  | 16 | 0.043                       | 100              |
| 35                                       | <b>VHD35</b>  | 7.7          | 8.2  | 17 | 0.094                       | 100              |
| 50                                       | <b>VHD50</b>  | 9.0          | 9.5  | 23 | 0.151                       | 50               |
| 70                                       | <b>VHD70</b>  | 10.6         | 11.2 | 24 | 0.219                       | 50               |
| 95                                       | <b>VHD95</b>  | 12.4         | 13.0 | 28 | 0.298                       | 50               |
| 120                                      | <b>VHD120</b> | 13.9         | 14.5 | 30 | 0.357                       | 50               |
| 150                                      | <b>VHD150</b> | 15.4         | 16.0 | 30 | 0.395                       | 25               |
| 185                                      | <b>VHD185</b> | 17.6         | 18.2 | 38 | 0.579                       | 25               |
| 240                                      | <b>VHD240</b> | 19.9         | 20.5 | 38 | 0.645                       | 25               |
| 300                                      | <b>VHD300</b> | 22.4         | 23.0 | 48 | 0.913                       | 5                |
| 400                                      | <b>VHD400</b> | 25.4         | 26.2 | 58 | 1.692                       | 5                |

ⓘ Please observe instructions in technical appendix on page I-7

## Sleeves for sector-shaped conductors, 3-core cable



- ▶ For tubular cable lugs and connectors, standard version and DIN compression cable lugs and connectors
- ▶ To simplify pre-rounding of 3-conductor cables (120° angle)
- ▶ Prevents sector shaped conductors from splicing during pre-rounding

**Characteristics**

- Total cross-section: 35 - 240 mm<sup>2</sup>
- Annealed material optimises material and crimping properties

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated to protect against corrosion

| Nominal cross section<br>mm <sup>2</sup> | Part No. | Dimension mm<br>l | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|----------|-------------------|-----------------------------|------------------|
| Standard type                            |          |                   |                             |                  |
| 35                                       | VHR353   | 14                | 0.08                        | 100              |
| 50                                       | VHR503   | 17                | 0.17                        | 50               |
| 70                                       | VHR703   | 18                | 0.29                        | 50               |
| 95                                       | VHR953   | 22                | 0.45                        | 50               |
| 120                                      | VHR1203  | 23                | 0.49                        | 50               |
| 150                                      | VHR1503  | 25                | 0.58                        | 25               |
| 185                                      | VHR1853  | 25                | 0.80                        | 25               |
| 240                                      | VHR2403  | 30                | 1.04                        | 25               |
| DIN version                              |          |                   |                             |                  |
| 35                                       | VHD353   | 17.5              | 0.11                        | 100              |
| 50                                       | VHD503   | 25.0              | 0.26                        | 50               |
| 70                                       | VHD703   | 25.0              | 0.39                        | 50               |
| 95                                       | VHD953   | 32.0              | 0.66                        | 50               |
| 120                                      | VHD1203  | 32.0              | 0.68                        | 50               |
| 150                                      | VHD1503  | 32.0              | 0.74                        | 25               |
| 185                                      | VHD1853  | 35.0              | 1.13                        | 25               |
| 240                                      | VHD2403  | 35.0              | 1.22                        | 25               |

ⓘ Pre-rounding dies see chapter "Crimping dies"

ⓘ Please observe instructions in technical appendix on page i-7

## Sleeves for sector-shaped conductors, 4-core cable

- ▶ For tubular cable lugs and connectors, standard version and DIN compression cable lugs and connectors
- ▶ To simplify pre-rounding of 4-conductor cables (90° angle)
- ▶ Prevents sector shaped conductors from splicing during pre-rounding



### Characteristics

- Total cross-section: 35 - 240 mm<sup>2</sup>
- Annealed material optimises material and crimping properties

### Material

- Copper acc. to EN 13600

### Surface

- Tin-plated to protect against corrosion

| Nominal cross section<br>mm <sup>2</sup> | Part No. | Dimension mm<br>l | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|----------|-------------------|-----------------------------|------------------|
| Standard type                            |          |                   |                             |                  |
| 35                                       | VHR354   | 14                | 0.13                        | 100              |
| 50                                       | VHR504   | 17                | 0.17                        | 50               |
| 70                                       | VHR704   | 18                | 0.28                        | 50               |
| 95                                       | VHR954   | 22                | 0.40                        | 50               |
| 120                                      | VHR1204  | 23                | 0.51                        | 50               |
| 150                                      | VHR1504  | 25                | 0.57                        | 25               |
| 185                                      | VHR1854  | 25                | 0.78                        | 25               |
| 240                                      | VHR2404  | 30                | 0.85                        | 25               |
| DIN version                              |          |                   |                             |                  |
| 35                                       | VHD354   | 17.5              | 0.11                        | 100              |
| 50                                       | VHD504   | 25.0              | 0.25                        | 50               |
| 70                                       | VHD704   | 25.0              | 0.38                        | 50               |
| 95                                       | VHD954   | 32.0              | 0.63                        | 50               |
| 120                                      | VHD1204  | 32.0              | 0.71                        | 50               |
| 150                                      | VHD1504  | 32.0              | 0.73                        | 25               |
| 185                                      | VHD1854  | 35.0              | 1.09                        | 25               |
| 240                                      | VHD2404  | 35.0              | 1.13                        | 25               |

ⓘ Please observe instructions in technical appendix on page i-7

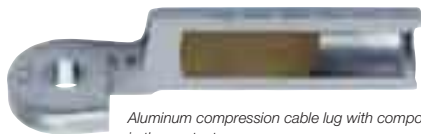
ⓘ Pre-rounding dies see chapter "Crimping dies"

## Aluminum *Optimised connections.*

### Aluminum compression cable lugs and connectors to DIN.

Due to their significantly lower weight, aluminum conductors are becoming increasingly popular in power distribution applications.

The material structure is very different to copper. That's why appropriate cable lugs and connectors are required. Connecting material for aluminum comes with a special compound. During crimping this compound destroys the non-conductive oxide layer of aluminum in the crimping area, allowing a perfect electrical connection.



*Aluminum compression cable lug with compound in the contact area.*

- Aluminum cable lugs with DIN dimensions up to 500 mm<sup>2</sup>.
- Compression cable lugs with barrier to DIN 46239.
- Compression joints to DIN 46267, Part 2.
- Compression joints for medium-voltage applications up to 30 kV.
- Tin-plated version for connecting to copper rails.



*Aluminum compression cable lugs are frequently used in power distribution.*

## ■ *The right product for every* **aluminum conductor.**

- ▶ Nominal cross sections up to 500 mm<sup>2</sup>.
- ▶ **Barrier type with oil stop.**
- ▶ Tin-plated designs with 20 µm layer thickness.

### **Benefits:**

- ▶ The Klauke range offers aluminum DIN compression cable lugs to suit every application.
- ▶ The quality tin plating ensures connections to copper in a dry environment.



## ■ *A quality* **range.**



- ▶ Defined, **unique material properties** to Klauke standards.
- ▶ DIN-compliant dimensions.
- ▶ Consistent material thickness, precise diameters and an accurate fit mean optimised processing and ultimate safety.

### **Benefits:**

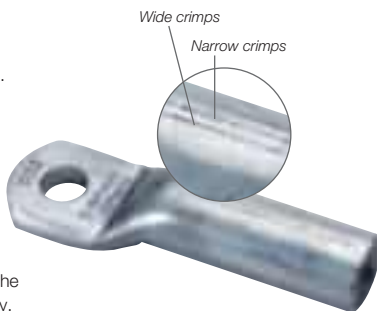
- ▶ When professionally installed, the connecting material ensures optimised stability even with mechanically stressed or severely vibrating connections.
- ▶ Less repair and maintenance thanks to safe connections.
- ▶ More applications, e.g. power distribution.

## ■ *With markings for the crimping operation.*

- ▶ All DIN compression cable lugs have markings for correct crimping.
- ▶ Markings **for narrow and wide crimps**.
- ▶ All crimping dies designed for aluminum with larger contact areas than dies for copper connecting materials.

### **Benefits:**

- ▶ You identify at a glance where and how often the connecting material has to be crimped. Errors are practically impossible.
- ▶ Dies with larger crimping width crimp wider areas of cable lugs to the conductor, thereby compensating for aluminum's lower conductivity.



- ▶ *The compound in aluminum compression cable lugs improves the contact properties by piercing the non-conductive oxide layer. The compound also prevents oxygen penetrating the contact points, avoiding re-oxidation.*

## Compression cable lugs acc. to DIN - AI



- ▶ Acc. to DIN 46329
- ▶ For non-tension connections of AI cables to DIN 48201, part 5 and aluminum cables to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp characteristics

## Characteristics

- Total cross-section: 16 - 500 mm²
- Barrier design with oil stop
- Optional tin-plated (20 µm) version to connect dusty interior copper bus bars
- Precise end machining for easy cable insertion

## Material

- E-Al

## Surface

- Bright finished

## Order info

- part number appendix for tinned version "v"

| Nominal cross section mm² | Size of bolt dia. |      | Part No. | Code | Dimension mm |    |      |      |     | Number of crimps |       | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|---------------------------|-------------------|------|----------|------|--------------|----|------|------|-----|------------------|-------|-----------------------------|---------------------|
|                           | mm/sm             | se   |          |      | a            | b  | d1   | d2   | l   | mech.            | hydr. |                             |                     |
| 16                        | 25                | M 8  | *263R8   | 12   | 30           | 20 | 5.8  | 8.4  | 50  | 4                | 2     | 1.20                        | 4                   |
|                           | 25                | M 10 | *263R10  | 12   | 30           | 20 | 5.8  | 10.5 | 50  | 4                | 2     | 1.20                        | 4                   |
| 25                        | 35                | M 8  | 264R8    | 12   | 30           | 25 | 6.8  | 8.4  | 50  | 4                | 2     | 1.30                        | 4                   |
|                           | 35                | M 10 | 264R10   | 12   | 30           | 25 | 6.8  | 10.5 | 50  | 4                | 2     | 1.24                        | 4                   |
|                           | 35                | M 12 | 264R12   | 12   | 30           | 25 | 6.8  | 13.0 | 50  | 4                | 2     | 1.22                        | 4                   |
|                           | 50                | M 8  | 265R8    | 14   | 42           | 25 | 8.0  | 8.4  | 62  | 5                | 2     | 2.50                        | 4                   |
| 35                        | 50                | M 10 | 265R10   | 14   | 42           | 25 | 8.0  | 10.5 | 62  | 5                | 2     | 1.98                        | 4                   |
|                           | 50                | M 12 | 265R12   | 14   | 42           | 25 | 8.0  | 13.0 | 62  | 5                | 2     | 2.50                        | 4                   |
|                           | 70                | M 8  | 266R8    | 16   | 42           | 25 | 9.8  | 8.4  | 62  | 5                | 2     | 2.75                        | 4                   |
|                           | 70                | M 10 | 266R10   | 16   | 42           | 25 | 9.8  | 10.5 | 62  | 5                | 2     | 2.70                        | 4                   |
| 50                        | 70                | M 12 | 266R12   | 16   | 42           | 25 | 9.8  | 13.0 | 62  | 5                | 2     | 2.65                        | 4                   |
|                           | 95                | M 8  | 267R8    | 18   | 52           | 25 | 11.2 | 8.4  | 72  | 6                | 3     | 3.45                        | 4                   |
|                           | 95                | M 10 | 267R10   | 18   | 52           | 25 | 11.2 | 10.5 | 72  | 6                | 3     | 3.80                        | 4                   |
|                           | 95                | M 12 | 267R12   | 18   | 52           | 25 | 11.2 | 13.0 | 72  | 6                | 3     | 3.35                        | 4                   |
| 70                        | 120               | M 10 | 268R10   | 22   | 56           | 25 | 13.2 | 10.5 | 75  | 6                | 3     | 6.90                        | 4                   |
|                           | 120               | M 12 | 268R12   | 22   | 56           | 25 | 13.2 | 13.0 | 75  | 6                | 3     | 4.92                        | 4                   |
|                           | 120               | M 16 | *268R16  | 22   | 56           | 25 | 13.2 | 17.0 | 75  | 6                | 3     | 6.00                        | 4                   |
|                           | 150               | M 10 | 269R10   | 22   | 56           | 30 | 14.7 | 10.5 | 80  | 6                | 3     | 5.95                        | 4                   |
| 120                       | 150               | M 12 | 269R12   | 22   | 56           | 30 | 14.7 | 13.0 | 80  | 6                | 3     | 5.84                        | 4                   |
|                           | 150               | M 16 | 269R16   | 22   | 56           | 30 | 14.7 | 17.0 | 80  | 6                | 3     | 6.60                        | 4                   |
|                           | 185               | M 10 | 270R10   | 25   | 60           | 30 | 16.3 | 10.5 | 90  | 6                | 3     | 8.50                        | 4                   |
|                           | 185               | M 12 | 270R12   | 25   | 60           | 30 | 16.3 | 13.0 | 90  | 6                | 3     | 7.73                        | 4                   |
| 150                       | 185               | M 16 | 270R16   | 25   | 60           | 30 | 16.3 | 17.0 | 90  | 6                | 3     | 7.60                        | 4                   |
|                           | 185               | M 20 | *270R20  | 25   | 60           | 30 | 16.3 | 21.0 | 90  | 6                | 3     | 8.20                        | 4                   |
|                           | 240               | M 10 | 271R10   | 28   | 60           | 30 | 18.3 | 10.5 | 91  | 6                | 3     | 11.00                       | 4                   |
|                           | 240               | M 12 | 271R12   | 28   | 60           | 30 | 18.3 | 13.0 | 91  | 6                | 3     | 9.88                        | 4                   |
| 185                       | 240               | M 16 | 271R16   | 28   | 60           | 30 | 18.3 | 17.0 | 91  | 6                | 3     | 10.10                       | 4                   |
|                           | 240               | M 20 | *271R20  | 28   | 60           | 30 | 18.3 | 21.0 | 91  | 6                | 3     | 10.00                       | 4                   |
|                           | 300               | M 10 | *272R10  | 32   | 70           | 38 | 21.0 | 10.5 | 103 | 8                | 3     | 15.50                       | 4                   |
|                           | 300               | M 12 | 272R12   | 32   | 70           | 38 | 21.0 | 13.0 | 103 | 8                | 3     | 13.80                       | 4                   |
| 240                       | 300               | M 16 | 272R16   | 32   | 70           | 38 | 21.0 | 17.0 | 103 | 8                | 3     | 13.48                       | 4                   |
|                           | 300               | M 20 | 272R20   | 32   | 70           | 38 | 21.0 | 21.0 | 103 | 8                | 3     | 15.00                       | 4                   |

**Compression cable lugs acc. to DIN - AI**

| Nominal cross section mm <sup>2</sup> | rm/sm | se | Size of bolt dia. | Part No.      | Code | Dimension mm |    |      |      |     | Number of crimps |       | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------|----|-------------------|---------------|------|--------------|----|------|------|-----|------------------|-------|-----------------------|------------------|
|                                       |       |    |                   |               |      | a            | b  | d1   | d2   | l   | mech.            | hydr. |                       |                  |
| 300                                   | --    | -- | M 12              | <b>273R12</b> | 34   | 70           | 38 | 23.3 | 13.0 | 103 | 8                | 3     | 17.60                 | 1                |
|                                       | --    | -- | M 16              | <b>273R16</b> | 34   | 70           | 38 | 23.3 | 17.0 | 103 | 8                | 3     | 17.28                 | 1                |
|                                       | --    | -- | M 20              | <b>273R20</b> | 34   | 70           | 38 | 23.3 | 21.0 | 103 | 8                | 3     | 17.40                 | 1                |
| 400                                   | --    | -- | M 12              | <b>274R12</b> | 38   | 73           | 38 | 26.0 | 13.0 | 116 | --               | 4     | 38.00                 | 1                |
|                                       | --    | -- | M 16              | <b>274R16</b> | 38   | 73           | 38 | 26.0 | 17.0 | 116 | --               | 4     | 37.40                 | 1                |
|                                       | --    | -- | M 20              | <b>274R20</b> | 38   | 73           | 38 | 26.0 | 21.0 | 116 | --               | 4     | 40.20                 | 1                |
| 500                                   | --    | -- | M 12              | <b>275R12</b> | 44   | 79           | 44 | 29.0 | 13.0 | 122 | --               | 4     | 43.70                 | 1                |
|                                       | --    | -- | M 16              | <b>275R16</b> | 44   | 79           | 44 | 29.0 | 17.0 | 122 | --               | 4     | 43.30                 | 1                |
|                                       | --    | -- | M 20              | <b>275R20</b> | 44   | 79           | 44 | 29.0 | 21.0 | 122 | --               | 4     | 43.00                 | 1                |

- ▶ \* = not standardized
- ▶ sm/se - conductor needs to be pre-rounded
- ▶ sm = sector stranded
- ▶ rm = round multi-stranded
- ▶ se = sector solid

▶ **Tools: see chart page 118**

**Compression cable lugs, AI**

- ▶ Tube dimension to DIN 46329
- ▶ Also for non-tension connections of AI cables to DIN 48201, part 5 and aluminum cables to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp characteristics


**Characteristics**

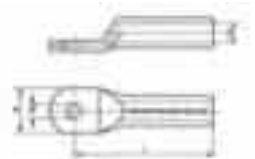
- Total cross-section: 10 - 400 mm<sup>2</sup>
- For pre-rounded sm/se sector shaped conductors
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

**Material**

- E-AI

**Surface**

- Bright finished



| Nominal cross section mm <sup>2</sup> | rm/sm | se | Size of bolt dia. | Part No.      | Code | Dimension mm |      |      |    |  | Number of crimps |       | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|-------|----|-------------------|---------------|------|--------------|------|------|----|--|------------------|-------|-----------------------|------------------|
|                                       |       |    |                   |               |      | b            | d1   | d2   | l  |  | mech.            | hydr. |                       |                  |
| 10                                    | --    | -- | M 6               | <b>202R6</b>  | 10   | 16           | 5.0  | 6.5  | 52 |  | 4                | 2     | 0.86                  | 25               |
|                                       | --    | -- |                   | <b>202R8</b>  | 10   | 18           | 5.0  | 8.5  | 52 |  | 4                | 2     | 0.88                  | 25               |
| 16                                    | 25    | -- | M 8               | <b>203R8</b>  | 12   | 18           | 5.8  | 8.5  | 52 |  | 4                | 2     | 1.37                  | 10               |
|                                       | 25    | -- | M 10              | <b>203R10</b> | 12   | 18           | 5.8  | 10.5 | 52 |  | 4                | 2     | 1.39                  | 10               |
| 25                                    | 35    | -- | M 8               | <b>204R8</b>  | 12   | 18           | 6.8  | 8.5  | 60 |  | 4                | 2     | 1.41                  | 10               |
|                                       | 35    | -- |                   | <b>204R10</b> | 12   | 18           | 6.8  | 10.5 | 60 |  | 4                | 2     | 1.46                  | 10               |
| 35                                    | 50    | -- | M 10              | <b>205R10</b> | 14   | 21           | 8.0  | 10.5 | 67 |  | 5                | 2     | 2.08                  | 10               |
|                                       | 50    | -- | M 12              | <b>205R12</b> | 14   | 21           | 8.0  | 13.0 | 67 |  | 5                | 2     | 2.05                  | 10               |
| 50                                    | 70    | -- | M 10              | <b>206R10</b> | 16   | 25           | 9.8  | 10.5 | 72 |  | 5                | 2     | 2.68                  | 10               |
|                                       | 70    | -- | M 12              | <b>206R12</b> | 16   | 25           | 9.8  | 13.0 | 72 |  | 5                | 2     | 2.73                  | 10               |
| 70                                    | 95    | -- | M 10              | <b>207R10</b> | 18   | 28           | 11.2 | 10.5 | 86 |  | 6                | 3     | 4.42                  | 10               |
|                                       | 95    | -- | M 12              | <b>207R12</b> | 18   | 28           | 11.2 | 13.0 | 86 |  | 6                | 3     | 4.27                  | 10               |
| 95                                    | 120   | -- | M 10              | <b>208R10</b> | 22   | 32           | 13.2 | 10.5 | 90 |  | 6                | 3     | 7.40                  | 4                |
|                                       | 120   | -- | M 12              | <b>208R12</b> | 22   | 32           | 13.2 | 13.0 | 90 |  | 6                | 3     | 7.50                  | 4                |
|                                       | 120   | -- | M 16              | <b>208R16</b> | 22   | 34           | 13.2 | 17.0 | 90 |  | 6                | 3     | 7.30                  | 4                |

## Compression cable lugs, Al

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. |      | Part No. | Code | Dimension mm |      |      |     | Number of crimps |       | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|---------------------------------------|-------------------|------|----------|------|--------------|------|------|-----|------------------|-------|-----------------------------|---------------------|
|                                       | rm/sm             | se   |          |      | b            | d1   | d2   | l   | mech.            | hydr. |                             |                     |
| 120                                   | 150               | M 12 | 209R12   | 22   | 32           | 14.7 | 13.0 | 91  | 6                | 3     | 6.68                        | 4                   |
|                                       | 150               | M 16 | 209R16   | 22   | 34           | 14.7 | 17.0 | 91  | 6                | 3     | 6.41                        | 4                   |
|                                       | 185               | M 12 | 210R12   | 25   | 35           | 16.3 | 13.0 | 103 | 6                | 3     | 9.64                        | 4                   |
| 150                                   | 185               | M 16 | 210R16   | 25   | 35           | 16.3 | 17.0 | 103 | 6                | 3     | 9.24                        | 4                   |
|                                       | 185               | M 20 | 210R20   | 25   | 41           | 16.3 | 21.0 | 103 | 6                | 3     | 9.40                        | 4                   |
| 185                                   | 240               | M 12 | 211R12   | 28   | 40           | 18.3 | 13.0 | 106 | 6                | 3     | 12.61                       | 1                   |
|                                       | 240               | M 16 | 211R16   | 28   | 40           | 18.3 | 17.0 | 106 | 6                | 3     | 11.92                       | 1                   |
|                                       | 240               | M 20 | 211R20   | 28   | 40           | 18.3 | 21.0 | 106 | 6                | 3     | 13.10                       | 1                   |
| 240                                   | 300               | M 12 | 212R12   | 32   | 45           | 21.0 | 13.0 | 116 | 8                | 3     | 18.30                       | 1                   |
|                                       | 300               | M 16 | 212R16   | 32   | 45           | 21.0 | 17.0 | 116 | 8                | 3     | 17.60                       | 1                   |
|                                       | 300               | M 20 | 212R20   | 32   | 45           | 21.0 | 21.0 | 116 | 8                | 3     | 17.30                       | 1                   |
| 300                                   | --                | M 16 | 213R16   | 34   | 49           | 23.3 | 17.0 | 124 | 8                | 3     | 17.50                       | 1                   |
|                                       | --                | M 20 | 213R20   | 34   | 49           | 23.3 | 21.0 | 124 | 8                | 3     | 17.30                       | 1                   |
| 400                                   | --                | M 16 | 214R16   | 38   | 58           | 26.0 | 17.0 | 165 | --               | 4     | 32.20                       | 1                   |
|                                       | --                | M 20 | 214R20   | 38   | 58           | 26.0 | 21.0 | 165 | --               | 4     | 31.90                       | 1                   |

► sm/se - conductor needs to be pre-rounded

► sm = sector stranded

► rm = round multi-stranded

► se = sector solid

► 16-400 mm<sup>2</sup> IEC tested

► Tools: see chart page 118

## Compression joints acc. to DIN, Al



► Acc. to DIN 46267, part 2

► Also for non-tension connections of aluminum conductors DIN EN 50182

► With code number for clear tool assignment

► Filled with contact grease for optimum crimp characteristics

## Characteristics

- Total cross-section: 10 - 500 mm<sup>2</sup>
- For pre-rounded sm/se sector shaped conductors
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

## Material

- E-Al

## Surface

- Bright finished

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. |     | Part No. | Code | Dimension mm |     |  |  | Number of crimps |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|---------------------------------------|-------------------|-----|----------|------|--------------|-----|--|--|------------------|-------|-----------------------------|------------------|
|                                       | rm/sm             | se  |          |      | d1           | l   |  |  | mech.            | hydr. |                             |                  |
| 10                                    | --                | --  | *222R    | 10   | 5.0          | 55  |  |  | 3/3              | --    | 0.95                        | 10               |
| 16                                    |                   | 25  | *223R    | 12   | 5.8          | 55  |  |  | 3/3              | --    | 1.40                        | 10               |
| 25                                    |                   | 35  | 224R     | 12   | 6.8          | 70  |  |  | 4/4              | 2/2   | 1.60                        | 10               |
| 35                                    |                   | 50  | 225R     | 14   | 8.0          | 85  |  |  | 5/5              | 2/2   | 2.60                        | 10               |
| 50                                    |                   | 70  | 226R     | 16   | 9.8          | 85  |  |  | 5/5              | 2/2   | 3.20                        | 10               |
| 70                                    |                   | 95  | 227R     | 18   | 11.2         | 105 |  |  | 6/6              | 3/3   | 5.30                        | 10               |
| 95                                    |                   | 120 | 228R     | 22   | 13.2         | 105 |  |  | 6/6              | 3/3   | 7.60                        | 10               |
| 120                                   |                   | 150 | 229R     | 22   | 14.7         | 105 |  |  | 6/6              | 3/3   | 7.80                        | 10               |
| 150                                   |                   | 185 | 230R     | 25   | 16.3         | 125 |  |  | 6/6              | 3/3   | 10.70                       | 10               |
| 185                                   |                   | 240 | 231R     | 28   | 18.3         | 125 |  |  | 6/6              | 3/3   | 14.30                       | 5                |
| 240                                   |                   | 300 | 232R     | 32   | 21.0         | 145 |  |  | 8/8              | 3/3   | 20.30                       | 5                |



**Compression joints acc. to DIN, AI**

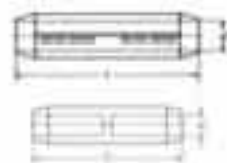
| Nominal cross section mm <sup>2</sup> |    | Part No.    | Code | Dimension mm |     | Number of crimps |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|---------------------------------------|----|-------------|------|--------------|-----|------------------|-------|-----------------------------|------------------|
| rm/sm                                 | se |             |      | d1           | l   | mech.            | hydr. |                             |                  |
| 300                                   | -- | <b>233R</b> | 34   | 23.3         | 145 | 8/8              | 3/3   | 22.20                       | 1                |
| 400                                   | -- | <b>234R</b> | 38   | 26.0         | 210 | --               | 5/5   | 40.80                       | 1                |
| 500                                   | -- | <b>235R</b> | 44   | 29.0         | 210 | --               | 5/5   | 56.00                       | 1                |

- ▶ \* = not standardized
- ▶ sm/se - conductor needs to be pre-rounded
- ▶ sm = sector stranded
- ▶ rm = round multi-stranded

- ▶ se = sector solid
- ▶ 16-500 mm<sup>2</sup> IEC tested
- ▶ **Tools: see chart page 118**

**Compression joints, AI**

- ▶ Tube dimension to DIN 46267, part 2
- ▶ For non-tension connections of medium-voltage aluminum cable 10-30 kV
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp characteristics


**Characteristics**

- Total cross-section: 35 - 400 mm<sup>2</sup>
- Also available as barrier design with oil stop
- With bevelled edges for reduced winding expenditure for the assembly
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

**Material**

- E-Al

**Surface**

- Bright finished

| Nominal cross section mm² |     | Part No. | Code | Dimension mm |     | Number of crimps |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|---------------------------|-----|----------|------|--------------|-----|------------------|-------|-----------------------------|----------------------|
| rm/sm                     | se  |          |      | d1           | l   | mech.            | hydr. |                             |                      |
| Standard version          |     |          |      |              |     |                  |       |                             |                      |
| 35                        | 50  | 405R     | 14   | 8.20         | 90  | 4/4              | 2/2   | 2.7                         | 10                   |
| 50                        | 70  | 406R     | 16   | 10.00        | 90  | 4/4              | 2/2   | 3.4                         | 10                   |
| 70                        | 95  | 407R     | 18   | 11.50        | 95  | 4/4              | 2/2   | 4.6                         | 10                   |
| 95                        | 120 | 408R     | 22   | 13.50        | 100 | 4/4              | 2/2   | 6.8                         | 10                   |
| 120                       | 150 | 409R     | 22   | 15.00        | 105 | 4/4              | 2/2   | 7.4                         | 10                   |
| 150                       | 185 | 410R     | 25   | 16.50        | 105 | 4/4              | 2/2   | 8.7                         | 10                   |
| 185                       | 240 | 411R     | 28   | 18.50        | 125 | 5/5              | 2/2   | 13.4                        | 5                    |
| 240                       | 300 | 412R     | 32   | 21.30        | 125 | 5/5              | 2/2   | 15.7                        | 5                    |
| 300                       | --  | 413R     | 34   | 23.60        | 125 | 5/5              | 2/2   | 16.3                        | 1                    |
| 400                       | --  | 414R     | 38   | 26.25        | 150 | --               | 3/3   | 25.8                        | 1                    |
| Barrier version           |     |          |      |              |     |                  |       |                             |                      |
| 35                        | 50  | 415R     | 14   | 8.0          | 95  | 4/4              | 2/2   | 3.1                         | 5                    |
| 50                        | 70  | 416R     | 16   | 9.8          | 95  | 4/4              | 2/2   | 5.6                         | 5                    |
| 70                        | 95  | 417R     | 18   | 11.2         | 100 | 4/4              | 2/2   | 6.1                         | 5                    |
| 95                        | 120 | 418R     | 22   | 13.2         | 105 | 4/4              | 2/2   | 9.2                         | 5                    |
| 120                       | 150 | 419R     | 22   | 14.7         | 110 | 4/4              | 2/2   | 10.3                        | 5                    |
| 150                       | 185 | 420R     | 25   | 16.3         | 110 | 4/4              | 2/2   | 12.0                        | 5                    |
| 185                       | 240 | 421R     | 28   | 18.3         | 130 | 5/5              | 2/2   | 15.6                        | 5                    |
| 240                       | 300 | 422R     | 32   | 21.0         | 130 | 5/5              | 2/2   | 19.1                        | 5                    |
| 300                       | --  | 423R     | 34   | 23.3         | 135 | 5/5              | 2/2   | 30.7                        | 1                    |
| 400                       | --  | 424R     | 38   | 26.0         | 165 | --               | 3/3   | 30.0                        | 1                    |

- ▶ sm/se - conductor needs to be pre-rounded
- ▶ sm = sector stranded
- ▶ rm = round multi-stranded

- ▶ se = sector solid
- ▶ **Tools: see chart page 118**

## Reduction compression joints, Al, barrier design



- ▶ In nominal cross-section area tube dimension to DIN 46267, part 2
- ▶ For non-tension connections of medium-voltage aluminum cable 10-30 kV
- ▶ Ideal for connecting differing conductor cross-sections
- ▶ Filled with contact grease for optimum crimp characteristics
- ▶ With bevelled edges for reduced winding expenditure for the assembly

## Characteristics

- Total cross-section: 35 - 400 mm²
- Barrier design with oil stop
- With code number for clear tool assignment
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

## Material

- E-Al

## Surface

- Bright finished

| Nominal cross section mm²/sm |     | Part No. | Code | Dimension mm |      |     | Number of crimps |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|------------------------------|-----|----------|------|--------------|------|-----|------------------|-------|-----------------------------|----------------------|
| from                         | to  |          |      | d1           | d2   | l   | mech.            | hydr. |                             |                      |
| 35                           | 25  | 425R25   | 14   | 8.0          | 6.8  | 95  | 4/4              | 2/2   | 2.800                       | 5                    |
| 50                           | 25  | 426R25   | 16   | 9.8          | 6.8  | 95  | 4/4              | 2/2   | 3.630                       | 5                    |
|                              | 35  | 426R35   | 16   | 9.8          | 8.0  | 95  | 4/4              | 2/2   | 3.450                       | 5                    |
| 70                           | 25  | 427R25   | 18   | 11.2         | 6.8  | 100 | 4/4              | 2/2   | 4.975                       | 5                    |
|                              | 35  | 427R35   | 18   | 11.2         | 8.0  | 100 | 4/4              | 2/2   | 4.790                       | 5                    |
|                              | 50  | 427R50   | 18   | 11.2         | 9.8  | 100 | 4/4              | 2/2   | 4.420                       | 5                    |
| 95                           | 25  | 428R25   | 22   | 13.2         | 6.8  | 105 | 4/4              | 2/2   | 8.200                       | 5                    |
|                              | 35  | 428R35   | 22   | 13.2         | 8.0  | 105 | 4/4              | 2/2   | 8.000                       | 5                    |
|                              | 50  | 428R50   | 22   | 13.2         | 9.8  | 105 | 4/4              | 2/2   | 7.600                       | 5                    |
|                              | 70  | 428R70   | 22   | 13.2         | 11.2 | 105 | 4/4              | 2/2   | 7.350                       | 5                    |
| 120                          | 25  | 429R25   | 22   | 14.7         | 6.8  | 110 | 4/4              | 2/2   | 8.000                       | 5                    |
|                              | 35  | 429R35   | 22   | 14.7         | 8.0  | 110 | 4/4              | 2/2   | 7.800                       | 5                    |
|                              | 50  | 429R50   | 22   | 14.7         | 9.8  | 110 | 4/4              | 2/2   | 7.380                       | 5                    |
|                              | 70  | 429R70   | 22   | 14.7         | 11.2 | 110 | 4/4              | 2/2   | 7.100                       | 5                    |
|                              | 95  | 429R95   | 22   | 14.7         | 13.2 | 110 | 4/4              | 2/2   | 6.550                       | 5                    |
| 150                          | 25  | 430R25   | 25   | 16.3         | 6.8  | 110 | 4/4              | 2/2   | 10.700                      | 5                    |
|                              | 35  | 430R35   | 25   | 16.3         | 8.0  | 110 | 4/4              | 2/2   | 10.500                      | 5                    |
|                              | 50  | 430R50   | 25   | 16.3         | 9.8  | 110 | 4/4              | 2/2   | 10.100                      | 5                    |
|                              | 70  | 430R70   | 25   | 16.3         | 11.2 | 110 | 4/4              | 2/2   | 9.800                       | 5                    |
|                              | 95  | 430R95   | 25   | 16.3         | 13.2 | 110 | 4/4              | 2/2   | 9.500                       | 5                    |
|                              | 120 | 430R120  | 25   | 16.3         | 14.7 | 110 | 4/4              | 2/2   | 8.650                       | 5                    |
|                              | 150 | 430R150  | 25   | 16.3         | 16.3 | 110 | 4/4              | 2/2   | 13.050                      | 5                    |
| 185                          | 25  | 431R25   | 28   | 18.3         | 6.8  | 130 | --               | 2/2   | 16.120                      | 5                    |
|                              | 35  | 431R35   | 28   | 18.3         | 8.0  | 130 | --               | 2/2   | 15.875                      | 5                    |
|                              | 50  | 431R50   | 28   | 18.3         | 9.8  | 130 | --               | 2/2   | 15.400                      | 5                    |
|                              | 70  | 431R70   | 28   | 18.3         | 11.2 | 130 | --               | 2/2   | 15.050                      | 5                    |
|                              | 95  | 431R95   | 28   | 18.3         | 13.2 | 130 | --               | 2/2   | 14.400                      | 5                    |
|                              | 120 | 431R120  | 28   | 18.3         | 14.7 | 130 | 5/5              | 2/2   | 13.700                      | 5                    |
|                              | 150 | 431R150  | 28   | 18.3         | 16.3 | 130 | 5/5              | 2/2   | 13.050                      | 5                    |

**Reduction compression joints, Al, barrier design**

| Nominal cross section mm <sup>2</sup> /mm <sup>2</sup> |     | Part No.       | Code | Dimension mm |      |     | Number of crimps |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|--------------------------------------------------------|-----|----------------|------|--------------|------|-----|------------------|-------|-----------------------------|----------------------|
| from                                                   | to  |                |      | d1           | d2   | l   | mech.            | hydr. |                             |                      |
| 240                                                    | 25  | <b>432R25</b>  | 32   | 21.0         | 6.8  | 130 | --               | 2/2   | 21.200                      | 5                    |
|                                                        | 35  | <b>432R35</b>  | 32   | 21.0         | 8.0  | 130 | --               | 2/2   | 20.950                      | 5                    |
|                                                        | 50  | <b>432R50</b>  | 32   | 21.0         | 9.8  | 130 | --               | 2/2   | 20.470                      | 5                    |
|                                                        | 70  | <b>432R70</b>  | 32   | 21.0         | 11.2 | 130 | --               | 2/2   | 20.120                      | 5                    |
|                                                        | 95  | <b>432R95</b>  | 32   | 21.0         | 13.2 | 130 | --               | 2/2   | 19.460                      | 5                    |
|                                                        | 120 | <b>432R120</b> | 32   | 21.0         | 14.7 | 130 | --               | 2/2   | 18.800                      | 5                    |
|                                                        | 150 | <b>432R150</b> | 32   | 21.0         | 16.3 | 130 | 5/5              | 2/2   | 18.125                      | 5                    |
| 300                                                    | 185 | <b>432R185</b> | 32   | 21.0         | 18.3 | 130 | 5/5              | 2/2   | 17.275                      | 5                    |
|                                                        | 150 | <b>433R150</b> | 34   | 23.3         | 16.3 | 135 | 5/5              | 2/2   | 21.100                      | 1                    |
|                                                        | 185 | <b>433R185</b> | 34   | 23.3         | 18.3 | 135 | 5/5              | 2/2   | 20.120                      | 1                    |
|                                                        | 240 | <b>433R240</b> | 34   | 23.3         | 21.0 | 135 | 5/5              | 2/2   | 18.730                      | 1                    |
| 400                                                    | 185 | <b>434R185</b> | 38   | 26.0         | 18.3 | 165 | --               | 3/3   | 34.700                      | 1                    |
|                                                        | 240 | <b>434R240</b> | 38   | 26.0         | 21.0 | 165 | --               | 3/3   | 32.900                      | 1                    |
|                                                        | 300 | <b>434R300</b> | 38   | 26.0         | 23.3 | 165 | --               | 3/3   | 31.200                      | 1                    |

▶ sm/se - conductor needs to be pre-rounded

▶ sm = sector stranded

▶ rm = round multi-stranded

▶ se = sector solid

 ▶ **Tools: see chart page 118**

## Reduction compression joints, Al



- ▶ In nominal cross-section area tube dimension to DIN 46267, part 2
- ▶ For non-tension connections of aluminum conductors to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp results

## Characteristics

- Total cross-section: 16 - 240 mm<sup>2</sup>
- For connecting different conductor cross-sections
- Also for pre-rounded sector shaped conductors
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

## Material

- E-Al

## Surface

- Bright finished

| Nominal cross section mm <sup>2</sup> /sm |     | Part No. | Code | Dimension mm |      |     | Number of crimps |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|-------------------------------------------|-----|----------|------|--------------|------|-----|------------------|-------|-----------------------------|----------------------|
| from                                      | to  |          |      | d1           | d2   | l   | mech.            | hydr. |                             |                      |
| 25                                        | 16  | 284R16   | 12   | 7.0          | 5.8  | 75  | 4/4              | 2/2   | 1.53                        | 10                   |
| 35                                        | 25  | 285R25   | 14   | 8.2          | 6.8  | 90  | 5/5              | 2/2   | 2.50                        | 10                   |
| 50                                        | 25  | 286R25   | 16   | 10.0         | 6.8  | 90  | 5/5              | 2/2   | 3.24                        | 10                   |
| 50                                        | 35  | 286R35   | 16   | 10.0         | 8.0  | 90  | 5/5              | 2/2   | 3.09                        | 10                   |
| 70                                        | 25  | 287R25   | 18   | 11.5         | 6.8  | 110 | 6/6              | 3/3   | 5.50                        | 10                   |
| 70                                        | 35  | 287R35   | 18   | 11.5         | 8.0  | 110 | 6/6              | 3/3   | 5.35                        | 10                   |
| 70                                        | 50  | 287R50   | 18   | 11.5         | 9.8  | 110 | 6/6              | 3/3   | 4.96                        | 10                   |
| 95                                        | 25  | 288R25   | 22   | 13.5         | 6.8  | 110 | 6/6              | 3/3   | 9.10                        | 10                   |
| 95                                        | 35  | 288R35   | 22   | 13.5         | 8.0  | 110 | 6/6              | 3/3   | 8.90                        | 10                   |
| 95                                        | 50  | 288R50   | 22   | 13.5         | 9.8  | 110 | 6/6              | 3/3   | 8.51                        | 10                   |
| 95                                        | 70  | 288R70   | 22   | 13.5         | 11.2 | 110 | 6/6              | 3/3   | 8.15                        | 10                   |
| 120                                       | 25  | 289R25   | 22   | 15.0         | 6.8  | 110 | 6/6              | 3/3   | 8.62                        | 10                   |
| 120                                       | 35  | 289R35   | 22   | 15.0         | 8.0  | 110 | 6/6              | 3/3   | 8.43                        | 10                   |
| 120                                       | 50  | 289R50   | 22   | 15.0         | 9.8  | 110 | 6/6              | 3/3   | 8.04                        | 10                   |
| 120                                       | 70  | 289R70   | 22   | 15.0         | 11.2 | 110 | 6/6              | 3/3   | 7.66                        | 10                   |
| 120                                       | 95  | 289R95   | 22   | 15.0         | 13.2 | 110 | 6/6              | 3/3   | 7.14                        | 10                   |
| 150                                       | 35  | 290R35   | 25   | 16.5         | 8.0  | 130 | 6/6              | 3/3   | 12.59                       | 10                   |
| 150                                       | 50  | 290R50   | 25   | 16.5         | 9.8  | 130 | 6/6              | 3/3   | 12.12                       | 10                   |
| 150                                       | 70  | 290R70   | 25   | 16.5         | 11.2 | 130 | 6/6              | 3/3   | 11.70                       | 10                   |
| 150                                       | 95  | 290R95   | 25   | 16.5         | 13.2 | 130 | 6/6              | 3/3   | 11.05                       | 10                   |
| 150                                       | 120 | 290R120  | 25   | 16.5         | 14.7 | 130 | 6/6              | 3/3   | 10.49                       | 10                   |
| 185                                       | 120 | 291R120  | 28   | 18.5         | 14.7 | 130 | 6/6              | 3/3   | 13.80                       | 5                    |
| 185                                       | 150 | 291R150  | 28   | 18.5         | 16.3 | 130 | 6/6              | 3/3   | 13.19                       | 5                    |
| 240                                       | 95  | 292R95   | 32   | 21.3         | 13.2 | 150 | --               | 3/3   | 22.24                       | 5                    |
| 240                                       | 120 | 292R120  | 32   | 21.3         | 14.7 | 150 | --               | 3/3   | 21.59                       | 5                    |
| 240                                       | 150 | 292R150  | 32   | 21.3         | 16.3 | 150 | --               | 3/3   | 20.87                       | 5                    |

▶ sm/se - conductor needs to be pre-rounded

▶ sm = sector stranded

▶ rm = round multi-stranded

▶ se = sector solid

▶ Tools: see chart page 118

**Compression joints acc. to DIN, Al, full tension**

- ▶ Acc. to DIN 48085, part 2
- ▶ For full tension connections of aluminum conductors to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp results


**Characteristics**

- Total cross-section: 16 - 300 mm²
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

**Material**

- E-Al to 95 mm²
- AlMgSi 1w from 120 mm²

**Surface**

- Bright finished

| Nominal cross section mm² | Part No.     | Code | Dimension mm |      |     | Number of crimps |       | Conductor dia. mm | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------|--------------|------|--------------|------|-----|------------------|-------|-------------------|-----------------------|-------------------|
|                           |              |      | d1           | d4   | l   | mech.            | hydr. |                   |                       |                   |
| 16                        | <b>*243R</b> | 12   | 5.8          | 12.0 | 140 | 8/8              | 4/4   | 5.1               | 3.4                   | 10                |
| 25                        | <b>244R</b>  | 12   | 6.8          | 12.0 | 140 | 8/8              | 4/4   | 6.3               | 2.9                   | 10                |
| 35                        | <b>245R</b>  | 14   | 8.0          | 14.0 | 140 | 8/8              | 4/4   | 7.5               | 3.9                   | 10                |
| 50                        | <b>246R</b>  | 16   | 10.0         | 16.0 | 155 | 8/8              | 4/4   | 9.0               | 5.2                   | 10                |
| 70                        | <b>247R</b>  | 18   | 11.5         | 18.5 | 165 | 8/8              | 4/4   | 10.5              | 7.4                   | 10                |
| 95                        | <b>248R</b>  | 22   | 13.5         | 22.0 | 165 | 8/8              | 4/4   | 12.5              | 12.2                  | 10                |
| 120                       | <b>249R</b>  | 25   | 15.5         | 25.5 | 250 | 12/12            | 6/6   | 14.0              | 21.8                  | 10                |
| 150                       | <b>250R</b>  | 28   | 16.5         | 28.5 | 300 | --               | 7/7   | 15.7              | 34.4                  | 10                |
| 185                       | <b>251R</b>  | 28   | 18.5         | 28.5 | 330 | --               | 7/7   | 17.5              | 33.0                  | 5                 |
| 240                       | <b>252R</b>  | 34   | 21.5         | 34.5 | 350 | --               | 7/7   | 20.2              | 54.0                  | 5                 |
| 300                       | <b>253R</b>  | 38   | 23.5         | 38.5 | 400 | --               | 8/8   | 22.5              | 79.0                  | 1                 |

▶ \* = not standardized

▶ **Tools: see chart page 118**

**Compression joints, Al, full tension**

- ▶ For full tension connections of Aldrey cables according to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp characteristics


**Characteristics**

- Total cross-section: 25 - 95 mm²
- With buttmarks for precise cable insertion
- Tube dimensions matched to aluminum steel cables
- With crimp markings for correct crimping

**Material**

- AlMgSi F20

**Surface**

- Bright finished

| Nominal cross section mm² | Part No.     | Code | Dimension mm |     | Number of crimps |       | Conductor dia. mm | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------|--------------|------|--------------|-----|------------------|-------|-------------------|-----------------------|-------------------|
|                           |              |      | d1           | l   | mech.            | hydr. |                   |                       |                   |
| 25                        | <b>294AD</b> | 12   | 6.8          | 140 | 8/8              | --    | 6.3               | 3.4                   | 5                 |
| 35                        | <b>295AD</b> | 14   | 8.0          | 140 | 8/8              | --    | 7.5               | 4.7                   | 5                 |
| 50                        | <b>296AD</b> | 16   | 10.0         | 155 | 8/8              | --    | 9.0               | 5.9                   | 5                 |
| 70                        | <b>297AD</b> | 18   | 11.5         | 165 | 8/8              | --    | 10.5              | 9.0                   | 5                 |
| 95                        | <b>298AD</b> | 20   | 13.5         | 165 | 10/10            | 5/5   | 12.5              | 10.2                  | 5                 |

▶ **Tools: see chart page 120**

## Compression cable lugs, Al/St, full tension



- ▶ Tube dimension matched to aluminum steel cables
- ▶ For full tension connections of Aldrey cables according to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp characteristics

## Characteristics

- Total cross-section: 4 - 120 mm<sup>2</sup>
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

## Material

- E-Al

## Surface

- Bright finished

| Nominal cross section mm <sup>2</sup> | Size of bolt dia. | Part No. | Code | Dimension mm |      |      |     | Conductor dia. mm | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|-------------------|----------|------|--------------|------|------|-----|-------------------|-----------------------|-------------------|
|                                       |                   |          |      | b            | d1   | d2   | l   |                   |                       |                   |
| 25 - 4                                | M 8               | 254R8    | 12   | 19           | 7.6  | 8.5  | 60  | 6.8               | 1.5                   | 5                 |
|                                       | M 10              | 254R10   | 12   | 19           | 7.6  | 10.5 | 60  | 6.8               | 1.5                   | 5                 |
|                                       | M 12              | 254R12   | 12   | 23           | 7.6  | 13.0 | 60  | 6.8               | 1.6                   | 5                 |
| 35 - 6                                | M 10              | 255R10   | 14   | 21           | 9.0  | 10.5 | 67  | 8.1               | 2.0                   | 5                 |
|                                       | M 12              | 255R12   | 14   | 21           | 9.0  | 13.0 | 67  | 8.1               | 2.2                   | 5                 |
| 50 - 8                                | M 10              | 256R10   | 16   | 22           | 10.8 | 10.5 | 72  | 9.6               | 2.5                   | 5                 |
|                                       | M 12              | 256R12   | 16   | 24           | 10.8 | 13.0 | 72  | 9.6               | 2.6                   | 5                 |
|                                       | M 16              | 256R16   | 16   | 26           | 10.8 | 17.0 | 72  | 9.6               | 2.7                   | 5                 |
| 70 - 12                               | M 10              | 257R10   | 18   | 26           | 12.5 | 10.5 | 86  | 11.7              | 4.1                   | 5                 |
|                                       | M 12              | 257R12   | 18   | 26           | 12.5 | 13.0 | 86  | 11.7              | 4.3                   | 5                 |
|                                       | M 16              | 257R16   | 18   | 32           | 12.5 | 17.0 | 86  | 11.7              | 4.4                   | 5                 |
| 95 - 15                               | M 12              | 258R12   | 22   | 31           | 14.8 | 13.0 | 91  | 13.6              | 7.8                   | 5                 |
|                                       | M 16              | 258R16   | 22   | 33           | 14.8 | 17.0 | 91  | 13.6              | 6.6                   | 5                 |
| 120 - 20                              | M 12              | 259R12   | 25   | 37           | 16.5 | 13.0 | 103 | 15.5              | 9.8                   | 5                 |
|                                       | M 16              | 259R16   | 25   | 37           | 16.5 | 17.0 | 103 | 15.5              | 10.0                  | 5                 |
|                                       | M 20              | 259R20   | 25   | 41           | 16.5 | 21.0 | 103 | 15.5              | 10.1                  | 5                 |

▶ Tools: see chart page 120

**Compression joints, Al/St, for non-tension connections**

- ▶ For non-tension connections of Al/St cables to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp results


**Characteristics**

- Total cross-section: 4 - 120 mm²
- With buttmarks for precise cable insertion
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

**Material**

- E-Al

**Surface**

- Bright finished



| Nominal cross section<br>mm² | Part No.    | Code | Dimension mm |     |  | Number of crimps |       | Conductor dia.<br>mm | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------|-------------|------|--------------|-----|--|------------------|-------|----------------------|-----------------------------|------------------|
|                              |             |      | d1           | l   |  | mech.            | hydr. |                      |                             |                  |
| 25 - 4                       | <b>444R</b> | 12   | 7.6          | 70  |  | 4/4              | 2/2   | 6.8                  | 1.65                        | 5                |
| 35 - 6                       | <b>445R</b> | 14   | 9.0          | 85  |  | 5/5              | 2/2   | 8.1                  | 2.75                        | 5                |
| 50 - 8                       | <b>446R</b> | 16   | 10.8         | 85  |  | 5/5              | 2/2   | 9.6                  | 3.70                        | 5                |
| 70 - 12                      | <b>447R</b> | 18   | 12.5         | 105 |  | 6/6              | 3/3   | 11.7                 | 5.20                        | 5                |
| 95 - 15                      | <b>448R</b> | 22   | 14.8         | 105 |  | 6/6              | 3/3   | 13.6                 | 8.60                        | 5                |
| 120 - 20                     | <b>449R</b> | 25   | 16.5         | 125 |  | 6/6              | 3/3   | 15.5                 | 12.20                       | 5                |

▶ Tools: see chart page 121

**Compression joints acc. to DIN, Al/St**

- ▶ Acc. to DIN 48085, part 3
- ▶ For full tension connections of Al/St conductors to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp results


**Characteristics**

- Total cross-section: 4 - 120 mm²
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

**Material**

- Al sleeve: E-Al
- St sleeve: St 52

**Surface**

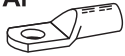
- Al sleeve: bright
- St sleeve: hot galvanized



| Nominal cross section<br>mm² | Part No.    | Code | Dimension mm |      |     |     | Code Al | Number of crimps<br>Steel |       | Number of crimps<br>Al |       | Conductor<br>dia.<br>mm | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------------------------|-------------|------|--------------|------|-----|-----|---------|---------------------------|-------|------------------------|-------|-------------------------|-----------------------------|---------------------|
|                              |             |      | d4.1         | d4.2 | l1  | l2  |         | mech.                     | hydr. | mech.                  | hydr. |                         |                             |                     |
| 25 - 4                       | <b>454R</b> | 6    | 12.0         | 6.3  | 200 | 65  | 12      | 4/4                       | --    | 7/7                    | --    | 6.8                     | 5                           | 5                   |
| 35 - 6                       | <b>455R</b> | 6    | 14.0         | 6.3  | 235 | 75  | 14      | 5/5                       | --    | 8/8                    | --    | 8.1                     | 7                           | 5                   |
| 50 - 8                       | <b>456R</b> | 7    | 16.0         | 7.5  | 270 | 95  | 16      | 6/6                       | --    | 9/9                    | --    | 9.6                     | 11                          | 5                   |
| 70 - 12                      | <b>457R</b> | 9    | 18.5         | 9.5  | 270 | 95  | 18      | 6/6                       | --    | 9/9                    | --    | 11.7                    | 15                          | 5                   |
| 95 - 15                      | <b>458R</b> | 9    | 22.5         | 9.6  | 310 | 95  | 22      | 6/6                       | --    | 11/11                  | --    | 13.6                    | 23                          | 5                   |
| 120 - 20                     | <b>459R</b> | 13   | 25.0         | 13.0 | 380 | 110 | 25      | 7/7                       | 4/4   | 13/13                  | 6/6   | 15.5                    | 36                          | 5                   |

▶ Tools: see chart page 121

Al



## ■ Tool application chart

Compression cable lugs and connectors made from E-Al

Compression joints for full-tension connections from  
Al conductors DIN EN 50182, 16-95 mm<sup>2</sup>

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm <sup>2</sup> | Crimping tools   |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------------------|------------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                                 | Tools            | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| 10-70                                                                           | K354             |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ⬡             | 260            |
|                                                                                 | EK354            |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 314            |
|                                                                                 | EK354L           |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 316            |
| 10-150                                                                          | EK505L           |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 318            |
| 10-185                                                                          | K18              |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ⬡             | 262            |
|                                                                                 | HK6018           |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 286            |
|                                                                                 | EK5018L          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 320            |
|                                                                                 | PK18             |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 362            |
|                                                                                 | THK18            |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ⬡             | 362            |
|                                                                                 | HK60UNV + UA18   |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 354            |
|                                                                                 | EK60UNVL + UA18  |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 357            |
|                                                                                 | EKM60UNVL + UA18 |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 356            |
|                                                                                 | PK60UNV + UA18   |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 355            |
|                                                                                 |                  |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
|                                                                                 |                  |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
| 10-240                                                                          | K22              |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ⬡             | 264            |
|                                                                                 | HK6022           |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 288            |
|                                                                                 | EK6022L          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 324            |
|                                                                                 | EKM6022L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 322            |
|                                                                                 | EKM60IDL         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 328            |
|                                                                                 | PK22             |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 364            |
|                                                                                 | THK22            |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ⬡             | 364            |
|                                                                                 | HK60UNV + UA22   |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 354            |
|                                                                                 | EK60UNVL + UA22  |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 357            |
|                                                                                 | EKM60UNVL + UA22 |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 356            |
|                                                                                 | PK60UNV + UA22   |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 355            |
|                                                                                 | HK12030          |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 292            |
|                                                                                 | HK12042          |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 294            |
|                                                                                 | HK120U           |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 296            |
|                                                                                 | EK120UNVL        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 358            |
|                                                                                 | EK12030L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 330            |
|                                                                                 | EK12042L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 332            |
|                                                                                 | EK120UL          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ⬡             | 334            |
|                                                                                 | HK122EL380       |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ⬡             | 390            |
|                                                                                 | PK12042          |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 368            |
|                                                                                 | PK120U           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 370            |

See next page



**Al**

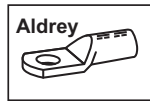


## ■ Tool application chart

**Compression cable lugs and connectors made from E-Al**

**Compression joints for full-tension connections from  
Al conductors DIN EN 50182, 16-95 mm²**

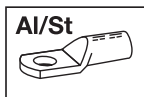
| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| <b>10-500</b>                                                       | HK252          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ⬡             | 388            |
|                                                                     | HK252EL380     |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ⬡             | 391            |
|                                                                     | PK252          |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 372            |
| <b>150-500</b>                                                      | HK45           |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ⬡             | 389            |
|                                                                     | PK45           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ⬡             | 374            |



## ■ Tool application chart

Compression joints for full-tension connections from  
Aldrey conductors to DIN EN 50182  
and Al conductors to DIN EN 50182, 120-300 mm²

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                               |                             | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------|-----------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimping<br>systems | Hydraulic crimping<br>heads |               |                |
| 25-50                                                               | K354           |                           |                              | •                                                                                                   |                                        |                                         |                               |                             | ⬡             | 260            |
|                                                                     | EK354          |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 314            |
|                                                                     | EK354L         |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 316            |
| 25-95                                                               | K18            |                           |                              | •                                                                                                   |                                        |                                         |                               |                             | ⬡             | 262            |
|                                                                     | HK6018         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⬡             | 286            |
|                                                                     | EK505L         |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 318            |
|                                                                     | EK5018L        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 320            |
|                                                                     | PK18           |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⬡             | 362            |
|                                                                     | THK18          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⬡             | 362            |
|                                                                     | HK60UNV        | + UA18                    |                              |                                                                                                     | •                                      |                                         |                               |                             | ⬡             | 354            |
|                                                                     | EK60UNVL       | + UA18                    |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 357            |
|                                                                     | EKM60UNVL      | + UA18                    |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 356            |
|                                                                     | PK60UNV        | + UA18                    |                              |                                                                                                     |                                        |                                         |                               | •                           | ⬡             | 355            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             | ⬡             |                |
| 25-185                                                              | K22            |                           |                              | •                                                                                                   |                                        |                                         |                               |                             | ⬡             | 264            |
|                                                                     | HK6022         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⬡             | 288            |
|                                                                     | EK6022L        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 324            |
|                                                                     | EKM6022L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 322            |
|                                                                     | PK22           |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⬡             | 364            |
|                                                                     | THK22          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⬡             | 364            |
|                                                                     | HK60UNV        | + UA22                    |                              |                                                                                                     | •                                      |                                         |                               |                             | ⬡             | 354            |
|                                                                     | EK60UNVL       | + UA22                    |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 357            |
|                                                                     | EKM60UNVL      | + UA22                    |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 356            |
|                                                                     | PK60UNV        | + UA22                    |                              |                                                                                                     |                                        |                                         |                               | •                           | ⬡             | 355            |
|                                                                     | HK12030        |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⬡             | 292            |
|                                                                     | HK12042        |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⬡             | 294            |
|                                                                     | HK120U         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⬡             | 296            |
|                                                                     | EK12030L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 330            |
|                                                                     | EK12042L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 332            |
|                                                                     | EK120UL        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 334            |
|                                                                     | EK120UNVL      |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | ⬡             | 358            |
|                                                                     | HK122EL380     |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⬡             | 390            |
|                                                                     | PK12042        |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⬡             | 368            |
|                                                                     | PK120U         |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⬡             | 370            |
| 25-300                                                              | HK252          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⬡             | 388            |
|                                                                     | HK252EL380     |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | ⬡             | 391            |
|                                                                     | PK252          |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⬡             | 372            |
| 150-300                                                             | HK45           |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | ⬡             | 389            |
|                                                                     | PK45           |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | ⬡             | 374            |



## ■ Tool application chart

**Compression joints for full-tension connections from Al/St. cables to DIN EN 50182**

**Compression joints for full-tension connections to DIN 48085, part 3 for Al/St. cables to DIN EN 50182**

| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 25/4-120/20                                             | K22            |                        |                           | •                                                                                 |                               |                                |                            |                          | ⬡             | 264         |
|                                                         | HK6022         |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 288         |
|                                                         | EK6022L        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 324         |
|                                                         | EKM6022L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 322         |
|                                                         | PK22           |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 364         |
|                                                         | THK22          |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 364         |
|                                                         | HK60UNV        | + UA22                 |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 354         |
|                                                         | EK60UNVL       | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 357         |
|                                                         | EKM60UNVL      | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 356         |
|                                                         | PK60UNV        | + UA22                 |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 355         |
|                                                         | HK12030        |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 292         |
|                                                         | HK12042        |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 294         |
|                                                         | HK120U         |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 296         |
|                                                         | EK12030L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 330         |
|                                                         | EK12042L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 332         |
|                                                         | EK120UL        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 334         |
|                                                         | HK122EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 390         |
|                                                         | PK12042        |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 368         |
|                                                         | PK120U         |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 370         |
|                                                         | HK252          |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 388         |
|                                                         | HK252EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 391         |
|                                                         | PK252          |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 372         |

## Two materials

***simply connected.***

### **Compression cable lugs and connectors for aluminum-copper connections.**

Copper's electrical properties still make it the best material for conductors and electrical connections. There are, however, also good reasons for using aluminum. The need to connect these two materials together is therefore becoming more frequent.

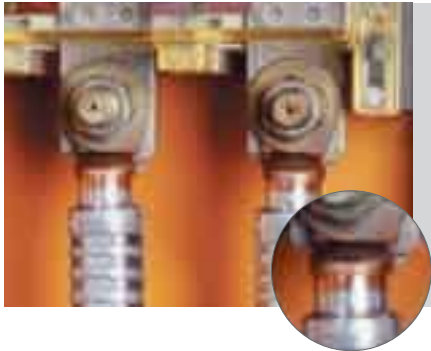
But because it's not that simple to join aluminum and copper and because they have a tendency to self-passivate through fast oxidation, special aluminum/copper cable lugs and connectors are required - for connecting to distributor networks or transformer stations and also for network reconstruction, for example.



*The perfect solution for transitions from aluminum to copper conductors and vice versa.*

- **Aluminum/copper compression cable lugs to DIN dimensions with copper palm or copper eye to 400 mm<sup>2</sup>.**
- **Compression joints with copper connecting bolt.**
- **Reduction compression joints to DIN from 10 mm<sup>2</sup> to 300 mm<sup>2</sup>.**

## ■ Connecting *aluminum and copper correctly.*



- ▶ Aluminum/copper compression cable lugs for aluminum conductors to DIN 48201 and pre-rounded sector-shaped conductors with a nominal cross section up to 400 mm<sup>2</sup>.
- ▶ With copper palm or copper eye.
- ▶ Aluminum/copper compression joints with nominal cross sections of 10 mm<sup>2</sup> to 300 mm<sup>2</sup>.

### Benefits:

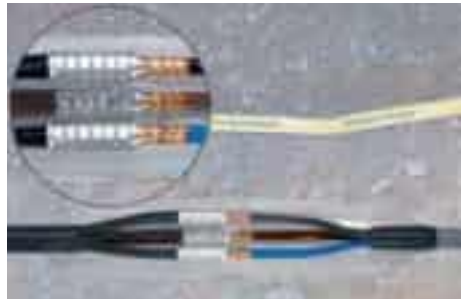
- ▶ Aluminum and copper conductors can be connected in a dry environment, **without destructive oxidation occurring between the two materials.**

## ■ Reduction compression joints as a solution for **different diameters.**

- ▶ With nominal cross sections from 10 mm<sup>2</sup> to 300 mm<sup>2</sup>.
- ▶ For round or sector-shaped, multi-stranded and also sector-shaped solid conductors.
- ▶ For non-tension connections.

### Benefits:

- ▶ Numerous compression joints are available for connecting copper and aluminum conductors, allowing optimised compression of these conductors.
- ▶ **Different materials can be safely connected regardless of their particular dimensions.**
- ▶ No matter which cable type is discovered in network reconstruction, Klauke offers a suitable connection solution.



- ▶ *More from Page 126.*



- ▶ *For underground connections, we recommend protection against moisture - using cast resin sleeves for example.*

## Compression cable lugs, Al/Cu



- ▶ Tube dimension to DIN 46329
- ▶ For non-tension connections of Al cables to DIN 48201, part 5 and aluminum cables to DIN EN 50182
- ▶ For screwing aluminum connections using copper washers in humid areas
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp characteristics

## Characteristics

- Total cross-section: 16 - 300 mm² mm²/sm
- Barrier design with oil stop and with solid copper screw-on palm
- For pre-rounded sector shaped conductors
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

## Material

- E-Al
- Copper acc. to EN 13600

## Surface

- Bright finished

| Nominal cross section mm² |     | Size of bolt dia. | Part No. | Code | Dimension mm |      |      |       | Number of crimps |       | Weight 100 pcs. ~kg |       | Packing unit/pcs |
|---------------------------|-----|-------------------|----------|------|--------------|------|------|-------|------------------|-------|---------------------|-------|------------------|
| mm²                       | se  |                   |          |      | b            | d1   | d2   | l     | mech.            | hydr. | Cu                  | Total |                  |
| 16                        | 25  | M 8               | 363R8    | 12   | 25           | 6.0  | 8.5  | 67.5  | 4                | 2     | 4.4                 | 5.9   | 10               |
|                           | 25  | M 10              | 363R10   | 12   | 25           | 6.0  | 10.5 | 67.5  | 4                | 2     | 4.2                 | 5.7   | 10               |
| 25                        | 35  | M 8               | 364R8    | 12   | 25           | 6.8  | 8.5  | 67.5  | 4                | 2     | 4.4                 | 5.8   | 10               |
|                           | 35  | M 10              | 364R10   | 12   | 25           | 6.8  | 10.5 | 67.5  | 4                | 2     | 4.2                 | 5.6   | 10               |
| 35                        | 50  | M 12              | 364R12   | 12   | 25           | 6.8  | 13.0 | 67.5  | 4                | 2     | 3.9                 | 5.3   | 10               |
|                           | 50  | M 8               | 365R8    | 14   | 25           | 8.0  | 8.5  | 76.5  | 5                | 2     | 4.4                 | 6.3   | 10               |
| 50                        | 70  | M 10              | 365R10   | 14   | 25           | 8.0  | 10.5 | 76.5  | 5                | 2     | 4.2                 | 6.1   | 10               |
|                           | 70  | M 12              | 365R12   | 14   | 25           | 8.0  | 13.0 | 76.5  | 5                | 2     | 3.8                 | 5.8   | 10               |
| 70                        | 95  | M 8               | 366R8    | 16   | 25           | 9.8  | 8.5  | 76.5  | 5                | 2     | 4.4                 | 6.4   | 10               |
|                           | 95  | M 10              | 366R10   | 16   | 25           | 9.8  | 10.5 | 76.5  | 5                | 2     | 4.2                 | 6.2   | 10               |
| 95                        | 120 | M 12              | 366R12   | 16   | 25           | 9.8  | 13.0 | 76.5  | 5                | 2     | 3.9                 | 5.9   | 10               |
|                           | 120 | M 10              | 367R10   | 18   | 25           | 11.2 | 10.5 | 84.5  | 6                | 3     | 4.2                 | 7.4   | 10               |
| 120                       | 150 | M 12              | 367R12   | 18   | 25           | 11.2 | 13.0 | 84.5  | 6                | 3     | 3.9                 | 7.1   | 10               |
|                           | 150 | M 10              | 368R10   | 22   | 30           | 13.2 | 10.5 | 90.5  | 6                | 3     | 7.4                 | 11.4  | 10               |
| 150                       | 185 | M 12              | 368R12   | 22   | 30           | 13.2 | 13.0 | 90.5  | 6                | 3     | 6.8                 | 10.8  | 10               |
|                           | 185 | M 16              | 368R16   | 22   | 30           | 13.2 | 17.0 | 90.5  | 6                | 3     | 6.4                 | 10.4  | 10               |
| 185                       | 240 | M 12              | 369R12   | 22   | 30           | 14.7 | 13.0 | 92.0  | 6                | 3     | 6.8                 | 11.4  | 5                |
|                           | 240 | M 16              | 369R16   | 22   | 30           | 14.7 | 17.0 | 92.0  | 6                | 3     | 6.4                 | 10.8  | 5                |
| 240                       | 300 | M 12              | 370R12   | 25   | 30           | 16.3 | 13.0 | 104.0 | 6                | 3     | 6.8                 | 13.1  | 5                |
|                           | 300 | M 16              | 370R16   | 25   | 30           | 16.3 | 17.0 | 104.0 | 6                | 3     | 6.4                 | 12.7  | 5                |
| 240                       | 300 | M 20              | 370R20   | 25   | 35           | 16.3 | 21.0 | 107.5 | 6                | 3     | 10.1                | 16.4  | 5                |
|                           | 300 | M 10              | 371R10   | 28   | 30           | 18.3 | 10.5 | 105.0 | 6                | 3     | 10.3                | 18.6  | 5                |
| 240                       | 300 | M 12              | 371R12   | 28   | 30           | 18.3 | 13.0 | 105.0 | 6                | 3     | 10.1                | 18.4  | 5                |
|                           | 300 | M 16              | 371R16   | 28   | 30           | 18.3 | 17.0 | 105.0 | 6                | 3     | 9.3                 | 17.6  | 5                |
| 240                       | 300 | M 20              | 371R20   | 28   | 35           | 18.3 | 21.0 | 107.5 | 6                | 3     | 10.1                | 18.4  | 5                |
|                           | 300 | M 10              | 372R10   | 32   | 35           | 21.0 | 10.5 | 118.5 | 8                | 3     | 12.1                | 22.5  | 5                |
| 240                       | 300 | M 12              | 372R12   | 32   | 35           | 21.0 | 13.0 | 118.5 | 8                | 3     | 11.8                | 22.2  | 5                |
|                           | 300 | M 16              | 372R16   | 32   | 35           | 21.0 | 17.0 | 118.5 | 8                | 3     | 11.0                | 21.4  | 5                |
| 240                       | 300 | M 20              | 372R20   | 32   | 35           | 21.0 | 21.0 | 118.5 | 8                | 3     | 10.1                | 20.5  | 5                |

| Nominal cross section mm <sup>2</sup> |    | Size of bolt dia. | Part No.      | Code | b  | Dimension mm |      |       | Number of crimps |       | Weight 100 pcs. ~kg |       | Packing unit/pcs |
|---------------------------------------|----|-------------------|---------------|------|----|--------------|------|-------|------------------|-------|---------------------|-------|------------------|
| rm/sm                                 | se |                   |               |      |    | d1           | d2   | l     | mech.            | hydr. | Cu                  | Total |                  |
| 300                                   | -- | M 12              | <b>373R12</b> | 34   | 36 | 23.3         | 13.0 | 123.5 | 8                | 3     | 17.7                | 33.7  | 1                |
|                                       | -- | M 16              | <b>373R16</b> | 34   | 36 | 23.3         | 17.0 | 123.5 | 8                | 3     | 16.9                | 32.9  | 1                |
|                                       | -- | M 20              | <b>373R20</b> | 34   | 36 | 23.3         | 21.0 | 123.5 | 8                | 3     | 16.0                | 32.0  | 1                |

- ▶ sm/se - conductor needs to be pre-rounded
- ▶ sm = sector stranded
- ▶ rm = round multi-stranded
- ▶ se = sector solid

▶ **Tools: see chart page 130**

## Compression cable lugs, Al/Cu, with copper eye

- ▶ Tube dimension to DIN 46329
- ▶ For non-tension connections of Al cables to DIN 48201, part 5 and aluminum cables to DIN EN 50182
- ▶ With code number for clear tool assignment
- ▶ Filled with contact grease for optimum crimp characteristics



### Characteristics

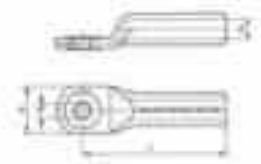
- Total cross-section: 10 - 400 mm<sup>2</sup> rm/sm
- For screwing non-tension aluminum connections using copper washers in humid areas
- For pre-rounded sector shaped conductors
- With copper eye in screw-on area
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

### Material

- E-Al
- Copper acc. to EN 13600

### Surface

- Bright finished



| Nominal cross section mm <sup>2</sup> |     | Size of bolt dia. | Part No.      | Code | b  | Dimension mm |      |    | Number of crimps |       | Weight 100 pcs. ~kg |       | Packing unit/pcs |
|---------------------------------------|-----|-------------------|---------------|------|----|--------------|------|----|------------------|-------|---------------------|-------|------------------|
| rm/sm                                 | se  |                   |               |      |    | d1           | d2   | l  | mech.            | hydr. | Cu                  | Total |                  |
| 10                                    | --  | M 6               | <b>302R6</b>  | 10   | 18 | 5.0          | 6.5  | 52 | 4                | 2     | 0.260               | 1.20  | 10               |
|                                       | --  | M 8               | <b>302R8</b>  | 10   | 22 | 5.0          | 8.5  | 52 | 4                | 2     | 0.580               | 1.50  | 10               |
| 16                                    | 25  | M 8               | <b>302R8</b>  | 12   | 22 | 5.8          | 8.5  | 52 | 4                | 2     | 0.600               | 1.95  | 10               |
|                                       | 25  | M 10              | <b>303R10</b> | 12   | 25 | 5.8          | 10.5 | 52 | 4                | 2     | 0.600               | 2.00  | 10               |
| 25                                    | 35  | M 8               | <b>304R8</b>  | 12   | 22 | 6.8          | 8.5  | 60 | 4                | 2     | 0.625               | 2.00  | 10               |
|                                       | 35  | M 10              | <b>304R10</b> | 12   | 25 | 6.8          | 10.5 | 60 | 4                | 2     | 0.900               | 2.10  | 10               |
| 35                                    | 50  | M 10              | <b>305R10</b> | 14   | 26 | 8.0          | 10.5 | 67 | 5                | 2     | 0.800               | 3.00  | 10               |
|                                       | 50  | M 12              | <b>305R12</b> | 14   | 30 | 8.0          | 13.0 | 67 | 5                | 2     | 1.120               | 3.10  | 10               |
| 50                                    | 70  | M 10              | <b>306R10</b> | 16   | 27 | 9.8          | 10.5 | 72 | 5                | 2     | 0.900               | 3.60  | 10               |
|                                       | 70  | M 12              | <b>306R12</b> | 16   | 30 | 9.8          | 13.0 | 72 | 5                | 2     | 1.120               | 3.80  | 10               |
| 70                                    | 95  | M 10              | <b>307R10</b> | 18   | 29 | 11.2         | 10.5 | 86 | 6                | 3     | 1.075               | 5.60  | 10               |
|                                       | 95  | M 12              | <b>307R12</b> | 18   | 32 | 11.2         | 13.0 | 86 | 6                | 3     | 1.300               | 5.70  | 10               |
| 95                                    | 120 | M 10              | <b>308R10</b> | 22   | 32 | 13.2         | 10.5 | 90 | 6                | 3     | 1.435               | 10.00 | 5                |
|                                       | 120 | M 12              | <b>308R12</b> | 22   | 35 | 13.2         | 13.0 | 90 | 6                | 3     | 1.735               | 9.50  | 5                |
|                                       | 120 | M 16              | <b>308R16</b> | 22   | 38 | 13.2         | 17.0 | 90 | 6                | 3     | 2.655               | 10.00 | 5                |

## Compression cable lugs, Al/Cu, with copper eye

| Nominal cross section<br>mm <sup>2</sup> |     | Size of<br>bolt<br>dia. | Dimension mm |      |    |      |      |     | Number of crimps |       | Weight 100 pcs. ~kg |       | Packing<br>unit/pcs |
|------------------------------------------|-----|-------------------------|--------------|------|----|------|------|-----|------------------|-------|---------------------|-------|---------------------|
| rm/sm                                    | se  |                         | Part No.     | Code | b  | d1   | d2   | l   | mech.            | hydr. | Cu                  | Total |                     |
| 120                                      | 150 | M 12                    | 309R12       | 22   | 35 | 14.7 | 13.0 | 91  | 6                | 3     | 1.810               | 8.70  | 5                   |
|                                          | 150 | M 16                    | 309R16       | 22   | 38 | 14.7 | 17.0 | 91  | 6                | 3     | 2.230               | 8.80  | 5                   |
| 150                                      | 185 | M 12                    | 310R12       | 25   | 35 | 16.3 | 13.0 | 103 | 6                | 3     | 2.025               | 12.20 | 5                   |
|                                          | 185 | M 16                    | 310R16       | 25   | 41 | 16.3 | 17.0 | 103 | 6                | 3     | 2.655               | 12.30 | 5                   |
|                                          | 185 | M 20                    | 310R20       | 25   | 44 | 16.3 | 21.0 | 103 | 6                | 3     | 3.620               | 12.80 | 5                   |
| 185                                      | 240 | M 12                    | 311R12       | 28   | 40 | 18.3 | 13.0 | 106 | 6                | 3     | 2.320               | 15.00 | 5                   |
|                                          | 240 | M 16                    | 311R16       | 28   | 42 | 18.3 | 17.0 | 106 | 6                | 3     | 4.975               | 15.50 | 5                   |
|                                          | 240 | M 20                    | 311R20       | 28   | 46 | 18.3 | 21.0 | 106 | 6                | 3     | 4.610               | 15.50 | 5                   |
| 240                                      | 300 | M 12                    | 312R12       | 32   | 45 | 21.0 | 13.0 | 116 | 8                | 3     | 2.750               | 20.00 | 5                   |
|                                          | 300 | M 16                    | 312R16       | 32   | 45 | 21.0 | 17.0 | 116 | 8                | 3     | 3.400               | 21.00 | 5                   |
|                                          | 300 | M 20                    | 312R20       | 32   | 49 | 21.0 | 21.0 | 116 | 8                | 3     | 4.600               | 22.00 | 5                   |
| 300                                      | --  | M 16                    | 313R16       | 34   | 51 | 23.3 | 17.0 | 124 | 8                | 3     | 3.980               | 21.60 | 1                   |
|                                          | --  | M 20                    | 313R20       | 34   | 51 | 23.3 | 21.0 | 124 | 8                | 3     | 5.510               | 22.20 | 1                   |
| 400                                      | --  | M 16                    | 314R16       | 38   | 58 | 26.0 | 17.0 | 165 | --               | 4     | 4.200               | 35.00 | 1                   |
|                                          | --  | M 20                    | 314R20       | 38   | 58 | 26.0 | 21.0 | 165 | --               | 4     | 5.950               | 35.00 | 1                   |

► sm/se - conductor needs to be pre-rounded

► sm = sector stranded

► rm = round multi-stranded

► se = sector solid

► Tools: see chart page 130

## Compression joints, Al/Cu



- Tube dimensions to DIN 46267 part 1 and 2
- For non-tension connections of Al cables to DIN 48201, part 5 and aluminum cables to DIN EN 50182
- With code number for clear tool assignment



## Characteristics

- Total cross-section: 10 - 300 mm<sup>2</sup>
- For connecting non-tension aluminum and copper connections
- With crimp markings for correct crimping
- Precise end machining for easy cable insertion

## Material

- E-Al
- Copper acc. to EN 13600

## Surface

- Bright finished



| Nominal cross section mm <sup>2</sup> |       |          | Part No.       | Code |    | Dimension mm |     |      | Weight 100 pcs. -kg |       | Packing unit/pcs |
|---------------------------------------|-------|----------|----------------|------|----|--------------|-----|------|---------------------|-------|------------------|
| Al rm/sm                              | Al se | Cu rm/sm |                | Al   | Cu | l            | Al  | Cu   | Cu                  | Total |                  |
| 10                                    | 16    | 10       | <b>322R10</b>  | 10   | 6  | 55.0         | 5.0 | 4.5  | 0.212               | 1.100 | 4                |
|                                       | 16    | 16       | <b>322R16</b>  | 10   | 8  | 61.0         | 5.0 | 5.4  | 0.714               | 1.550 | 4                |
| 16                                    | 25    | 10       | <b>323R10</b>  | 12   | 6  | 55.0         | 6.0 | 4.5  | 0.212               | 1.500 | 4                |
|                                       | 25    | 16       | <b>323R16</b>  | 12   | 8  | 61.0         | 6.0 | 5.4  | 0.714               | 1.750 | 4                |
|                                       | 35    | 10       | <b>324R10</b>  | 12   | 6  | 55.0         | 6.8 | 4.5  | 0.212               | 1.400 | 4                |
|                                       | 35    | 16       | <b>324R16</b>  | 12   | 8  | 61.0         | 6.8 | 5.5  | 0.714               | 1.650 | 4                |
| 25                                    | 35    | 25       | <b>324R25</b>  | 12   | 10 | 61.0         | 6.8 | 7.0  | 0.892               | 1.900 | 4                |
|                                       | 35    | 35       | <b>324R35</b>  | 12   | 12 | 61.0         | 6.8 | 8.2  | 1.624               | 2.000 | 4                |
|                                       | 35    | 50       | <b>324R50</b>  | 12   | 14 | 72.0         | 6.8 | 10.0 | 2.362               | 3.500 | 4                |
|                                       | 35    | 16       | <b>324R416</b> | 12   | 8  | 61.0         | 7.6 | 5.5  | 0.714               | 1.600 | 4                |
| 25/4                                  | 35    | 25       | <b>324R425</b> | 12   | 10 | 61.0         | 7.6 | 7.0  | 0.892               | 1.850 | 4                |



**Compression joints, Al/Cu**

| Nominal cross section mm <sup>2</sup> |       |          |          | Code  |      | Dimension mm |     |      | Weight 100 pcs. ~kg |        | Packing unit/<br>pcs |
|---------------------------------------|-------|----------|----------|-------|------|--------------|-----|------|---------------------|--------|----------------------|
| Al mm/sm                              | Al se | Cu mm/sm | Part No. | Al    | Cu   | l            | Al  | Cu   | Cu                  | Total  |                      |
| 35                                    | 50    | 16       | 325R16   | 14    | 8    | 71.0         | 8.0 | 5.5  | 0.714               | 2.500  | 4                    |
|                                       | 50    | 25       | 325R25   | 14    | 10   | 71.0         | 8.0 | 7.0  | 0.892               | 2.650  | 4                    |
|                                       | 50    | 35       | 325R35   | 14    | 12   | 71.0         | 8.0 | 8.2  | 1.519               | 3.300  | 4                    |
|                                       | 50    | 50       | 325R50   | 14    | 14   | 77.0         | 8.0 | 10.0 | 2.362               | 3.530  | 4                    |
| 35/6                                  | 50    | 16       | 325R616  | 14    | 8    | 71.0         | 9.0 | 5.5  | 0.714               | 2.450  | 4                    |
|                                       | 50    | 25       | 325R625  | 14    | 10   | 71.0         | 9.0 | 7.0  | 0.892               | 2.600  | 4                    |
|                                       | 50    | 35       | 325R635  | 14    | 12   | 71.0         | 9.0 | 8.2  | 1.624               | 3.250  | 4                    |
|                                       | 70    | 16       | 326R16   | 16    | 8    | 71.5         | 9.8 | 5.5  | 0.714               | 2.850  | 4                    |
| 50                                    | 70    | 25       | 326R25   | 16    | 10   | 71.5         | 9.8 | 7.0  | 0.892               | 3.200  | 4                    |
|                                       | 70    | 35       | 326R35   | 71.5  | 9.8  | 8.2          | 16  | 12   | 1.624               | 3.800  | 4                    |
|                                       | 70    | 50       | 326R50   | 77.5  | 9.8  | 10.0         | 16  | 14   | 2.362               | 4.550  | 4                    |
|                                       | 95    | 16       | 327R16   | 79.0  | 11.2 | 5.5          | 18  | 8    | 0.714               | 4.100  | 4                    |
| 70                                    | 95    | 25       | 327R25   | 79.0  | 11.2 | 7.0          | 18  | 10   | 0.892               | 3.950  | 4                    |
|                                       | 95    | 35       | 327R35   | 79.0  | 11.2 | 8.2          | 18  | 12   | 1.624               | 4.900  | 4                    |
|                                       | 95    | 50       | 327R50   | 85.0  | 11.2 | 10.0         | 18  | 14   | 2.362               | 5.700  | 4                    |
|                                       | 95    | 70       | 327R70   | 86.0  | 11.2 | 11.5         | 18  | 16   | 2.921               | 7.250  | 4                    |
|                                       | 95    | 95       | 327R95   | 95.0  | 11.2 | 13.5         | 18  | 18   | 4.957               | 9.360  | 4                    |
|                                       | 95    | 120      | 327R120  | 99.0  | 11.2 | 15.5         | 18  | 20   | 5.640               | 10.540 | 4                    |
|                                       | 120   | 16       | 328R16   | 79.0  | 13.2 | 5.5          | 22  | 8    | 0.714               | 6.150  | 4                    |
|                                       | 120   | 25       | 328R25   | 79.0  | 13.2 | 7.0          | 22  | 10   | 0.892               | 6.300  | 4                    |
| 95                                    | 120   | 35       | 328R35   | 79.0  | 13.2 | 8.2          | 22  | 12   | 1.519               | 6.800  | 4                    |
|                                       | 120   | 50       | 328R50   | 85.0  | 13.2 | 10.0         | 22  | 14   | 2.362               | 8.050  | 4                    |
|                                       | 120   | 70       | 328R70   | 87.0  | 13.2 | 11.5         | 22  | 16   | 3.105               | 8.200  | 4                    |
|                                       | 120   | 95       | 328R95   | 95.0  | 13.2 | 13.5         | 22  | 18   | 4.957               | 10.350 | 4                    |
|                                       | 120   | 120      | 328R120  | 95.0  | 13.2 | 15.5         | 22  | 20   | 5.640               | 11.550 | 4                    |
|                                       | 150   | 35       | 329R35   | 81.0  | 14.7 | 8.2          | 22  | 12   | 1.519               | 7.600  | 4                    |
| 120                                   | 150   | 50       | 329R50   | 87.0  | 14.7 | 10.0         | 22  | 14   | 2.362               | 7.900  | 4                    |
|                                       | 150   | 70       | 329R70   | 89.0  | 14.7 | 11.5         | 22  | 16   | 3.105               | 8.500  | 4                    |
|                                       | 150   | 95       | 329R95   | 97.0  | 14.7 | 13.5         | 22  | 18   | 4.857               | 11.000 | 4                    |
|                                       | 150   | 120      | 329R120  | 97.0  | 14.7 | 15.5         | 22  | 20   | 5.640               | 10.280 | 4                    |
| 150                                   | 185   | 16       | 330R16   | 91.5  | 16.3 | 5.4          | 25  | 8    | 0.714               | 7.800  | 4                    |
|                                       | 185   | 25       | 330R25   | 91.5  | 16.3 | 6.8          | 25  | 10   | 0.892               | 8.000  | 4                    |
|                                       | 185   | 35       | 330R35   | 91.5  | 16.3 | 8.2          | 25  | 12   | 1.624               | 8.400  | 4                    |
|                                       | 185   | 50       | 330R50   | 98.5  | 16.3 | 10.0         | 25  | 14   | 2.362               | 10.200 | 4                    |
|                                       | 185   | 70       | 330R70   | 99.5  | 16.3 | 11.5         | 25  | 16   | 3.105               | 10.350 | 4                    |
|                                       | 185   | 95       | 330R95   | 107.5 | 16.3 | 13.5         | 25  | 18   | 4.957               | 12.650 | 4                    |
|                                       | 185   | 120      | 330R120  | 107.5 | 16.3 | 15.5         | 25  | 20   | 5.640               | 13.900 | 4                    |
|                                       | 185   | 150      | 330R150  | 124.0 | 16.3 | 17.0         | 25  | 22   | 8.231               | 16.700 | 4                    |
| 185                                   | 240   | 50       | 331R50   | 99.0  | 18.3 | 10.0         | 28  | 14   | 2.362               | 12.100 | 1                    |
|                                       | 240   | 70       | 331R70   | 100.0 | 18.3 | 11.5         | 28  | 16   | 3.105               | 13.000 | 1                    |
|                                       | 240   | 95       | 331R95   | 108.0 | 18.3 | 13.5         | 28  | 18   | 4.957               | 14.450 | 1                    |
|                                       | 240   | 120      | 331R120  | 108.0 | 18.3 | 15.5         | 28  | 20   | 5.640               | 13.720 | 1                    |
|                                       | 240   | 150      | 331R150  | 113.0 | 18.3 | 17.0         | 28  | 22   | 8.231               | 19.550 | 1                    |
|                                       | 240   | 185      | 331R185  | 116.0 | 18.3 | 19.0         | 28  | 25   | 9.621               | 21.000 | 1                    |
| 240                                   | 300   | 50       | 332R50   | 110.0 | 21.0 | 10.0         | 32  | 14   | 2.362               | 16.500 | 1                    |
|                                       | 300   | 70       | 332R70   | 111.0 | 21.0 | 11.5         | 32  | 16   | 3.105               | 18.000 | 1                    |
|                                       | 300   | 95       | 332R95   | 119.0 | 21.0 | 13.5         | 32  | 18   | 4.957               | 19.000 | 1                    |
|                                       | 300   | 120      | 332R120  | 119.0 | 21.0 | 15.5         | 32  | 20   | 5.640               | 20.500 | 1                    |
|                                       | 300   | 150      | 332R150  | 124.0 | 21.0 | 17.0         | 32  | 22   | 8.231               | 23.300 | 1                    |
|                                       | 300   | 185      | 332R185  | 127.0 | 21.0 | 19.0         | 32  | 25   | 9.621               | 25.500 | 1                    |
|                                       | 300   | 240      | 332R240  | 128.0 | 21.0 | 21.5         | 32  | 28   | 12.705              | 30.100 | 1                    |

## Compression joints, Al/Cu

| Nominal cross section mm <sup>2</sup> |       |          | Code     |       | Dimension mm |      |    |    | Weight 100 pcs. ~kg |        | Packing unit/ pcs |
|---------------------------------------|-------|----------|----------|-------|--------------|------|----|----|---------------------|--------|-------------------|
| Al rm/sm                              | Al se | Cu rm/sm | Part No. | Al    | Cu           | l    | Al | Cu | Cu                  | Total  |                   |
| 300                                   | --    | 120      | 333R120  | 119.0 | 23.5         | 15.5 | 34 | 20 | 5.640               | 27.800 | 1                 |
|                                       | --    | 150      | 333R150  | 124.0 | 23.5         | 17.0 | 34 | 22 | 8.234               | 31.100 | 1                 |
|                                       | --    | 185      | 333R185  | 127.0 | 23.5         | 19.0 | 34 | 25 | 9.621               | 32.700 | 1                 |
|                                       | --    | 240      | 333R240  | 128.0 | 23.5         | 21.5 | 34 | 28 | 12.705              | 37.500 | 1                 |
|                                       | --    | 300      | 333R300  | 134.0 | 23.5         | 24.5 | 34 | 32 | 16.099              | 41.700 | 1                 |

► sm/se = conductor needs to be pre-rounded

► sm = sector stranded

► rm = round multi-stranded

► se = sector solid

① Use for the copper side of the article DIN sleeve for compacted conductors.

② Sleeves for compacted conductors and sleeves for 3- and 4-core conductors see chapter "Sleeves for compacted and sector shaped conductors-Cu"

③ Reduction sleeves to connect different cross sections can be found at 83

► Tools: see chart page 130

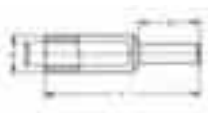
## Compression joints with copper connecting bolt, Al



► Tube dimensions to DIN 46267 part 1 and 2

► For non-tension connections of Al cables to DIN 48201, part 5 and aluminum cables to DIN EN 50182

► With code number for clear tool assignment



## Characteristics

- Total cross-section: 25 - 300 mm<sup>2</sup>
- For screwing non-tension Al connections in Cu clamps
- With crimp markings for correct crimping
- Also for pre-rounded sector shaped conductors
- Precise end machining for easy cable insertion

## Material

- E-Al
- Copper acc. to EN 13600

## Surface

- Bright finished

| Nominal cross section mm <sup>2</sup> |     |          | Code | Bolt dia. mm | Conductor dia. mm | Dimension mm |      |     |    | Weight 100 pcs. ~kg |       | Packing unit/ pcs |
|---------------------------------------|-----|----------|------|--------------|-------------------|--------------|------|-----|----|---------------------|-------|-------------------|
| rm/sm                                 | se  | Part No. |      |              |                   | d dia.       | d1   | l   | l1 | Cu                  | Total |                   |
| 25                                    | 35  | 344R     | 12   | 6            | 6.3               | 12.0         | 6.8  | 58  | 20 | 0.462               | 1.6   | 10                |
| 35                                    | 50  | 345R     | 14   | 7            | 7.5               | 14.0         | 8.0  | 71  | 22 | 0.695               | 2.5   | 10                |
| 50                                    | 70  | 346R     | 16   | 8            | 9.0               | 16.0         | 10.0 | 74  | 25 | 1.037               | 3.3   | 10                |
| 70                                    | 95  | 347R     | 18   | 10           | 10.5              | 18.5         | 11.5 | 87  | 30 | 1.958               | 5.4   | 10                |
| 95                                    | 120 | 348R     | 22   | 12           | 12.5              | 23.0         | 13.2 | 91  | 33 | 3.112               | 8.7   | 10                |
| 120                                   | 150 | 349R     | 22   | 12           | 14.0              | 23.0         | 15.0 | 97  | 38 | 3.598               | 9.0   | 10                |
| 150                                   | 185 | 350R     | 25   | 12           | 15.8              | 25.5         | 16.5 | 108 | 38 | 3.598               | 10.9  | 10                |
| 185                                   | 240 | 351R     | 28   | 14           | 17.5              | 28.5         | 18.5 | 116 | 44 | 3.692               | 15.7  | 5                 |
| 240                                   | 300 | 352R     | 32   | 16           | 20.3              | 32.5         | 21.5 | 128 | 44 | 7.435               | 21.8  | 5                 |
| 300                                   | --  | 353R     | 34   | 18           | 22.5              | 34.5         | 23.5 | 131 | 46 | 9.410               | 26.7  | 1                 |

► sm/se = conductor needs to be pre-rounded

► sm = sector stranded

► rm = round multi-stranded

► se = sector solid

► Tools: see chart page 130

**Bi-metallic washer**

► Flat washer for processing aluminum and copper cable lugs

**Characteristics**

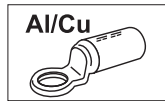
- Galvanic separation between copper and aluminum
- Only for use in dry areas

**Material**

- E-Al, one side copper plated



| Size of bolt dia. | Part No.      | Dimension mm |    |   | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|-------------------|---------------|--------------|----|---|-----------------------------|------------------|
|                   |               | d2           | d4 | s |                             |                  |
| M 8               | <b>CS818</b>  | 8.5          | 18 | 1 | 0.09                        | 10               |
| M 10              | <b>CS1022</b> | 11.0         | 22 | 2 | 0.26                        | 10               |
| M 12              | <b>CS1228</b> | 13.0         | 28 | 2 | 0.44                        | 10               |
| M 14              | <b>CS1428</b> | 15.0         | 28 | 2 | 0.40                        | 10               |
| M 16              | <b>CS1635</b> | 17.0         | 35 | 2 | 0.66                        | 10               |



## ■ Tool application chart

Compression cable lugs and connectors made from Al/Cu

| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 10-70                                                   | K354           |                        |                           | •                                                                                 |                               |                                |                            |                          | ⬡             | 260         |
|                                                         | EK354          |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 314         |
|                                                         | EK354L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 316         |
| 10-185                                                  | K18            |                        |                           | •                                                                                 |                               |                                |                            |                          | ⬡             | 262         |
|                                                         | HK6018         |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 286         |
|                                                         | EK5018L        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 320         |
|                                                         | PK18           |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 362         |
|                                                         | THK18          |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 362         |
|                                                         | HK60UNV        | + UA18                 |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 354         |
|                                                         | EK60UNVL       | + UA18                 |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 357         |
|                                                         | EKM60UNVL      | + UA18                 |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 356         |
|                                                         | PK60UNV        | + UA18                 |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 355         |
| 10-240                                                  | K22            |                        |                           | •                                                                                 |                               |                                |                            |                          | ⬡             | 264         |
|                                                         | HK6022         |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 288         |
|                                                         | EK6022L        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 324         |
|                                                         | EKM6022L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 322         |
|                                                         | PK22           |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 364         |
|                                                         | THK22          |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 364         |
|                                                         | HK60UNV        | + UA22                 |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 354         |
|                                                         | EK60UNVL       | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 357         |
|                                                         | EKM60UNVL      | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 356         |
|                                                         | PK60UNV        | + UA22                 |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 355         |
|                                                         | HK12030        |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 292         |
|                                                         | HK12042        |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 294         |
|                                                         | HK120U         |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 296         |
|                                                         | EK12030L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 330         |
|                                                         | EK12042L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 332         |
|                                                         | EK120UL        |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 334         |
|                                                         | EK120UNVL      |                        |                           |                                                                                   |                               | •                              |                            |                          | ⬡             | 358         |
|                                                         | HK122EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 390         |
|                                                         | PK12042        |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 368         |
|                                                         | PK120U         |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 370         |
| 10-500                                                  | HK252          |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 388         |
|                                                         | HK252EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ⬡             | 391         |
|                                                         | PK252          |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 372         |
| 150-500                                                 | HK45           |                        |                           |                                                                                   | •                             |                                |                            |                          | ⬡             | 389         |
|                                                         | PK45           |                        |                           |                                                                                   |                               |                                |                            | •                        | ⬡             | 374         |



## **Simply branch** *and connect.*

### **Clamps and screw connectors.**

C and H-shaped clamps as well as parallel groove clamps are used wherever power lines are branched. Screw connectors are a practical alternative for service and maintenance since they can be used across the entire cross-section spectrum. Just a few variants cover all possible connections. Screw connectors can be used on aluminum cables without compound as the special grooved profile pierces the oxide layer during the screwing operation.

The key benefit of compact tap connectors is that, provided the specified safety precautions are taken, they can also be installed while live.



*The H-clamps in our range are lightning current tested to EN 50164-1 Class H (100 kA 10/350  $\mu$ s).*

- C and H-shaped clamps.
- Parallel groove clamps.
- Screw connectors, also barrier types, for aluminum/copper connections.
- Compact tap connectors for 3 and 4 core sector-shaped cables.



## ■ Branching without splitting the conductor.

- ▶ C and H-shaped clamps with nominal cross sections from 2.5 mm<sup>2</sup> to 185 mm<sup>2</sup>.
- ▶ Parallel groove clamps from 2.5 mm<sup>2</sup> to 150 mm<sup>2</sup>.
- ▶ Either with or without thrust plate.

### Benefits:

- ▶ **Cables can be branched into various nominal cross-sections without having to cut the main conductor.**
- ▶ Thrust plates on parallel groove clamps guarantee optimal hold of the branch connection as pressure is being distributed symmetrically.
- ▶ *More from Page 137.*



## ■ Simply screw – and the connection is made.



- ▶ For aluminum and copper conductors.
- ▶ With nominal cross sections from 2.5 mm<sup>2</sup> to 185 mm<sup>2</sup>.
- ▶ With or without shear heads.
- ▶ Special grooved profile on the inside.

### Benefits:

- ▶ Suitable screw connectors for diverse applications such as street lighting or using copper sheathed wires and plastic-insulated conductors.
- ▶ No torque wrench required **to install screw connectors with shear heads**, since the screw shears off on reaching the required torque.
- ▶ During screwing the grooved profile pierces the oxide layer on the conductor guaranteeing always a perfect contact.

▶ *More from Page 141.*

## ■ Installation without downtimes.

- ▶ Compact tap connectors with nominal cross sections up to 185 mm<sup>2</sup>.
- ▶ For 3 and 4 sector-shaped conductors with angles of 120° and 90° respectively.
- ▶ For aluminum and copper conductors.
- ▶ With or without shear heads for the main conductor.
- ▶ Can be installed live to VDE specifications using the correct Klauke tools (more from Page 476).



▶ *More from Page 147.*

### Benefits:

- ▶ The range includes proper solutions for practically every application.
- ▶ You can install tap conductors **without disconnecting the power supply**. No interruption of production sequences, operation can be maintained.
- ▶ Multi-phase tap conductors can be installed without disrupting the main conductor, even in tight spaces.



▶ *Screw connectors and compact tap connectors should be protected against moisture because of varying material properties after processing.*

## Punched cable lugs, Cu



► For screwing conductors to VDE 0295 Class 1 and 2, for example in lightning protection areas

## Characteristics

- Total cross-section: 6 - 300 mm<sup>2</sup>
- Also for outdoor assembly
- Available with 2 or 4 screws

## Material

- Cu-ETP
- Screws: DIN 84 / DIN 933 bronze, F 60

## Surface

- Tin-plated

## Order info

- Bright finish version also available, part number appendix "bk"

| Nominal cross section mm <sup>2</sup> | Part No. | b    | b1   | d2   | k  | h  | l    | Number of screws | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|----------|------|------|------|----|----|------|------------------|-----------------------|-------------------|
| 6 - 10                                | 572R6    | 15.0 | 18.0 | 6.5  | M4 | 10 | 23.0 | 2                | 1.30                  | 50                |
| 10 - 16                               | 573R6    | 15.0 | 20.5 | 6.5  | M5 | 14 | 27.0 | 2                | 1.30                  | 50                |
|                                       | 573R8    | 15.0 | 20.5 | 8.5  | M5 | 14 | 27.0 | 2                | 1.30                  | 50                |
| 16 - 25                               | 574R8    | 15.0 | 25.0 | 8.5  | M5 | 16 | 30.0 | 2                | 2.75                  | 50                |
|                                       | 584R8    | 18.5 | 22.5 | 8.5  | M5 | 16 | 36.0 | 4                | 3.70                  | 25                |
|                                       | 584R10   | 19.5 | 22.5 | 10.5 | M5 | 16 | 37.0 | 4                | 3.75                  | 25                |
| 25 - 35                               | 575R8    | 18.5 | 24.0 | 8.5  | M5 | 16 | 25.5 | 2                | 2.50                  | 50                |
|                                       | 585R8    | 18.5 | 24.0 | 8.5  | M5 | 16 | 38.5 | 4                | 4.30                  | 25                |
|                                       | 585R10   | 21.5 | 24.0 | 10.5 | M5 | 16 | 42.0 | 4                | 4.65                  | 25                |
|                                       | 585R12   | 21.5 | 24.0 | 13.0 | M5 | 16 | 42.0 | 4                | 4.50                  | 25                |
| 35 - 50                               | 586R10   | 19.0 | 28.0 | 10.5 | M6 | 19 | 46.0 | 4                | 6.75                  | 25                |
|                                       | 586R12   | 21.0 | 28.0 | 13.0 | M6 | 19 | 47.0 | 4                | 6.70                  | 25                |
| 50 - 70                               | 587R10   | 23.5 | 31.0 | 10.5 | M6 | 19 | 51.0 | 4                | 9.35                  | 10                |
|                                       | 587R12   | 23.5 | 31.0 | 13.0 | M6 | 19 | 51.0 | 4                | 9.30                  | 10                |
| 70 - 95                               | 588R10   | 24.0 | 34.0 | 10.5 | M6 | 25 | 57.0 | 4                | 12.00                 | 10                |
|                                       | 588R12   | 24.0 | 34.0 | 13.0 | M6 | 25 | 57.0 | 4                | 11.85                 | 10                |
|                                       | 589R10   | 30.0 | 42.0 | 10.5 | M8 | 32 | 61.0 | 4                | 20.15                 | 10                |
| 95 - 150                              | 589R12   | 30.0 | 42.0 | 13.0 | M8 | 32 | 61.0 | 4                | 20.20                 | 10                |
|                                       | 589R16   | 30.0 | 42.0 | 17.0 | M8 | 32 | 61.5 | 4                | 20.10                 | 10                |
|                                       | 590R10   | 34.0 | 48.5 | 10.5 | M8 | 32 | 68.5 | 4                | 24.40                 | 5                 |
| 150 - 240                             | 590R12   | 34.0 | 48.5 | 13.0 | M8 | 32 | 68.5 | 4                | 24.35                 | 5                 |
|                                       | 590R16   | 34.0 | 48.5 | 17.0 | M8 | 32 | 68.5 | 4                | 24.30                 | 5                 |
|                                       | 590R20   | 36.0 | 48.5 | 21.0 | M8 | 32 | 70.5 | 4                | 24.25                 | 5                 |
|                                       | 592R12   | 32.0 | 50.0 | 13.0 | M8 | 37 | 68.5 | 4                | 27.95                 | 5                 |
| 185 - 300                             | 592R16   | 32.0 | 50.0 | 17.0 | M8 | 37 | 68.5 | 4                | 28.00                 | 5                 |
|                                       | 592R20   | 34.5 | 50.5 | 21.0 | M8 | 37 | 70.0 | 4                | 27.95                 | 5                 |



**Tube screw connectors, CuZn**
**Characteristics**

- Total cross-section: 6 - 300 mm<sup>2</sup>
- A connection needs to be soldered
- With soldering hole and fixing screws for easy processing

**Material**

- CuZn 40 Pb 2
- Screws: DIN 551 steel

**Surface**

- Tin-plated



| Nominal cross section<br>mm <sup>2</sup> | Part No. | Dimension mm |    |        |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|----------|--------------|----|--------|----|-----------------------------|------------------|
|                                          |          | d1           | l  | dia. q | z* |                             |                  |
| 6                                        | 551R     | 3.5          | 25 | 3.3    | 2  | 0.60                        | 10               |
| 10                                       | 552R     | 4.5          | 30 | 3.3    | 2  | 1.20                        | 10               |
| 16                                       | 553R     | 5.5          | 40 | 4.2    | 4  | 1.90                        | 10               |
| 25                                       | 554R     | 7.0          | 45 | 4.2    | 4  | 2.85                        | 10               |
| 35                                       | 555R     | 8.5          | 45 | 5.0    | 4  | 3.00                        | 10               |
| 50                                       | 556R     | 10.0         | 48 | 5.0    | 4  | 4.00                        | 10               |
| 70                                       | 557R     | 12.0         | 52 | 6.8    | 4  | 6.30                        | 10               |
| 95                                       | 558R     | 13.5         | 55 | 6.8    | 4  | 8.05                        | 10               |
| 120                                      | 559R     | 15.0         | 60 | 6.8    | 4  | 9.90                        | 10               |
| 150                                      | 560R     | 17.0         | 64 | 6.8    | 4  | 11.80                       | 5                |
| 185                                      | 561R     | 19.0         | 70 | 6.8    | 10 | 14.30                       | 5                |
| 240                                      | 562R     | 21.0         | 70 | 6.8    | 10 | 15.50                       | 5                |
| 300                                      | 563R     | 24.0         | 75 | 6.8    | 10 | 19.30                       | 1                |

▷ z = number of set screws

## Screw T-connectors, CuZn



## Characteristics

- Total cross-section: 4 - 95 mm<sup>2</sup>
- A connection needs to be soldered
- With soldering hole and fixing screws for easy processing

## Material

- CuZn 40 Pb 2
- Screws: DIN 551 steel

## Surface

- Tin-plated



| Nominal cross section<br>mm <sup>2</sup> | Part No.     | Dimension mm |    |    |        |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|--------------|--------------|----|----|--------|----|-----------------------------|------------------|
|                                          |              | d1           | h  | l  | dia. q | z* |                             |                  |
| 4 - 6                                    | <b>TAS6</b>  | 3.0          | 18 | 30 | 2.5    | 3  | 1.05                        | 10               |
| 10                                       | <b>TAS10</b> | 4.5          | 25 | 40 | 3.5    | 3  | 2.15                        | 10               |
| 16                                       | <b>TAS16</b> | 5.5          | 27 | 42 | 3.5    | 6  | 2.50                        | 10               |
| 25                                       | <b>TAS25</b> | 7.0          | 29 | 45 | 4.5    | 6  | 3.70                        | 10               |
| 35                                       | <b>TAS35</b> | 8.5          | 32 | 52 | 4.5    | 6  | 4.30                        | 10               |
| 50                                       | <b>TAS50</b> | 10.0         | 34 | 56 | 6.0    | 9  | 7.40                        | 10               |
| 70                                       | <b>TAS70</b> | 12.0         | 41 | 62 | 6.5    | 9  | 9.80                        | 5                |
| 95                                       | <b>TAS95</b> | 13.5         | 44 | 68 | 7.0    | 9  | 12.80                       | 5                |

► z = number of set screws

## Parallel groove clamps, Cu, 1 screw

► For screwing conductors to VDE 0295 Class 1 and 2, for example in lightning protection areas



### Characteristics

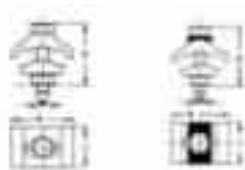
- Total cross-section: 2.5 - 95 mm<sup>2</sup>
- Also for outdoor assembly
- Version with 1 screw
- Available either with or without thrust plate
- With thrust plate for equal pressure distribution with differing cross-section pairings

### Material

- Cu-ETP
- Screws: high-tensile copper alloy F 60
- Nut: copper

### Surface

- Bright



| Nominal cross section<br>mm² |          | Dimension mm |    |    |     |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------|----------|--------------|----|----|-----|-------|-----------------------------|------------------|
|                              | Part No. | b            | h  | l  | M   | Md Nm |                             |                  |
| Without thrust plate         |          |              |    |    |     |       |                             |                  |
| 2.5 - 16                     | SAK10    | 19.5         | 16 | 16 | M5  | 6     | 2.10                        | 10               |
| 2.5 - 25                     | SAK12    | 25.0         | 21 | 18 | M6  | 8     | 4.10                        | 10               |
|                              | SAK14    | 25.0         | 22 | 20 | M7  | 14    | 3.95                        | 10               |
| 6 - 35                       | SAK16    | 28.0         | 23 | 20 | M7  | 14    | 6.0                         | 10               |
| 6 - 50                       | SAK18    | 32.5         | 26 | 24 | M7  | 14    | 8.0                         | 10               |
|                              | SAK20    | 33.5         | 27 | 22 | M8  | 20    | 8.6                         | 10               |
| 6 - 70                       | SAK22    | 37.5         | 29 | 24 | M8  | 20    | 11.1                        | 5                |
| 10 - 95                      | SAK24    | 41.0         | 36 | 28 | M8  | 20    | 15.6                        | 5                |
| With thrust plate            |          |              |    |    |     |       |                             |                  |
| 2.5 - 16                     | SAK11    | 19.5         | 16 | 16 | M5  | 6     | 2.6                         | 10               |
| 2.5 - 25                     | SAK13    | 25.0         | 21 | 18 | M6  | 8     | 4.30                        | 10               |
|                              | SAK15    | 25.0         | 22 | 18 | M7  | 14    | 4.6                         | 10               |
| 6 - 35                       | SAK17    | 28.0         | 23 | 20 | M7  | 14    | 6.3                         | 10               |
| 6 - 50                       | SAK19    | 32.5         | 26 | 20 | M7  | 14    | 7.9                         | 10               |
|                              | SAK21    | 33.5         | 27 | 22 | M8  | 20    | 9.1                         | 10               |
| 6 - 70                       | SAK23    | 37.5         | 29 | 24 | M8  | 20    | 11.6                        | 5                |
| 10 - 95                      | SAK25    | 45.0         | 36 | 31 | M10 | 39    | 19.60                       | 5                |

## Parallel groove clamps, Cu, 2 screws



► For screwing conductors to VDE 0295 Class 1 and 2, for example in lightning protection areas

**Characteristics**

- Total cross-section: 2.5 - 150 mm<sup>2</sup>
- Also for outdoor assembly
- Version with 2 screws
- Available either with or without thrust plate
- With thrust plate for equal pressure distribution with differing cross-section pairings

**Material**

- Cu-ETP
- Screws: high-tensile copper alloy F 60
- Nut: copper

**Surface**

- Bright finished

| Nominal cross section mm <sup>2</sup> | Part No. | Dimension mm |      |      |      | M   | Md Nm | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------------|------|------|------|-----|-------|-----------------------|------------------|
|                                       |          | b            | h    | l    | A    |     |       |                       |                  |
| Without thrust plate                  |          |              |      |      |      |     |       |                       |                  |
| 2.5 - 16                              | SAK30    | 20.5         | 16.0 | 24   | 13.0 | M5  | 6     | 3.7                   | 10               |
| 2.5 - 25                              | SAK32    | 25.5         | 21   | 27   | 13.5 | M6  | 8     | 6.4                   | 10               |
|                                       | SAK34    | 25.0         | 22   | 30   | 15.0 | M7  | 14    | 7.7                   | 10               |
| 6 - 35                                | SAK36    | 30.0         | 23   | 30   | 15   | M7  | 14    | 8.5                   | 10               |
| 6 - 50                                | SAK38    | 33.0         | 26   | 32   | 16.0 | M7  | 14    | 12.3                  | 10               |
| 10 - 50                               | SAK40    | 32.5         | 27   | 36   | 18.0 | M8  | 20    | 12.9                  | 10               |
| 10 - 95                               | SAK44    | 45.0         | 36   | 46   | 25.5 | M10 | 39    | 28.7                  | 5                |
| 16 - 150                              | SAK46    | 52.5         | 40   | 52   | 26.0 | M10 | 39    | 37.4                  | 5                |
| With thrust plate                     |          |              |      |      |      |     |       |                       |                  |
| 2.5 - 16                              | SAK31    | 19.5         | 16   | 24   | 13.0 | M5  | 6     | 4.1                   | 10               |
| 2.5 - 25                              | SAK33    | 25.5         | 21   | 27   | 14.0 | M6  | 8     | 7.0                   | 10               |
|                                       | SAK35    | 25.0         | 22   | 30   | 15.0 | M7  | 14    | 7.9                   | 10               |
| 6 - 35                                | SAK37    | 28.0         | 23   | 32   | 16.0 | M7  | 14    | 10.2                  | 10               |
| 6 - 50                                | SAK39    | 33.0         | 26   | 32   | 17.0 | M7  | 14    | 12.8                  | 10               |
| 10 - 50                               | SAK41    | 32.5         | 27   | 34.5 | 18.0 | M8  | 20    | 14.7                  | 10               |
| 6 - 70                                | SAK43    | 37.0         | 29   | 38.5 | 19.0 | M8  | 20    | 19.1                  | 5                |
| 10 - 95                               | SAK45    | 41.0         | 36   | 43   | 20.0 | M8  | 20    | 25.0                  | 5                |
| 16 - 150                              | SAK47    | 52.5         | 40   | 52   | 26.0 | M10 | 39    | 39.0                  | 5                |

## C-Clamps, Cu

- ▶ Ideal for clamping identical conductor cross-sections e.g. to VDE 0295 classes 1 and 2
- ▶ The split of the main conductor is omitted



### Characteristics

- Total cross-section: 16 - 95 mm<sup>2</sup>
- Optimum conducting characteristics in combination with compound

### Material

- Cu-ETP

### Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

### Order info

- Bright finish version also available, part number appendix "bk"

| Part No.    | Conductor size mm <sup>2</sup> /re |          | Dimension mm |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|-------------|------------------------------------|----------|--------------|----|-----------------------------|------------------|
|             | Main Conductor                     | Junction | b            | l  |                             |                  |
| <b>CK16</b> | 16/25                              | 16/25    | 16.0         | 15 | 0.94                        | 25               |
| <b>CK25</b> | 25/35                              | 25/35    | 20.0         | 16 | 1.68                        | 25               |
| <b>CK35</b> | 35/50                              | 35/50    | 25.7         | 22 | 3.42                        | 25               |
| <b>CK50</b> | 50/-                               | 50/-     | 28.0         | 23 | 4.88                        | 25               |
| <b>CK70</b> | 70/-                               | 70/-     | 34.0         | 28 | 9.69                        | 10               |
| <b>CK95</b> | 95/-                               | 95/-     | 35.0         | 28 | 7.30                        | 10               |

▶ mm = round multi-stranded

▶ re = round solid

▶ **Tools: see chart page 150**

- ▶ Ideal for clamping non-identical conductor cross-sections e.g. to VDE 0295 classes 1 and 2
- ▶ The split of the main conductor is omitted



### Characteristics

- Total cross-section: 2.5 - 185 mm<sup>2</sup>
- Optimum conducting characteristics in combination with compound

### Material

- Cu-ETP

### Surface

- Tin-plated to protect against corrosion

### Order info

- Bright finish version also available, part number appendix "bk"

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## C-Clamps, Cu, Multi purpose clamps

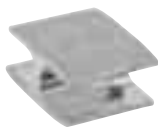
| Part No.  | Conductor size rm/re |                 | Dimension mm |    | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|-----------|----------------------|-----------------|--------------|----|-----------------------------|------------------|
|           | Main conductor       | Junction        | b            | l  |                             |                  |
| MCK5050   | 35/50                | 16 - 35/25 - 50 | 26.5         | 23 | 4.200                       | 25               |
| MCK3570   | 50 - 70/-            | 4 - 35/4 - 35   | 33.8         | 28 | 10.700                      | 10               |
| MCK3595   | 95/-                 | 16 - 35         | 41.0         | 30 | 15.000                      | 10               |
| MCK7095   | 95/-                 | 35 - 70         | 41.0         | 30 | 14.000                      | 10               |
| MCK120120 | 120/-                | 35 - 120        | 45.0         | 30 | 16.550                      | 10               |
| MCK150150 | 150/-                | 70 - 150        | 53.0         | 35 | 23.000                      | 5                |
| MCK185185 | 185/-                | 95 - 185        | 60.0         | 40 | 33.000                      | 5                |

► rm = round multi-stranded

► re = round solid

► Tools: see chart page 150

## H-Clamps, Cu



- Ideal for clamping identical conductor cross-sections e.g. to VDE 0295 class 2
- Acc. to EN 50164-1 lightning protection certified
- The split of the main conductor is omitted

## Characteristics

- Total cross-section: 70 - 120 mm²
- H-shape allows simple processing
- Optimum conducting characteristics in combination with compound

## Material

- Cu-ETP

## Surface

- Tin-plated to protect against corrosion

## Order info

- Bright finish version also available, part number appendix "bk"

| Part No. | Conductor size rm |          | Dimension mm |      | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|----------|-------------------|----------|--------------|------|-----------------------------|------------------|
|          | Main conductor    | Junction | b            | l    |                             |                  |
| AH7070*  | 70                | 70       | 17.0         | 28.0 | 6.5                         | 25               |
| AH9595   | 95                | 95       | 22.0         | 30.0 | 10.0                        | 25               |
| AH120120 | 120               | 120      | 24.0         | 25.0 | 9.8                         | 25               |

► rm = round multi-stranded

► \* = According to EN 50164-1 lightning protection certified

► Tools: see chart page 151

## Compound for clamps



- Optimum conductivity properties for processing aluminum cable lugs and connectors and clamps (C and H-type)

## Characteristics

- Water-resistant, with corundum for destroying the oxidation layer on contact surfaces
- Contents/can: 0.125 kg

Part No.

KF125

## Screw connectors for shielded copper wires

- ▶ Suitable cross-section range, for example shielded copper wires
- ▶ Ideal for connecting identical and different conductor cross-sections

### Characteristics

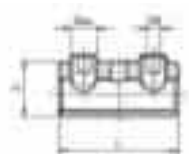
- Special grooved profile inside for removing the oxidation layer when screwing
- With inspection hole for monitoring cable entry

### Material

- Insulated body: brass (CuZn)
- Screws: stainless steel, tin-plated

### Surface

- Tin-plated



ⓘ Please observe instructions at "Technical appendix" on page i-9

## Screw connectors for street lighting

- ▶ Suitable cross-section range for street lighting
- ▶ Ideal for connecting identical and different conductor cross-sections

### Characteristics

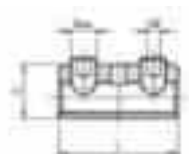
- Special grooved profile inside for removing the oxidation layer when screwing
- With inspection hole for monitoring cable entry

### Material

- Insulated body: brass (CuZn)
- Screws: stainless steel, tin-plated

### Surface

- Tin-plated, bright finished version available (part number appendix "BK")



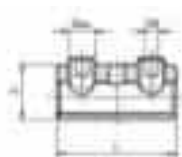
| Part No.       | Nominal cross section mm <sup>2</sup> |          | Dimension mm |    | Number of screws | bolt data |        | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|----------------|---------------------------------------|----------|--------------|----|------------------|-----------|--------|-----------------------------|----------------------|
|                | rm                                    | re       | D            | L  |                  | AF        | Thread |                             |                      |
| <b>SV200</b>   | 2.5 - 10                              | 2.5 - 16 | 10           | 30 | 2                | 2.5       | M5x1.5 | 1.35                        | 4                    |
| <b>SV200BK</b> | 2.5 - 10                              | 2.5 - 16 | 10           | 30 | 2                | 2.5       | M5x1.5 | 1.35                        | 4                    |

▶ rm = round multi-stranded

▶ re = round solid

ⓘ Please observe instructions at "Technical appendix" on page i-9

## Screw connector with 2 screws



- ▶ Ideal for connecting identical and different conductor cross-sections
- ▶ For connecting different conductor types and materials, e.g. to VDE 0295 Class 1 and 2 and Al conductors to DIN 48201 part 5
- ▶ With inspection hole for monitoring cable entry (dissimilar materials must not come into contact)

## Characteristics

- Total cross-section: 2.5 - 185 mm<sup>2</sup>
- Special grooved profile inside for removing the oxidation layer when screwing
- Either with or without shear head, shear head partly fixed
- Version with 2 screws

## Material

- Insulated body: high-tensile aluminum alloy
- Screws: copper alloy, tin-plated

## Surface

- Bright finished or tin-plated

## Order info

- \* = fixed version, part number appendix "NL"
- \*\* = Version with fixed countersink shear head, part number appendix "VK"

| Nominal cross section mm²           |             | Part No.   | Dimension mm |    | AF | bolt data |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|-------------------------------------|-------------|------------|--------------|----|----|-----------|-------|-----------------------------|----------------------|
| rm/sm                               | rm(v)/re/se |            | D            | L  |    | Thread    | Md Nm |                             |                      |
| Without shear head, bright finished |             |            |              |    |    |           |       |                             |                      |
| 6 - 25                              | 6 - 35      | SV303      | 14           | 40 | 4  | M8x1      | 8     | 1.5                         | 4                    |
| 6 - 35                              | 6 - 50      | SV300      | 16           | 40 | 4  | M10x2     | 8     | 1.7                         | 4                    |
| 16 - 95                             | 16 - 95     | SV301      | 25           | 55 | 5  | M12x16    | 20    | 6.6                         | 4                    |
| --                                  | 35 - 150    | SV308      | 28           | 70 | 6  | M18x1.5   | 25    | 11.3                        | 4                    |
| 35 - 185                            | 35 - 185    | SV302      | 32           | 80 | 6  | M18x1.5   | 25    | 16                          | 4                    |
| Without shear head, tin-plated      |             |            |              |    |    |           |       |                             |                      |
| 6 - 25                              | 6 - 35      | SV303V     | 14           | 40 | 4  | M8x1      | 8     | 1.5                         | 4                    |
| Cu 2.5/Al 6 - 35   Cu 2.5/Al 6 - 50 |             | SV300V     | 16           | 40 | 4  | M10x2     | 8     | 1.7                         | 4                    |
| 16 - 35                             | 16 - 50     | SV307V     | 22           | 57 | 5  | M10x1.5   | 15    | 4.7                         | 4                    |
| 16 - 95                             | 16 - 95     | SV301V     | 25           | 55 | 5  | M12x16    | 20    | 6.6                         | 4                    |
| 35 - 185                            | 35 - 185    | SV302V     | 32           | 80 | 6  | M18x1.5   | 25    | 16                          | 4                    |
| With shear head, bright finished    |             |            |              |    |    |           |       |                             |                      |
| 6 - 25                              | 6 - 35      | *SV303AK   | 14           | 40 | 4  | M8x1      | 8     | 1.5                         | 1                    |
| 6 - 35                              | --          | SV304AKNL  | 16           | 40 | 4  | M10x1     | 8     | 1.7                         | 4                    |
| 16 - 35                             | 16 - 50     | SV307AKNL  | 22           | 57 | 5  | M10x1.5   | 15    | 4.7                         | 4                    |
| 16 - 95                             | 16 - 95     | SV301AK    | 25           | 55 | 5  | M12x16    | 20    | 6.6                         | 4                    |
| 35 - 185                            | 35 - 185    | SV302AK    | 32           | 80 | 6  | M18x1.5   | 25    | 16                          | 4                    |
| With shear head, tin-plated         |             |            |              |    |    |           |       |                             |                      |
| Cu 2.5/Al 6 - 35   Cu 2.5/Al 6-50   |             | SV304AKNLV | 16           | 40 | 4  | M10x1     | 8     | 1.7                         | 4                    |
| 16 - 95                             | 16 - 95     | **SV301AKV | 55           | 55 | 5  | M12x16    | 20    | 6.6                         | 4                    |
| 35 - 185                            | 35 - 185    | SV302AKV   | 32           | 80 | 6  | M18x1.5   | 25    | 16                          | 4                    |

▶ sm/se - conductor needs to be pre-rounded

▶ rm = round multi-stranded

▶ rm (v) = round multi-stranded compacted

▶ sm = sector stranded

▶ re = round solid

▶ se = sector solid

ⓘ Please observe instructions at "Technical appendix" on page i-9



**Screw connectors with barrier**

- ▶ Ideal for connecting identical and different conductor cross-sections
- ▶ For connecting different conductor types and materials, e.g. to VDE 0295 Class 1 and 2 and Al conductors to DIN 48201 part 5

**Characteristics**

- Total cross-section: 2.5 - 185 mm<sup>2</sup>
- Special grooved profile inside for removing the oxidation layer when screwing
- Either with or without shear head, shear head partly fixed
- Version with 2 screws and barrier

**Material**

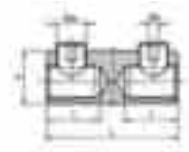
- Insulated body: high-tensile aluminum alloy
- Screws: copper alloy, tin-plated

**Surface**

- Bright finished or tin-plated

**Order info**

- \* = Version with fixed countersink shear head, part number appendix "VK"

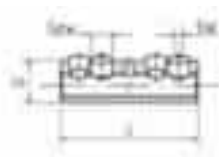


| Nominal cross section mm²           |                     | Part No.   | Dimension mm |      |    | AF | bolt data |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|-------------------------------------|---------------------|------------|--------------|------|----|----|-----------|-------|-----------------------------|----------------------|
| rm/sm                               | rm(v)/re/se         |            | D            | I    | L  |    | Thread    | Md Nm |                             |                      |
| Without shear head, bright finished |                     |            |              |      |    |    |           |       |                             |                      |
| 2.5 - 35                            | 2.5 - 50            | SV315      | 16           | 17.5 | 40 | 4  | M10x1     | 9     | 1.7                         | 4                    |
| 16 - 95                             | 16 - 95             | SV309      | 25           | 22   | 55 | 5  | M12x1     | 20    | 6.6                         | 4                    |
| --                                  | 35 - 150            | SV320      | 28           | 31   | 70 | 6  | M18x1.5   | 25    | 11.3                        | 4                    |
| 35 - 185                            | 35 - 185            | SV310      | 32           | 32   | 80 | 6  | M18x1.5   | 25    | 16                          | 4                    |
| Without shear head, tin-plated      |                     |            |              |      |    |    |           |       |                             |                      |
| Cu 2.5/ Al<br>6 - 35                | Cu 2.5/Al<br>6 - 50 | SV315V     | 16           | 17.5 | 40 | 4  | M10x1     | 9     | 1.7                         | 4                    |
| 16 - 95                             | 16 - 95             | SV309V     | 25           | 22   | 55 | 5  | M12x1     | 20    | 6.6                         | 4                    |
| --                                  | 35 - 150            | SV320V     | 28           | 31   | 70 | 6  | M18x1.5   | 25    | 11.3                        | 4                    |
| 35 - 185                            | 35 - 185            | SV310V     | 32           | 32   | 80 | 6  | M18x1.5   | 25    | 16                          | 4                    |
| With shear head, bright finished    |                     |            |              |      |    |    |           |       |                             |                      |
| 6 - 25                              | 6 - 35              | SV311AKNL  | 14           | 17.5 | 40 | 4  | M8x1      | 8     | 1.5                         | 4                    |
| 6 - 35                              | --                  | SV312AKNL  | 16           | 17.5 | 40 | 4  | M10x1     | 8     | 1.7                         | 4                    |
| 16 - 95                             | 16 - 95             | SV309AK    | 25           | 22   | 55 | 5  | M12x1     | 20    | 6.6                         | 4                    |
| 35 - 185                            | 35 - 185            | SV310AK    | 32           | 32   | 80 | 6  | M18x1.5   | 25    | 16                          | 4                    |
| With shear head, tin-plated         |                     |            |              |      |    |    |           |       |                             |                      |
| Cu 2.5/ Al<br>6-35                  | Cu 2.5/Al<br>6-50   | SV312AKNLV | 16           | 17.5 | 40 | 4  | M10x1     | 8     | 1.7                         | 4                    |
| 16 - 35                             | 16 - 50             | SV319AKNLV | 22           | 24   | 57 | 4  | M12x1     | 15    | 7.6                         | 4                    |
| 16 - 95                             | 16 - 95             | *SV309AKV  | 25           | 22   | 55 | 5  | M12x1     | 20    | 6.6                         | 4                    |
| 35 - 185                            | 35 - 185            | *SV310AKV  | 32           | 32   | 80 | 6  | M18x1.5   | 25    | 16                          | 4                    |

- ▶ sm/se - conductor needs to be pre-rounded
- ▶ rm = round multi-stranded
- ▶ rm (v) = round multi-stranded compacted
- ▶ sm = sector stranded
- ▶ re = round solid
- ▶ se = sector solid

⚠ Please observe instructions at "Technical appendix" on page i-9

## Screw connectors with 4 screws



- ▶ Ideal for connecting identical and different conductor cross-sections
- ▶ For connecting different conductor types and materials, e.g. to VDE 0295 Class 1 and 2 and Al conductors to DIN 48201 part 5
- ▶ With inspection hole for monitoring cable entry (dissimilar materials must not come into contact)

## Characteristics

- Total cross-section: 25 - 185 mm<sup>2</sup>
- Special grooved profile inside for removing the oxidation layer when screwing
- Either with or without shear head
- Version with 4 screws

## Material

- Insulated body: high-tensile aluminum alloy
- Screws: copper alloy, tin-plated

## Surface

- Bright finished or tin-plated

| Nominal cross section mm²           |             | Part No. | Dimension mm |     | AF | bolt data |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|-------------------------------------|-------------|----------|--------------|-----|----|-----------|-------|-----------------------------|------------------|
| rm/sm                               | rm(v)/re/se |          | D            | L   |    | Thread    | Md Nm |                             |                  |
| Without shear head, bright finished |             |          |              |     |    |           |       |                             |                  |
| 25 - 95                             | 25 - 95     | SV305    | 25           | 92  | 5  | M12x1     | 20    | 12                          | 4                |
| 35 - 185                            | 35 - 185    | SV306    | 32           | 108 | 6  | M18x1.5   | 25    | 25                          | 4                |
| Without shear head, tin-plated      |             |          |              |     |    |           |       |                             |                  |
| 25 - 95                             | 25 - 95     | SV305V   | 25           | 92  | 5  | M12x1     | 20    | 12                          | 4                |
| 35 - 185                            | 35 - 185    | SV306V   | 32           | 108 | 6  | M18x1.5   | 25    | 25                          | 4                |
| With shear head, bright finished    |             |          |              |     |    |           |       |                             |                  |
| 25 - 95                             | 25 - 95     | SV305AK  | 25           | 92  | 5  | M12x1     | 20    | 12                          | 4                |
| 35 - 185                            | 35 - 185    | SV306AK  | 32           | 108 | 6  | M18x1.5   | 25    | 25                          | 4                |
| With shear head, tin-plated         |             |          |              |     |    |           |       |                             |                  |
| 25 - 95                             | 25 - 95     | SV305AKV | 25           | 92  | 5  | M12x1     | 20    | 12                          | 4                |
| 35 - 185                            | 35 - 185    | SV306AKV | 32           | 108 | 6  | M18x1.5   | 25    | 25                          | 4                |

▶ sm/se - conductor needs to be pre-rounded

▶ rm = round multi-stranded

▶ rm (v) = round multi-stranded compacted

▶ sm = sector stranded

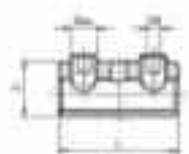
▶ re = round solid

▶ se = sector solid

🔧 Please observe instructions at "Technical appendix" on page i-9

## Insulated screw connectors

- ▶ Ideal for connecting identical and different conductor cross-sections
- ▶ For connecting different conductor types and materials, e.g. to VDE 0295 Class 1 and 2 and Al conductors to DIN 48201 part 5
- ▶ With inspection hole for monitoring cable entry (dissimilar materials must not come into contact)



### Characteristics

- Total cross-section: 6 - 185 mm²
- Special grooved profile inside for removing the oxidation layer when screwing
- Insulated body
- Version with 2 screws, without barrier
- Either with or without shear head

### Material

- Insulated body: high-tensile aluminum alloy
- Screws: copper alloy, tin-plated

### Surface

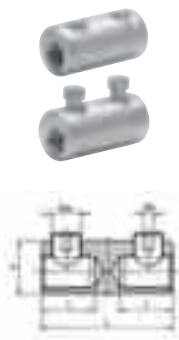
- Bright finished or tin-plated

| Nominal cross section mm²           |             | Part No. | Dimension mm |    | AF | bolt data |       | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|-------------------------------------|-------------|----------|--------------|----|----|-----------|-------|-----------------------------|------------------|
| rm/sm                               | rm(v)/re/se |          | D            | L  |    | Thread    | Md Nm |                             |                  |
| Without shear head, bright finished |             |          |              |    |    |           |       |                             |                  |
| 6 - 25                              | 6 - 35      | SV400    | 14           | 40 | 4  | M8x1      | 8     | 1.7                         | 4                |
| 25 - 95                             | 25 - 95     | SV410    | 25           | 55 | 5  | M12x1     | 20    | 6                           | 4                |
| 35 - 185                            | 35 - 185    | SV420    | 32           | 80 | 6  | M18x1.5   | 25    | 14.5                        | 4                |
| Without shear head, tin-plated      |             |          |              |    |    |           |       |                             |                  |
| 16 - 35                             | 16 - 50     | SV405V   | 22           | 57 | 5  | M10x1.5   | 15    | 5                           | 4                |
| 35 - 185                            | 35 - 185    | SV420V   | 32           | 80 | 6  | M18x1.5   | 25    | 14.5                        | 4                |
| With shear head, bright finished    |             |          |              |    |    |           |       |                             |                  |
| 25 - 95                             | 25 - 95     | SV410AK  | 25           | 55 | 5  | M12x1     | 20    | 6                           | 4                |
| 35 - 185                            | 35 - 185    | SV420AK  | 32           | 80 | 6  | M18x1.5   | 25    | 14.5                        | 4                |

- ▶ rm = round multi-stranded
- ▶ rm (v) = round multi-stranded compacted
- ▶ sm = sector stranded
- ▶ re = round solid
- ▶ se = sector solid
- ▶ sm/se - conductor needs to be pre-rounded

ⓘ Please observe instructions at "Technical appendix" on page i-9

## Insulated screw connectors with barrier



- ▶ Ideal for connecting identical and different conductor cross-sections
- ▶ For connecting different conductor types and materials, e.g. to VDE 0295 Class 1 and 2 and Al conductors to DIN 48201 part 5

**Characteristics**

- Total cross-section: 25 - 185 mm<sup>2</sup>
- Special grooved profile inside for removing the oxidation layer when screwing
- Insulated body
- Version with 2 screws
- Either with or without shear head

**Material**

- Insulated body: high-tensile aluminum alloy
- Screws: copper alloy, tin-plated

**Surface**

- Bright finished

**Order info**

- \*\* = Version with fixed countersink shear head, part number appendix "VK"

| Nominal cross section mm² |             | Part No.  | Dimension mm |    |    | AF | bolt data  |    | Md Nm | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|---------------------------|-------------|-----------|--------------|----|----|----|------------|----|-------|-----------------------------|----------------------|
| rm/sm                     | rm(v)/re/se |           | D            | I  | L  |    | Thread     |    |       |                             |                      |
| Without shear head        |             |           |              |    |    |    |            |    |       |                             |                      |
| 25 - 95                   | 25 - 95     | SV430     | 25           | 22 | 55 | 5  | M12x1      | 20 | 6.6   | 4                           |                      |
| 35 - 185                  | 35 - 185    | SV440     | 32           | 32 | 80 | 6  | M18x1.5    | 25 | 16.0  | 4                           |                      |
| With shear head           |             |           |              |    |    |    |            |    |       |                             |                      |
| 25 - 95                   | 25 - 95     | SV430AK   | 25           | 22 | 55 | 5  | M12x1      | 20 | 6.6   | 4                           |                      |
| 35 - 185                  | 35 - 185    | **SV440AK | 32           | 32 | 80 | 6  | M 18 x 1.5 | 25 | 16.0  | 4                           |                      |

- ▶ sm/se - conductor needs to be pre-rounded
- ▶ rm = round multi-stranded
- ▶ rm (v) = round multi-stranded compacted
- ▶ sm = sector stranded
- ▶ re = round solid
- ▶ se = sector solid

ⓘ Please observe instructions at "Technical appendix" on page i-9

## Compact tap connectors with shear head, for three conductor cable

- ▶ Suitable for main and branch conductors made from Al and Cu
- ▶ The split of the main conductor is omitted
- ▶ For use e.g. with energy suppliers

### Characteristics

- To VDE, can be installed under voltage with corresponding fully insulated assembly tools
- With shear heads for the main conductor, fixed



| Nominal cross section mm²<br>Main conductor |                     |          |                     | Tap conductor |                 | Part No.       | Clamp data<br>Dimension mm |    |       | Bolts       |    |               | Weight/<br>pcs. ~kg | Packing<br>unit/pcs |
|---------------------------------------------|---------------------|----------|---------------------|---------------|-----------------|----------------|----------------------------|----|-------|-------------|----|---------------|---------------------|---------------------|
| Cu rm/<br>sm                                | Cu rm(v) /<br>re/se | Al rm/sm | Al rm(v) /<br>re/se | rm/sm         | rm(v)/<br>re/se |                | la                         | lb | Width | Circle dia. | AF | Thread        |                     |                     |
| 70 - 150                                    | 70 - 150            | 70 - 150 | 70 - 150            | 6 - 70        | 6 - 95          | <b>KSK1503</b> | 84                         | 76 | 45    | 90          | 5  | M10x1/<br>M10 | 0.35                | 1                   |

- ▶ sm/se - conductor needs to be pre-rounded
- ▶ rm = round multi-stranded
- ▶ rm (v) = round multi-stranded compacted
- ▶ sm = sector stranded
- ▶ re = round solid
- ▶ se = sector solid

ⓘ Please observe instructions at the Technical Appendix" on page i-10 and the corresponding assembly tools on page 476

## Compact tap connectors with shear head, for four conductor cable



- ▶ Suitable for main and branch conductors made from Al and Cu
- ▶ The split of the main conductor is omitted
- ▶ For use e.g. with energy suppliers

## Characteristics

- To VDE, can be installed under voltage with corresponding fully insulated assembly tools
- With shear heads for the main conductor, fixed

| Nominal cross section mm <sup>2</sup><br>Main conductor |                     |          |                     | Tap conductor |                 | Part No.       | Clamp data<br>Dimension mm |    |       | Bolt data   |    |               | Weight/<br>pcs. ~kg | Packing<br>unit/pcs |
|---------------------------------------------------------|---------------------|----------|---------------------|---------------|-----------------|----------------|----------------------------|----|-------|-------------|----|---------------|---------------------|---------------------|
| Cu rm/sm                                                | Cu rm(v) /<br>re/se | Al rm/sm | Al rm(v) /<br>re/se | rm/sm         | rm(v)/<br>re/se |                | la                         | lb | Width | Circle dia. | AF | Thread        |                     |                     |
| 70 - 150                                                | 70 - 150            | 70 - 150 | 70 - 150            | 6 - 70        | 6 - 95          | <b>KSK1504</b> | 107                        | 90 | 46    | 110         | 5  | M10x1/<br>M10 | 0.63                | 1                   |
| 70 - 150                                                | 70 - 150            | 70 - 150 | 70 - 185            | 6 - 35        | 6 - 50          | <b>KSK1854</b> | 107                        | 90 | 52    | 106         | 5  | M10x1/<br>M10 | 0.58                | 1                   |

- ▶ sm/se - conductor needs to be pre-rounded
- ▶ rm = round multi-stranded
- ▶ rm (v) = round multi-stranded compacted
- ▶ sm = sector stranded
- ▶ re = round solid
- ▶ se = sector solid

🔧 Please observe instructions at the "Technical Appendix" on page i-10 and the corresponding assembly tools at page 476

Compact tap connector, for four conductor cable, for main conductor 25-50 mm<sup>2</sup> Cu rm/sm

- ▶ Suitable for main and branch conductors made from Al and Cu
- ▶ The split of the main conductor is omitted
- ▶ For use e.g. with energy suppliers

## Characteristics

- To VDE, can be installed under voltage with corresponding fully insulated assembly tools

| Nominal cross section mm <sup>2</sup><br>Main conductor |                     |          |                     | Tap conductor |                 | Part No.      | Dimension mm |    |       | Bolt data   |    |               | Weight/<br>pcs. ~kg | Packing<br>unit/pcs |
|---------------------------------------------------------|---------------------|----------|---------------------|---------------|-----------------|---------------|--------------|----|-------|-------------|----|---------------|---------------------|---------------------|
| Cu rm/sm                                                | Cu rm(v) /<br>re/se | Al rm/sm | Al rm(v) /<br>re/se | rm/sm         | rm(v)/<br>re/se |               | la           | lb | Width | Circle dia. | AF | Thread        |                     |                     |
| 25 - 50                                                 | 25 - 50             | 25 - 50  | 35 - 70             | 6 - 35        | 6 - 50          | <b>KSK504</b> | 88           | 75 | 50    | 91          | 5  | M10x1/<br>M10 | 0.46                | 1                   |

- ▶ sm/se - conductor needs to be pre-rounded
- ▶ rm = round multi-stranded
- ▶ rm (v) = round multi-stranded compacted
- ▶ sm = sector stranded
- ▶ re = round solid
- ▶ se = sector solid

🔧 Please observe instructions at the Technical Appendix" on page i-11 and the corresponding assembly tools on page 476

## Compact tap connectors, for three conductor cable

- ▶ Suitable for main and branch conductors made from Al and Cu
- ▶ The split of the main conductor is omitted
- ▶ For use e.g. with energy suppliers

### Characteristics

- To VDE, can be installed under voltage with corresponding fully insulated assembly tools



| Nominal cross section mm <sup>2</sup><br>Main conductor |                     |          |                     | Tap conductor |                 | Part No.       | Dimension mm |    |       | Bolt data   |    |               | Weight/<br>pcs. ~kg | Packing<br>unit/pcs |
|---------------------------------------------------------|---------------------|----------|---------------------|---------------|-----------------|----------------|--------------|----|-------|-------------|----|---------------|---------------------|---------------------|
| Cu rm/sm                                                | Cu rm(v) /<br>re/se | Al rm/sm | Al rm(v) /<br>re/se | rm/sm         | rm(v)/<br>re/se |                | la           | lb | Width | Circle dia. | AF | Thread        |                     |                     |
| 70 - 150                                                | 70 - 150            | 70 - 150 | 70 - 150            | 6 - 70        | 6 - 95          | <b>SKR1503</b> | 84           | 76 | 45    | 90          | 5  | M10x1/<br>M10 | 0.38                | 1                   |

- ▶ sm/se = conductor needs to be pre-rounded
- ▶ rm = round multi-stranded
- ▶ rm (v) = round multi-stranded compacted
- ▶ sm = sector stranded
- ▶ re = round solid

▶ se = sector solid

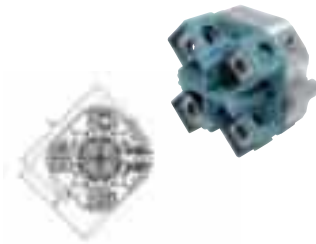
ⓘ Please observe instructions at the Technical Appendix\* on page i-10 and the corresponding assembly tools at page 476

## Compact tap connectors, for four conductor cables, for main conductor 70 - 150 mm<sup>2</sup> Cu rm/sm

- ▶ Suitable for main and branch conductors made from Al and Cu
- ▶ The split of the main conductor is omitted
- ▶ For use e.g. with energy suppliers

### Characteristics

- To VDE, can be installed under voltage with corresponding fully insulated assembly tools
- Suitable for main and branch conductors made from Al and Cu

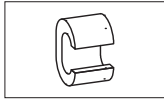


| Nominal cross section mm <sup>2</sup><br>Main conductor |                     |          |                     | Tap conductor |                 | Part No.          | Dimension mm |     |       | Bolt data   |    |               | Weight/<br>pcs. ~kg | Packing<br>unit/pcs |
|---------------------------------------------------------|---------------------|----------|---------------------|---------------|-----------------|-------------------|--------------|-----|-------|-------------|----|---------------|---------------------|---------------------|
| Cu rm/sm                                                | Cu rm(v) /<br>re/se | Al rm/sm | Al rm(v) /<br>re/se | rm/sm         | rm(v)/<br>re/se |                   | la           | lb  | Width | Circle dia. | AF | Thread        |                     |                     |
| 70 - 95                                                 | 70 - 95             | 70 - 95  | 70 - 120            | 6 - 35        | 6 - 50          | <b>SKR1204</b>    | 90           | 77  | 50    | 93          | 5  | M10x1/<br>M10 | 0.46                | 1                   |
| 70 - 120                                                | 70 - 120            | 70 - 120 | 70 - 150            | 6 - 35        | 6 - 50          | <b>SKR150504</b>  | 93           | 80  | 50    | 62          | 5  | M10x1/<br>M10 | 0.46                | 1                   |
| 70 - 120                                                | 70 - 120            | 70 - 150 | 70 - 150            | 6 - 70        | 6 - 95          | <b>SKR1504</b>    | 107          | 90  | 46    | 110         | 5  | M10x1/<br>M10 | 0.62                | 1                   |
| 95 - 150                                                | 95 - 150            | 95 - 150 | 95 - 150            | 16 - 120      | 16 - 150        | <b>SKR1501504</b> | 118          | 118 | 93    | 120         | 5  | M12x1/<br>M12 | 1.34                | 1                   |
| 95 - 150                                                | 95 - 150            | 95 - 150 | 95 - 185            | 6 - 70        | 6 - 95          | <b>SKR1854</b>    | 107          | 96  | 46    | 114         | 5  | M10x1/<br>M10 | 0.58                | 1                   |

- ▶ sm/se = conductor needs to be pre-rounded
- ▶ rm = round multi-stranded
- ▶ rm (v) = round multi-stranded compacted
- ▶ sm = sector stranded
- ▶ re = round solid

▶ se = sector solid

ⓘ Please observe instructions at the Technical Appendix\* on page i-10 and the corresponding assembly tools at page 476



## ■ Tool application chart

### C-Clamps

| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 4-35                                                    | K354           |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 260         |
|                                                         | EK354          |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 314         |
|                                                         | EK354L         |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 316         |
| 4-50                                                    | K18            |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 262         |
|                                                         | HK6018         |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 286         |
|                                                         | EK5018L        |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 320         |
|                                                         | PK18           |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 362         |
|                                                         | THK18          |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 362         |
|                                                         | HK60UNV        | + UA18                 |                           |                                                                                   | •                             |                                |                            |                          | ○             | 354         |
|                                                         | EK60UNVL       | + UA18                 |                           |                                                                                   |                               | •                              |                            |                          | ○             | 357         |
|                                                         | EKM60UNVL      | + UA18                 |                           |                                                                                   |                               | •                              |                            |                          | ○             | 356         |
|                                                         | PK60UNV        | + UA18                 |                           |                                                                                   |                               |                                |                            | •                        | ○             | 355         |
|                                                         | K22            |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 264         |
|                                                         | HK6022         |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 288         |
|                                                         | EK6022L        |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 324         |
|                                                         | EKM6022L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 322         |
|                                                         | PK22           |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 364         |
|                                                         | THK22          |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 364         |
|                                                         | HK60UNV        | + UA22                 |                           |                                                                                   | •                             |                                |                            |                          | ○             | 354         |
|                                                         | EK60UNVL       | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ○             | 357         |
|                                                         | EKM60UNVL      | + UA22                 |                           |                                                                                   |                               | •                              |                            |                          | ○             | 356         |
|                                                         | PK60UNV        | + UA22                 |                           |                                                                                   |                               |                                |                            | •                        | ○             | 355         |
| 10-70                                                   | HK12030        |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 292         |
|                                                         | HK12042        |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 294         |
|                                                         | HK120U         |                        |                           |                                                                                   | •                             |                                |                            |                          | ○             | 296         |
|                                                         | EK12030L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 330         |
|                                                         | EK12042L       |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 332         |
|                                                         | EK120UL        |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 334         |
|                                                         | EK120UNVL      |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 358         |
|                                                         | HK122EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 390         |
|                                                         | PK12042        |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 368         |
|                                                         | PK120U         |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 370         |
| 10-185                                                  | HK252          |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 388         |
|                                                         | HK252EL380     |                        |                           |                                                                                   |                               |                                | •                          |                          | ○             | 391         |
|                                                         | PK252          |                        |                           |                                                                                   |                               |                                |                            | •                        | ○             | 372         |




**■ Tool application chart**
**H-Clamps**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| <b>70</b>                                                           | K22            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | ○             | 264            |
|                                                                     | HK6022         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ○             | 288            |
|                                                                     | EK6022L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ○             | 324            |
|                                                                     | EKM6022L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ○             | 322            |
|                                                                     | EK60UNVL       | + UA22                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | ○             | 357            |
|                                                                     | THK22          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ○             | 364            |
|                                                                     | PK22           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ○             | 364            |
| <b>70-120</b>                                                       | HK12030        |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ○             | 292            |
|                                                                     | HK12042        |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ○             | 294            |
|                                                                     | HK120U         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | ○             | 296            |
|                                                                     | EK12030L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ○             | 330            |
|                                                                     | EK12042L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ○             | 332            |
|                                                                     | EK120UL        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ○             | 334            |
|                                                                     | EK120UNVL      |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | ○             | 358            |
|                                                                     | HK122EL380     |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ○             | 390            |
|                                                                     | PK12042        |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ○             | 368            |
|                                                                     | PK120U         |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ○             | 370            |
|                                                                     | HK252          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ○             | 388            |
|                                                                     | HK252EL380     |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | ○             | 391            |
|                                                                     | PK252          |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | ○             | 372            |

## *No more spliced conductors.*

### **Non-insulated and insulated cable end-sleeves.**

Crimped cable end-sleeves avoid splicing of individual wires of fine and superfine stranded copper conductors. In addition, cables can be inserted into connecting terminals much more easily, effective electrical connections in the terminals being guaranteed.

Cable end-sleeves are made from high quality electrolytic copper and are tin or silver-plated to prevent oxidation.



- Non-insulated cable end-sleeves to DIN 46228, Part 1.
- Insulated cable end-sleeves to DIN 46228, Part 4, with CSA testing.
- Insulated twin cable end sleeves for conductor loops.
- Insulated cable end-sleeves for short circuit-resistant conductors.



*The easy-entry insulation enables fast insertion of conductors with no splicing.*

## ■ *Non-insulated cable end-sleeves* in all sizes and lengths.

- ▶ With nominal cross sections from 0.25 mm<sup>2</sup> to 240 mm<sup>2</sup>.
- ▶ Also silver plated design.

### Benefits:

- ▶ Fine and superfine stranded conductors up to a nominal cross section of 240 mm<sup>2</sup> can be crimped to the standardized chamber dimension without splicing and within the DIN range.
- ▶ The silver plated design provides excellent conductivity and outstanding contact properties and are the ideal solution for applications in aggressive environments.
- ▶ Klauke crimping profiles, such as the special trapezoid crimp, enable crimping of thinned, compacted or fine stranded conductors.



## ■ *Polypropylene* makes the difference.



- ▶ Insulated cable end-sleeves with nominal cross-sections from 0.14 mm<sup>2</sup> to 150 mm<sup>2</sup>.
- ▶ Calibrated cable end-sleeves **can be used in fully-automated cable harness processing.**
- ▶ Designs to DIN 46228, Part 4, and two further colour codes.
- ▶ In different lengths.
- ▶ With easy-entry polypropylene insulation for continuous load to 105 °C.
- ▶ Halogen-free
- ▶ CSA-tested designs.
- ▶ With nominal cross-sections from 1.5 mm<sup>2</sup> to 16 mm<sup>2</sup> for short circuit-resistant conductors.

### Benefits:

- ▶ The conductors can be **connected to the clamps better and faster** after crimping.
- ▶ Calibrated precision.
- ▶ Easy-entry polypropylene insulation for simple conductor insertion.
- ▶ Halogen-free insulation prevents hydrochloric acid-containing vapours from developing in case of fire.
- ▶ Permanently safe installation with heat and age-resistant plastic collars.

## ■ *Simple, multiple* population.

- ▶ Twin cable end-sleeves with nominal cross sections from 0.25 mm<sup>2</sup> to 16 mm<sup>2</sup>.
- ▶ In different lengths.
- ▶ DIN colour code.
- ▶ Halogen-free polypropylene insulation.
- ▶ CSA-tested.

### Benefits:

- ▶ In tight areas, twin cable end-sleeves are often the only alternative for conductor loops.
- ▶ **The solution for multiple configuration of clamps.**



## Cable end-sleeves, acc. to DIN, copper



- For fine and superfine stranded conductors, e.g. VDE 0295 Class 5 and 6
- Burr-free, with expansion for easy cable insertion
- Crimped cable end-sleeves for easy mounting to cable clamps

**Characteristics**

- Total cross-section: 0.25 - 240 mm<sup>2</sup>
- Acc. to DIN 46228 part 1 and similar versions

**Material**

- Copper acc. to EN 13600

**Surface**

- Tin-plated

**Order info**

- Silver plated version also available, without part number appendix "V", exception: part number 705V silver plated = part number 7050

| Nominal cross section<br>mm <sup>2</sup> | Part No. | Dimension mm |     |    |      | Weight/<br>1000 pcs.~ kg | Packing unit/pcs |
|------------------------------------------|----------|--------------|-----|----|------|--------------------------|------------------|
|                                          |          | d1           | d2  | l  | s    |                          |                  |
| 0.25                                     | *695V    | 0.75         | 1.7 | 5  | 0.15 | 0.02                     | 1000             |
|                                          | *697V    | 0.75         | 1.7 | 7  | 0.15 | 0.03                     | 1000             |
| 0.34                                     | *705V    | 0.85         | 1.8 | 5  | 0.15 | 0.02                     | 1000             |
|                                          | *707V    | 0.85         | 1.8 | 7  | 0.15 | 0.03                     | 1000             |
| 0.5                                      | *71S6V   | 1.00         | 2.1 | 6  | 0.15 | 0.03                     | 1000             |
|                                          | *71S8V   | 1.00         | 2.1 | 8  | 0.15 | 0.04                     | 1000             |
|                                          | *71S10V  | 1.00         | 2.1 | 10 | 0.15 | 0.05                     | 1000             |
|                                          | *716V    | 1.20         | 2.3 | 6  | 0.15 | 0.04                     | 1000             |
| 0.75                                     | *718V    | 1.20         | 2.3 | 8  | 0.15 | 0.05                     | 1000             |
|                                          | *7110V   | 1.20         | 2.3 | 10 | 0.15 | 0.06                     | 1000             |
|                                          | *7112V   | 1.20         | 2.3 | 12 | 0.15 | 0.08                     | 1000             |
|                                          | *7115V   | 1.20         | 2.3 | 15 | 0.15 | 0.09                     | 1000             |
|                                          | *72S6V   | 1.40         | 2.5 | 6  | 0.15 | 0.04                     | 1000             |
| 1                                        | *72S8V   | 1.40         | 2.5 | 8  | 0.15 | 0.06                     | 1000             |
|                                          | *72S10V  | 1.40         | 2.5 | 10 | 0.15 | 0.07                     | 1000             |
|                                          | *72S12V  | 1.40         | 2.5 | 12 | 0.15 | 0.08                     | 1000             |
|                                          | *72S15V  | 1.40         | 2.5 | 15 | 0.15 | 0.10                     | 1000             |
|                                          | *726V    | 1.70         | 2.8 | 6  | 0.15 | 0.05                     | 1000             |
| 1.5                                      | *727V    | 1.70         | 2.8 | 7  | 0.15 | 0.06                     | 1000             |
|                                          | *728V    | 1.70         | 2.8 | 8  | 0.15 | 0.07                     | 1000             |
|                                          | *7210V   | 1.70         | 2.8 | 10 | 0.15 | 0.09                     | 1000             |
|                                          | *7212V   | 1.70         | 2.8 | 12 | 0.15 | 0.10                     | 1000             |
|                                          | *7215V   | 1.70         | 2.8 | 15 | 0.15 | 0.13                     | 1000             |
|                                          | *7218V   | 1.70         | 2.8 | 18 | 0.15 | 0.15                     | 1000             |
|                                          | *7220V   | 1.70         | 2.8 | 20 | 0.15 | 0.17                     | 1000             |
|                                          | *737V    | 2.20         | 3.4 | 7  | 0.15 | 0.08                     | 1000             |
| 2.5                                      | *738V    | 2.20         | 3.4 | 8  | 0.15 | 0.09                     | 1000             |
|                                          | *7310V   | 2.20         | 3.4 | 10 | 0.15 | 0.11                     | 1000             |
|                                          | *7312V   | 2.20         | 3.4 | 12 | 0.15 | 0.13                     | 1000             |
|                                          | *7315V   | 2.20         | 3.4 | 15 | 0.15 | 0.17                     | 1000             |
|                                          | *7318V   | 2.20         | 3.4 | 18 | 0.15 | 0.20                     | 1000             |
|                                          | *7320V   | 2.20         | 3.4 | 20 | 0.15 | 0.22                     | 1000             |

**Cable end-sleeves, acc. to DIN, Cu**

| Nominal cross section<br>mm² | Part No. | Dimension mm |      |    |      | Weight/<br>1000 pcs.~ kg | Packing unit/pcs |
|------------------------------|----------|--------------|------|----|------|--------------------------|------------------|
|                              |          | d1           | d2   | l  | s    |                          |                  |
| 4                            | *748V    | 2.80         | 4.0  | 8  | 0.20 | 0.14                     | 1000             |
|                              | 749V     | 2.80         | 4.0  | 9  | 0.20 | 0.16                     | 1000             |
|                              | *7410V   | 2.80         | 4.0  | 10 | 0.20 | 0.17                     | 1000             |
|                              | 7412V    | 2.80         | 4.0  | 12 | 0.20 | 0.20                     | 1000             |
|                              | 7415V    | 2.80         | 4.0  | 15 | 0.20 | 0.27                     | 1000             |
|                              | 7418V    | 2.80         | 4.0  | 18 | 0.20 | 0.32                     | 1000             |
|                              | *7420V   | 2.80         | 4.0  | 20 | 0.20 | 0.35                     | 1000             |
| 6                            | 7510V    | 3.50         | 4.7  | 10 | 0.20 | 0.23                     | 100              |
|                              | 7512V    | 3.50         | 4.7  | 12 | 0.20 | 0.27                     | 100              |
|                              | 7515V    | 3.50         | 4.7  | 15 | 0.20 | 0.34                     | 100              |
|                              | 7518V    | 3.50         | 4.7  | 18 | 0.20 | 0.40                     | 100              |
|                              | *7520V   | 3.50         | 4.7  | 20 | 0.20 | 0.45                     | 100              |
|                              | *7525V   | 3.50         | 4.7  | 25 | 0.20 | 0.56                     | 100              |
| 10                           | *7610V   | 4.5          | 5.8  | 10 | 0.2  | 0.27                     | 100              |
|                              | 7612V    | 4.5          | 5.8  | 12 | 0.2  | 0.33                     | 100              |
|                              | 7615V    | 4.5          | 5.8  | 15 | 0.2  | 0.41                     | 100              |
|                              | 7618V    | 4.5          | 5.8  | 18 | 0.2  | 0.49                     | 100              |
|                              | *7620V   | 4.5          | 5.8  | 20 | 0.2  | 0.55                     | 100              |
|                              | *7625V   | 4.5          | 5.8  | 25 | 0.2  | 0.68                     | 100              |
|                              | 7712V    | 5.8          | 7.5  | 12 | 0.2  | 0.43                     | 100              |
| 16                           | 7715V    | 5.8          | 7.5  | 15 | 0.2  | 0.53                     | 100              |
|                              | 7718V    | 5.8          | 7.5  | 18 | 0.2  | 0.60                     | 100              |
|                              | *7720V   | 5.8          | 7.5  | 20 | 0.2  | 0.70                     | 100              |
|                              | 7725V    | 5.8          | 7.5  | 25 | 0.2  | 0.87                     | 100              |
|                              | 7732V    | 5.8          | 7.5  | 32 | 0.2  | 1.11                     | 100              |
|                              | *7812V   | 7.3          | 9.5  | 12 | 0.2  | 0.80                     | 50               |
| 25                           | 7815V    | 7.3          | 9.5  | 15 | 0.2  | 0.99                     | 50               |
|                              | 7818V    | 7.3          | 9.5  | 18 | 0.2  | 1.18                     | 50               |
|                              | *7820V   | 7.3          | 9.5  | 20 | 0.2  | 1.31                     | 50               |
|                              | 7825V    | 7.3          | 9.5  | 25 | 0.2  | 1.63                     | 50               |
|                              | *7828V   | 7.3          | 9.5  | 28 | 0.2  | 1.82                     | 50               |
|                              | 7832V    | 7.3          | 9.5  | 32 | 0.2  | 2.07                     | 50               |
|                              | *7912V   | 8.3          | 11.0 | 12 | 0.2  | 0.90                     | 50               |
| 35                           | *7915V   | 8.3          | 11.0 | 15 | 0.2  | 1.12                     | 50               |
|                              | 7918V    | 8.3          | 11.0 | 18 | 0.2  | 1.34                     | 50               |
|                              | *7920V   | 8.3          | 11.0 | 20 | 0.2  | 1.48                     | 50               |
|                              | *7922V   | 8.3          | 11.0 | 22 | 0.2  | 1.63                     | 50               |
|                              | 7925V    | 8.3          | 11.0 | 25 | 0.2  | 1.80                     | 50               |
|                              | *7930V   | 8.3          | 11.0 | 30 | 0.2  | 2.20                     | 50               |
|                              | 7932V    | 8.3          | 11.0 | 32 | 0.2  | 2.35                     | 50               |
| 50                           | 8018V    | 10.5         | 13.0 | 18 | 0.3  | 1.69                     | 50               |
|                              | *8022V   | 10.5         | 13.0 | 22 | 0.3  | 2.05                     | 50               |
|                              | 8025V    | 10.5         | 13.0 | 25 | 0.3  | 2.32                     | 50               |
|                              | *8030V   | 10.5         | 13.0 | 30 | 0.3  | 2.77                     | 50               |
|                              | 8032V    | 10.5         | 13.0 | 32 | 0.3  | 2.95                     | 50               |
| 70                           | *8122V   | 12.7         | 15.0 | 22 | 0.4  | 3.31                     | 25               |
|                              | *8125V   | 12.7         | 15.0 | 25 | 0.4  | 3.75                     | 25               |
|                              | *8130V   | 12.7         | 15.0 | 30 | 0.4  | 4.48                     | 25               |
|                              | *8132V   | 12.7         | 15.0 | 32 | 0.4  | 4.78                     | 25               |



## Cable end-sleeves, acc. to DIN, Cu

| Nominal cross section<br>mm² | Part No. | Dimension mm |      |    |     | Weight/<br>1000 pcs.~ kg | Packing unit/pcs |
|------------------------------|----------|--------------|------|----|-----|--------------------------|------------------|
|                              |          | d1           | d2   | l  | s   |                          |                  |
| 95                           | *8225V   | 14.7         | 17.0 | 25 | 0.4 | 4.32                     | 25               |
|                              | *8230V   | 14.7         | 17.0 | 30 | 0.4 | 5.17                     | 25               |
|                              | *8232V   | 14.7         | 17.0 | 32 | 0.4 | 5.17                     | 25               |
|                              | *8234V   | 14.7         | 17.0 | 34 | 0.4 | 5.84                     | 25               |
| 120                          | *8330V   | 16.7         | 19.0 | 30 | 0.5 | 7.35                     | 25               |
|                              | *8332V   | 16.7         | 19.0 | 32 | 0.5 | 7.83                     | 25               |
|                              | *8334V   | 16.7         | 19.0 | 34 | 0.5 | 8.31                     | 25               |
|                              | *8338V   | 16.7         | 19.0 | 38 | 0.5 | 9.28                     | 25               |
| 150                          | *8340V   | 16.7         | 19.0 | 40 | 0.5 | 9.76                     | 25               |
|                              | *8432V   | 18.7         | 21.0 | 32 | 0.5 | 8.75                     | 25               |
|                              | *8434V   | 18.7         | 21.0 | 34 | 0.5 | 9.28                     | 25               |
|                              | *8438V   | 18.7         | 21.0 | 38 | 0.5 | 10.36                    | 25               |
| 185                          | *8440V   | 18.7         | 21.0 | 40 | 0.5 | 10.89                    | 25               |
|                              | *8532V   | 20.2         | 23.5 | 32 | 0.6 | 11.38                    | 25               |
|                              | *8540V   | 20.2         | 23.5 | 40 | 0.6 | 14.17                    | 25               |
| 240                          | *8634V   | 23.0         | 24.0 | 34 | 0.5 | 11.25                    | 25               |
|                              | *8640V   | 23.0         | 24.0 | 40 | 0.5 | 13.23                    | 25               |

► \* = not standardized

► Tools: see chart page 165

## Cable end -sleeves, acc. to DIN, brass



- For fine and superfine stranded conductors, e.g. VDE 0295 Class 5 and 6
- Crimped cable end-sleeves for splice-free mounting to cable clamps

## Characteristics

- Total cross-section: 0.5 - 2.5 mm²
- Acc. to DIN 46228, part 2

## Material

- Brass (CuZn)

## Surface

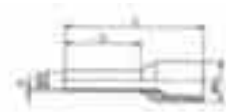
- Tin-plated to protect against corrosion

| Nominal cross section<br>mm² | Nominal size<br>to DIN | Part No. | Dimension mm |    |     |    |     | Weight/<br>1000 pcs.~ kg | Packing unit/pcs |
|------------------------------|------------------------|----------|--------------|----|-----|----|-----|--------------------------|------------------|
|                              |                        |          | a1           | l1 | l2  | l3 | s   |                          |                  |
| 0.5-1                        | B 1 - 7                | SH271    | 2.5          | 11 | 3.5 | 7  | 0.3 | 0.20                     | 100              |
| 1.5                          | B 1.5 - 7              | SH272    | 2.5          | 11 | 3.5 | 7  | 0.3 | 0.23                     | 100              |
| 2.5                          | B 2.5 - 7              | SH273    | 2.5          | 11 | 3.5 | 7  | 0.3 | 0.32                     | 100              |

► Tools: see chart page 167

**Insulated cable end-sleeves, acc. to DIN, Easy Entry**

- ▶ For fine and superfine stranded conductors
- ▶ Easy-Entry insulation for easy cable insertion
- ▶ Crimped cable end-sleeves for easy mounting to cable clamps


**Characteristics**

- Total cross-section: 0.5 - 150 mm<sup>2</sup>
- Colour-coding and tube dimension to DIN 46228, part 4 (0.5 - 50 mm<sup>2</sup>)
- Halide free
- Heat resistant to 105° C

**Material**

- Copper acc. to EN 13600
- Synthetic material: polypropylene

**Surface**

- Tin-plated to protect against corrosion

**Order info**

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |     |    |    |      | Weight/ 1000 pcs.~ kg | Packing unit/ pcs |
|---------------------------------------|----------|--------|--------------|-----|----|----|------|-----------------------|-------------------|
|                                       |          |        | d1           | d3  | l1 | l2 | s1   |                       |                   |
| 0.5                                   | 4696     | □      | 1.0          | 3.1 | 12 | 6  | 0.15 | 0.070                 | 1000              |
|                                       | 4698     | □      | 1.0          | 3.1 | 14 | 8  | 0.15 | 0.070                 | 1000              |
|                                       | GR4698   | □      | 1.0          | 3.1 | 14 | 8  | 0.15 | 0.070                 | 500 ***           |
|                                       | 46910    | □      | 1.0          | 3.1 | 16 | 10 | 0.15 | 0.085                 | 1000              |
| 0.75                                  | 4706     | ■      | 1.2          | 3.3 | 12 | 6  | 0.15 | 0.080                 | 1000              |
|                                       | 4708     | ■      | 1.2          | 3.3 | 14 | 8  | 0.15 | 0.080                 | 1000**            |
|                                       | GR4708   | ■      | 1.2          | 3.3 | 14 | 8  | 0.15 | 0.080                 | 500 ***           |
|                                       | 47010    | ■      | 1.2          | 3.3 | 16 | 10 | 0.15 | 0.100                 | 1000              |
|                                       | 47012    | ■      | 1.2          | 3.3 | 18 | 12 | 0.15 | 0.105                 | 1000              |
| 1                                     | 4716     | ■      | 1.4          | 3.5 | 12 | 6  | 0.15 | 0.090                 | 1000              |
|                                       | 4718     | ■      | 1.4          | 3.5 | 14 | 8  | 0.15 | 0.100                 | 1000**            |
|                                       | GR4718   | ■      | 1.4          | 3.5 | 14 | 8  | 0.15 | 0.100                 | 500 ***           |
|                                       | 47110    | ■      | 1.4          | 3.5 | 16 | 10 | 0.15 | 0.120                 | 1000              |
|                                       | 47112    | ■      | 1.4          | 3.5 | 18 | 12 | 0.15 | 0.125                 | 1000              |
| 1.5                                   | 4726     | ■      | 1.7          | 4.0 | 12 | 6  | 0.15 | 0.105                 | 1000              |
|                                       | 4728     | ■      | 1.7          | 4.0 | 14 | 8  | 0.15 | 0.110                 | 1000**            |
|                                       | GR4728   | ■      | 1.7          | 4.0 | 14 | 8  | 0.15 | 0.110                 | 500 ***           |
|                                       | 47210    | ■      | 1.7          | 4.0 | 16 | 10 | 0.15 | 0.130                 | 1000              |
|                                       | 47212    | ■      | 1.7          | 4.0 | 18 | 12 | 0.15 | 0.150                 | 1000              |
| 2.5                                   | 47218    | ■      | 1.7          | 4.0 | 24 | 18 | 0.15 | 0.190                 | 1000              |
|                                       | 4738     | ■      | 2.2          | 4.7 | 14 | 8  | 0.15 | 0.150                 | 1000**            |
|                                       | GR4738   | ■      | 2.2          | 4.7 | 14 | 8  | 0.15 | 0.150                 | 500 ***           |
|                                       | 47312    | ■      | 2.2          | 4.7 | 18 | 12 | 0.15 | 0.200                 | 1000              |
|                                       | 47318    | ■      | 2.2          | 4.7 | 24 | 18 | 0.15 | 0.250                 | 1000              |
| 4                                     | 47410    | ■      | 2.8          | 5.4 | 17 | 10 | 0.20 | 0.210                 | 100**             |
|                                       | 47412    | ■      | 2.8          | 5.4 | 20 | 12 | 0.20 | 0.250                 | 100               |
|                                       | 47418    | ■      | 2.8          | 5.4 | 26 | 18 | 0.20 | 0.320                 | 100               |
| 6                                     | 47512    | ■      | 3.5          | 6.9 | 20 | 12 | 0.20 | 0.350                 | 100**             |
|                                       | 47518    | ■      | 3.5          | 6.9 | 26 | 18 | 0.20 | 0.460                 | 100               |
| 10                                    | 47612    | ■      | 4.5          | 8.4 | 22 | 12 | 0.20 | 0.450                 | 100**             |
|                                       | 47618    | ■      | 4.5          | 8.4 | 28 | 18 | 0.20 | 0.650                 | 100               |
| 16                                    | 47712    | ■      | 5.8          | 9.6 | 24 | 12 | 0.20 | 0.650                 | 100**             |
|                                       | 47718    | ■      | 5.8          | 9.6 | 28 | 18 | 0.20 | 0.800                 | 100               |

## Insulated cable end-sleeves, acc. to DIN, Easy Entry

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |      |    |    |      | Weight/ 1000 pcs.~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------|--------------|------|----|----|------|-----------------------|------------------|
|                                       |          |        | d1           | d3   | l1 | l2 | s1   |                       |                  |
| 25                                    | 47816    | ■      | 7.3          | 12.0 | 30 | 16 | 0.20 | 1.600                 | 50               |
|                                       | 47818    | ■      | 7.3          | 12.0 | 32 | 18 | 0.20 | 1.700                 | 50               |
|                                       | 47822    | ■      | 7.3          | 12.0 | 36 | 22 | 0.20 | 2.000                 | 50               |
| 35                                    | 47916    | ■      | 8.3          | 13.5 | 30 | 16 | 0.20 | 1.900                 | 50               |
|                                       | 47918    | ■      | 8.3          | 13.5 | 32 | 18 | 0.20 | 2.100                 | 50               |
|                                       | 47925    | ■      | 8.3          | 13.5 | 39 | 25 | 0.20 | 2.500                 | 50               |
| 50                                    | 48020    | ■      | 10.3         | 16.0 | 36 | 20 | 0.30 | 3.300                 | 50               |
|                                       | 48025    | ■      | 10.3         | 16.0 | 40 | 25 | 0.30 | 3.600                 | 50               |
| 70                                    | *48121   | ■      | 13.5         | 17.2 | 37 | 21 | 0.40 | 4.620                 | 25               |
| 95                                    | *48225   | ■      | 14.7         | 19.2 | 44 | 25 | 0.40 | 6.000                 | 25               |
| 120                                   | *48327   | ■      | 16.7         | 21.4 | 48 | 27 | 0.45 | 7.850                 | 25               |
| 150                                   | *48432   | ■      | 19.5         | 25.0 | 58 | 32 | 0.50 | 12.330                | 25               |

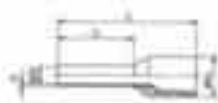
► \* = not standardized

► \*\* = Also available in small handy packs

► \*\*\* = Quantity per bag

► Tools: see chart page 168

## Insulated cable end-sleeves, acc. to DIN, Easy Entry, colour code 1



- For fine and superfine stranded conductors
- Easy-Entry insulation for easy cable insertion
- Crimped cable end-sleeves for easy mounting to cable clamps

## Characteristics

- Total cross-section: 0.14 - 50 mm<sup>2</sup>
- Acc. to DIN 46228, part 4 (0.5 - 50 mm<sup>2</sup>)
- Halide free
- Heat resistant to 105° C

## Material

- Copper acc. to EN 13600
- Synthetic material: polypropylene

## Surface

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |     |      |    |      | Weight/ 1000 pcs.~ kg | Packing unit/ pcs |
|---------------------------------------|----------|--------|--------------|-----|------|----|------|-----------------------|-------------------|
|                                       |          |        | d1           | d3  | l1   | l2 | s1   |                       |                   |
| 0.14                                  | *166GR   | ■      | 0.7          | 2.3 | 10.4 | 6  | 0.12 | 0.035                 | 1000              |
|                                       | *166GRL  | ■      | 0.7          | 2.3 | 12.4 | 8  | 0.12 | 0.040                 | 1000              |
| 0.25                                  | *167H    | ■      | 0.8          | 2.3 | 10.4 | 6  | 0.15 | 0.045                 | 1000              |
|                                       | *167HL   | ■      | 0.8          | 2.3 | 12.4 | 8  | 0.15 | 0.050                 | 1000              |
| 0.34                                  | *168T    | ■      | 0.8          | 2.5 | 10.4 | 6  | 0.15 | 0.045                 | 1000              |
|                                       | *168TL   | ■      | 0.8          | 2.5 | 12.4 | 8  | 0.15 | 0.050                 | 1000              |
| 0.5                                   | 1690K    | ■      | 1.0          | 3.0 | 12.0 | 6  | 0.15 | 0.070                 | 1000              |
|                                       | 1690     | ■      | 1.0          | 3.0 | 14.0 | 8  | 0.15 | 0.070                 | 1000              |
|                                       | GR1690   | ■      | 1.0          | 3.0 | 14.0 | 8  | 0.15 | 0.070                 | 500 **            |
|                                       | 1690H    | ■      | 1.0          | 3.0 | 16.0 | 10 | 0.15 | 0.085                 | 1000              |



**Insulated cable end-sleeves, acc. to DIN, Easy Entry, colour code 1**

| Nominal cross section mm² | Part No. | Colour                                                                              | Dimension mm |      |      |    |      | Weight/ 1000 pcs.~ kg | Packing unit/ pcs |
|---------------------------|----------|-------------------------------------------------------------------------------------|--------------|------|------|----|------|-----------------------|-------------------|
|                           |          |                                                                                     | d1           | d3   | l1   | l2 | s1   |                       |                   |
| 0.75                      | 170WK    |    | 1.2          | 3.2  | 12.4 | 6  | 0.15 | 0.080                 | 1000              |
|                           | 170W     |    | 1.2          | 3.2  | 14.6 | 8  | 0.15 | 0.080                 | 1000              |
|                           | GR170W   |    | 1.2          | 3.2  | 14.6 | 8  | 0.15 | 0.080                 | 500 **            |
|                           | 170WH    |    | 1.2          | 3.2  | 16.4 | 10 | 0.15 | 0.100                 | 1000              |
|                           | 170WL    |    | 1.2          | 3.2  | 18.4 | 12 | 0.15 | 0.105                 | 1000              |
| 1                         | 171GK    |    | 1.4          | 3.5  | 12.4 | 6  | 0.15 | 0.090                 | 1000              |
|                           | 171G     |    | 1.4          | 3.5  | 14.6 | 8  | 0.15 | 0.100                 | 1000              |
|                           | GR171G   |    | 1.4          | 3.5  | 14.6 | 8  | 0.15 | 0.100                 | 500 **            |
|                           | 171GH    |    | 1.4          | 3.5  | 16.4 | 10 | 0.15 | 0.120                 | 1000              |
|                           | 171GL    |    | 1.4          | 3.5  | 18.4 | 12 | 0.15 | 0.125                 | 1000              |
| 1.5                       | 172RK    |    | 1.7          | 4.0  | 12.0 | 6  | 0.15 | 0.105                 | 1000              |
|                           | 172R0    |    | 1.7          | 4.0  | 14.6 | 8  | 0.15 | 0.110                 | 1000              |
|                           | GR172R0  |    | 1.7          | 4.0  | 14.6 | 8  | 0.15 | 0.110                 | 500 **            |
|                           | 172RH    |    | 1.7          | 4.0  | 16.4 | 10 | 0.15 | 0.130                 | 1000              |
|                           | 172RM    |    | 1.7          | 4.0  | 18.4 | 12 | 0.15 | 0.140                 | 1000              |
| 2.5                       | 172RL    |    | 1.7          | 4.0  | 24.4 | 18 | 0.15 | 0.190                 | 1000              |
|                           | 173B     |    | 2.3          | 4.9  | 15.2 | 8  | 0.15 | 0.150                 | 1000              |
|                           | GR173B   |    | 2.3          | 4.9  | 15.2 | 8  | 0.15 | 0.150                 | 500 **            |
|                           | 173BH    |    | 2.3          | 4.9  | 19.0 | 12 | 0.15 | 0.200                 | 1000              |
|                           | 173BL    |    | 2.3          | 4.9  | 25.0 | 18 | 0.15 | 0.250                 | 1000              |
| 4                         | 174GR    |    | 2.9          | 5.5  | 16.5 | 10 | 0.15 | 0.210                 | 100               |
|                           | 174GRH   |    | 2.9          | 5.5  | 19.5 | 12 | 0.15 | 0.250                 | 100               |
|                           | 174GRL   |    | 2.9          | 5.5  | 25.5 | 18 | 0.15 | 0.320                 | 100               |
| 6                         | 175S     |    | 3.5          | 6.3  | 20.0 | 12 | 0.20 | 0.350                 | 100               |
|                           | 175SL    |    | 3.5          | 6.3  | 26.0 | 18 | 0.20 | 0.460                 | 100               |
| 10                        | 176E     |    | 4.5          | 8.0  | 21.5 | 12 | 0.20 | 0.450                 | 100               |
|                           | 176EL    |    | 4.5          | 8.0  | 27.5 | 18 | 0.20 | 0.650                 | 100               |
| 16                        | 177GR    |    | 5.8          | 9.6  | 22.2 | 12 | 0.20 | 0.650                 | 100               |
|                           | 177GRL   |    | 5.8          | 9.6  | 28.2 | 18 | 0.20 | 0.800                 | 100               |
| 25                        | 178BR    |    | 7.3          | 12.1 | 29.0 | 16 | 0.20 | 1.600                 | 50                |
|                           | 178BRL   |   | 7.3          | 12.1 | 35.0 | 22 | 0.20 | 2.000                 | 50                |
| 35                        | 179B     |  | 8.3          | 13.6 | 30.0 | 16 | 0.20 | 1.900                 | 50                |
|                           | 179BL    |  | 8.3          | 13.6 | 39.0 | 25 | 0.20 | 2.500                 | 50                |
| 50                        | 1800     |  | 10.3         | 16.4 | 36.4 | 20 | 0.35 | 3.300                 | 50                |
|                           | 1800L    |  | 10.3         | 16.4 | 41.4 | 25 | 0.35 | 4.000                 | 50                |

▶ \* = not standardized

▶ \*\* = Quantity per bag

▶ Tools: see chart page 168

## Insulated cable end-sleeves acc. to DIN, Easy Entry, colour code 2



- ▶ For fine and superfine stranded conductors
- ▶ Easy-Entry insulation for easy cable insertion
- ▶ Crimped cable end-sleeves for easy mounting to cable clamps

**Characteristics**

- Total cross-section: 0.14 - 25 mm<sup>2</sup>
- Acc. to DIN 46228, part 4 (0.5 - 25 mm<sup>2</sup>)
- Halide free
- Heat resistant to 105° C

**Material**

- Copper acc. to EN 13600
- Synthetic material: polypropylene

**Surface**

- Tin-plated to protect against corrosion

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |     |      |    |      | Weight/ 1000 pcs.~ kg | Packing unit/ pcs |
|---------------------------------------|----------|--------|--------------|-----|------|----|------|-----------------------|-------------------|
|                                       |          |        | d1           | d3  | l1   | l2 | s1   |                       |                   |
| 0.14                                  | *1666    | ■      | 0.7          | 2.4 | 10.4 | 6  | 0.12 | 0.035                 | 1000              |
|                                       | *1668    | ■      | 0.7          | 2.4 | 12.4 | 8  | 0.12 | 0.040                 | 1000              |
| 0.25                                  | *1676    | ■      | 0.8          | 2.5 | 11.0 | 6  | 0.15 | 0.045                 | 1000              |
|                                       | *1678    | ■      | 0.8          | 2.5 | 13.0 | 8  | 0.15 | 0.050                 | 1000              |
| 0.34                                  | *1686    | ■      | 0.8          | 2.5 | 11.0 | 6  | 0.15 | 0.045                 | 1000              |
|                                       | *1688    | ■      | 0.8          | 2.5 | 13.0 | 8  | 0.15 | 0.050                 | 1000              |
| 0.5                                   | 1696     | □      | 1.0          | 3.1 | 11.0 | 6  | 0.15 | 0.070                 | 1000              |
|                                       | 1698     | □      | 1.0          | 3.1 | 13.0 | 8  | 0.15 | 0.080                 | 1000              |
|                                       | GR1698   | □      | 1.0          | 3.1 | 13.0 | 8  | 0.15 | 0.080                 | 500**             |
| 0.75                                  | 1706     | ■      | 1.2          | 3.2 | 11.5 | 6  | 0.15 | 0.080                 | 1000              |
|                                       | 1708     | ■      | 1.2          | 3.2 | 13.5 | 8  | 0.15 | 0.095                 | 1000              |
|                                       | GR1708   | ■      | 1.2          | 3.2 | 13.5 | 8  | 0.15 | 0.095                 | 500**             |
|                                       | 1716     | ■      | 1.4          | 3.4 | 11.5 | 6  | 0.15 | 0.085                 | 1000              |
| 1                                     | 1718     | ■      | 1.4          | 3.4 | 13.5 | 8  | 0.15 | 0.100                 | 1000              |
|                                       | GR1718   | ■      | 1.4          | 3.4 | 13.5 | 8  | 0.15 | 0.100                 | 500**             |
|                                       | 1726     | ■      | 1.7          | 3.9 | 11.5 | 6  | 0.15 | 0.100                 | 1000              |
|                                       | 1728     | ■      | 1.7          | 3.9 | 13.5 | 8  | 0.15 | 0.120                 | 1000              |
| 1.5                                   | GR1728   | ■      | 1.7          | 3.9 | 13.5 | 8  | 0.15 | 0.120                 | 500**             |
|                                       | 17210    | ■      | 1.7          | 3.9 | 16.4 | 10 | 0.15 | 0.130                 | 1000              |
|                                       | 17212    | ■      | 1.7          | 3.9 | 18.4 | 12 | 0.15 | 0.140                 | 1000              |
|                                       | 17218    | ■      | 1.7          | 3.9 | 22.8 | 18 | 0.15 | 0.220                 | 1000              |
|                                       | 1738     | ■      | 2.2          | 4.7 | 14.5 | 8  | 0.15 | 0.140                 | 1000              |
| 2.5                                   | GR1738   | ■      | 2.2          | 4.7 | 14.5 | 8  | 0.15 | 0.140                 | 500**             |
|                                       | 17312    | ■      | 2.2          | 4.7 | 19.0 | 12 | 0.15 | 0.200                 | 1000              |
|                                       | 17318    | ■      | 2.2          | 4.7 | 24.0 | 18 | 0.15 | 0.280                 | 1000              |
| 4                                     | 17410    | ■      | 2.8          | 5.5 | 16.5 | 10 | 0.20 | 0.260                 | 100               |
|                                       | 17412    | ■      | 2.8          | 5.5 | 20.0 | 12 | 0.20 | 0.300                 | 100               |
|                                       | 17418    | ■      | 2.8          | 5.5 | 25.5 | 18 | 0.20 | 0.390                 | 100               |
| 6                                     | 17512    | ■      | 3.5          | 7.0 | 20.0 | 12 | 0.20 | 0.410                 | 100               |
|                                       | 17518    | ■      | 3.5          | 7.0 | 26.0 | 18 | 0.20 | 0.530                 | 100               |
| 10                                    | 17612    | ■      | 4.5          | 8.4 | 21.5 | 12 | 0.20 | 0.550                 | 100               |
|                                       | 17618    | ■      | 4.5          | 8.4 | 27.0 | 18 | 0.20 | 0.710                 | 100               |
| 16                                    | 17712    | ■      | 5.8          | 9.8 | 23.5 | 12 | 0.20 | 0.660                 | 100               |
|                                       | 17718    | ■      | 5.8          | 9.8 | 29.0 | 18 | 0.20 | 0.850                 | 100               |

## Insulated cable end-sleeves acc. to DIN, Easy Entry, colour code 2

| Nominal cross section mm² | Part No. | Colour | Dimension mm |      |      |    |      | Weight/ 1000 pcs. ~ kg | Packing unit/ pcs |
|---------------------------|----------|--------|--------------|------|------|----|------|------------------------|-------------------|
|                           |          |        | d1           | d3   | l1   | l2 | s1   |                        |                   |
| 25                        | 17816    | ■      | 7.3          | 12.0 | 28.0 | 16 | 0.20 | 1.500                  | 50                |
|                           | 17818    | ■      | 7.3          | 12.0 | 30.0 | 18 | 0.20 | 1.550                  | 50                |
|                           | 17822    | ■      | 7.3          | 12.0 | 34.0 | 22 | 0.20 | 2.000                  | 50                |

► \* = not standardized

► \*\* = Quantity per bag

► Tools: see chart page 168

## Insulated cable end-sleeves with lug

- For fine and superfine stranded conductors
- With identification system for max. 6 identification rings



### Characteristics

- Total cross-section: 0.5 - 2.5 mm²
- Dimensions acc. to DIN 46228 part 4
- Insulated, halogen-free
- Heat resistant to 105° C
- Easy-Entry insulation for easy cable insertion

### Material

- Copper acc. to EN 13600
- Synthetic material: polypropylene

### Surface

- Tin-plated to protect against corrosion



| Nominal cross section mm² | Part No. | Colour | Dimension mm |     |      |    |      | Weight/ 1000 pcs. ~ kg | Packing unit/ pcs |
|---------------------------|----------|--------|--------------|-----|------|----|------|------------------------|-------------------|
|                           |          |        | d1           | d3  | l1   | l2 | s1   |                        |                   |
| 0.5                       | 3698     | □      | 1.0          | 3.1 | 13.0 | 8  | 0.15 | 0.16                   | 1000              |
| 0.75                      | 3708     | ■      | 1.2          | 3.2 | 13.5 | 8  | 0.15 | 0.16                   | 1000              |
| 1                         | 3718     | ■      | 1.4          | 3.4 | 13.5 | 8  | 0.15 | 0.18                   | 1000              |
| 1.5                       | 3728     | ■      | 1.7          | 3.9 | 13.5 | 8  | 0.15 | 0.20                   | 1000              |
| 2.5                       | 3738     | ■      | 2.2          | 4.7 | 14.5 | 8  | 0.15 | 0.22                   | 1000              |

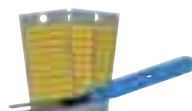
► Tools: see chart page 168

## Identification rings and insert fork

- For identifying insulated cable end-sleeves with lugs

### Characteristics

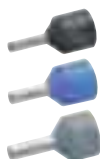
- Differing numbers / letters in the identification rings
- Packaging unit in booklet format, 200 of each symbol
- Insert fork A300 for inserting the identification rings on the insulated cable end-sleeves



| Part No.             | Colour | Packing unit/pcs |
|----------------------|--------|------------------|
| Identification rings |        |                  |
| 380/-                | ■      | 1                |
| 380/+                | ■      | 1                |
| 380/0 bis 9          | ■      | 1                |
| 380/A bis Z*         | ■      | 1                |
| Insert fork          |        |                  |
| A300                 |        | 1                |

► \* = without letters "I" and "O"

## Insulated cable end-sleeves for short circuit resistant conductors



- ▶ For short circuit resistant conductors (e.g. NSGAFOU)
- ▶ Crimped cable end-sleeves for easy mounting to cable clamps

**Characteristics**

- Total cross-section: 1.5 - 16 mm<sup>2</sup>
- Insulated, halogen-free
- Heat resistant to 105° C
- Easy-Entry insulation for easy cable insertion
- Colour-coded cross-section assignment

**Material**

- Copper acc. to EN 13600
- Synthetic material: polypropylene

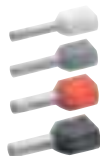
**Surface**

- Tin-plated to protect against corrosion

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |      |      |    |      | Weight/ 1000 pcs.~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------|--------------|------|------|----|------|-----------------------|------------------|
| 1.5                                   | 4328     | ■      | 1.8          | 8.1  | 17.5 | 8  | 0.15 | 0.22                  | 100              |
|                                       | 43210    | ■      | 1.8          | 8.1  | 19.5 | 10 | 0.15 | 0.27                  | 100              |
| 2.5                                   | 4338     | ■      | 2.3          | 8.6  | 17.5 | 8  | 0.15 | 0.24                  | 100              |
|                                       | 43312    | ■      | 2.3          | 8.6  | 21.5 | 12 | 0.15 | 0.36                  | 100              |
| 4                                     | 43410    | ■      | 2.9          | 10.5 | 19.5 | 10 | 0.20 | 0.36                  | 100              |
| 6                                     | 43512    | ■      | 3.6          | 11.0 | 23.0 | 12 | 0.20 | 0.49                  | 100              |
| 10                                    | 43612    | ■      | 4.6          | 11.7 | 24.0 | 12 | 0.20 | 0.65                  | 100              |
| 16                                    | 43712    | ■      | 6.0          | 14.4 | 25.5 | 12 | 0.20 | 0.93                  | 100              |

▶ Tools: see chart page 168

## Insulated twin cable end-sleeves



- ▶ For fine and superfine stranded conductors
- ▶ For multi purpose use of clamps
- ▶ Colour-coding following DIN 46228 part 4 (0.5 - 16 mm<sup>2</sup>)
- ▶ Crimped cable end-sleeves for easy mounting to cable clamps

**Characteristics**

- Total cross-section: 2 x 0.25 - 2 x 16 mm<sup>2</sup>
- Insulated, halogen-free
- Heat resistant to 105° C
- Easy-Entry insulation for easy cable insertion

**Material**

- Copper acc. to EN 13600
- Synthetic material: polypropylene

**Surface**

- Tin-plated to protect against corrosion (other surfaces available upon request)

| Nominal cross section<br>mm² | Part No. | Colour                                                                              | Dimension mm |         |      |    |      |      | Weight/<br>1000 pcs.– kg | Packing unit/<br>pcs |
|------------------------------|----------|-------------------------------------------------------------------------------------|--------------|---------|------|----|------|------|--------------------------|----------------------|
|                              |          |                                                                                     | d1           | d3      | l1   | l2 | s1   | s2   |                          |                      |
| 2 x 0.25                     | 8678     |  | 1.15         | 1.8/3.4 | 15.0 | 8  | 0.15 | 0.25 | 0.110                    | 1000                 |
| 2 x 0.34                     | 8688     |  | 1.15         | 1.8/3.4 | 15.0 | 8  | 0.15 | 0.25 | 0.110                    | 1000                 |
| 2 x 0.5                      | 8698     |  | 1.50         | 2.5/4.7 | 15.0 | 8  | 0.15 | 0.25 | 0.110                    | 1000                 |
| 2 x 0.75                     | 8708     |  | 1.80         | 2.8/5.0 | 15.0 | 8  | 0.15 | 0.25 | 0.130                    | 1000                 |
| 2 x 0.75                     | 87010    |  | 1.80         | 2.8/5.0 | 17.0 | 10 | 0.15 | 0.25 | 0.150                    | 1000                 |

## Insulated twin cable end-sleeves

| Nominal cross section<br>mm² | Part No. | Colour | Dimension mm |          |      |    |      |      | Weight/<br>1000 pcs. ~ kg | Packing unit/<br>pcs |
|------------------------------|----------|--------|--------------|----------|------|----|------|------|---------------------------|----------------------|
|                              |          |        | d1           | d3       | l1   | l2 | s1   | s2   |                           |                      |
| 2 x 1                        | 8718     | ■      | 2.05         | 3.4/5.4  | 15.0 | 8  | 0.15 | 0.30 | 0.170                     | 1000                 |
|                              | 87110    | ■      | 2.05         | 3.4/5.4  | 17.0 | 10 | 0.15 | 0.30 | 0.170                     | 1000                 |
| 2 x 1.5                      | 8728     | ■      | 2.30         | 3.6/6.6  | 16.0 | 8  | 0.15 | 0.30 | 0.183                     | 1000                 |
|                              | 87212    | ■      | 2.30         | 3.6/6.6  | 20.0 | 12 | 0.15 | 0.30 | 0.237                     | 1000                 |
| 2 x 2.5                      | 87310    | ■      | 2.90         | 4.2/7.8  | 18.5 | 10 | 0.20 | 0.30 | 0.312                     | 100                  |
|                              | 87313    | ■      | 2.90         | 4.2/7.8  | 21.5 | 13 | 0.20 | 0.30 | 0.340                     | 100                  |
| 2 x 4                        | 87412    | ■      | 3.80         | 4.9/8.8  | 23.0 | 12 | 0.20 | 0.30 | 0.467                     | 100                  |
| 2 x 6                        | 87514    | ■      | 4.90         | 6.9/10.0 | 26.0 | 14 | 0.20 | 0.40 | 0.730                     | 100                  |
| 2 x 10                       | 87614    | ■      | 6.50         | 7.2/13.0 | 26.0 | 14 | 0.20 | 0.40 | 0.884                     | 100                  |
| 2 x 16                       | 87714    | ■      | 8.30         | 9.6/18.4 | 30.0 | 14 | 0.20 | 0.40 | 1.273                     | 100                  |

► Tools: see chart page 171

## Insulated cable end-sleeves, strips

- For fine and superfine stranded conductors
- Crimped cable end-sleeves for easy mounting to cable clamps



### Characteristics

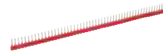
- Total cross-section: 0.5 - 2.5 mm²
- Colour-coding and tube dimension to DIN 46228, part 4
- Insulated, halogen-free
- Heat resistant to 105° C
- Easy-Entry insulation for easy cable insertion

### Material

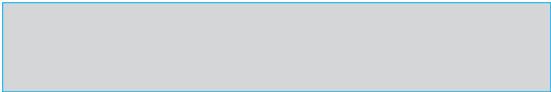
- Copper acc. to EN 13600
- Synthetic material: polypropylene

### Surface

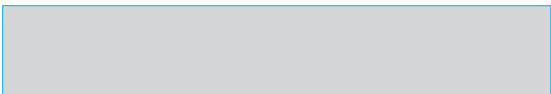
- Tin-plated to protect against corrosion



| Nominal cross section<br>mm² | Part No. | Colour | Dimension mm |    | Weight/<br>1000 pcs. ~ kg | Packing unit/pcs |
|------------------------------|----------|--------|--------------|----|---------------------------|------------------|
|                              |          |        | l1           | l2 |                           |                  |
| 0.5                          | ST9698   | □      | 14           | 8  | 0.100                     | 500              |
| 0.75                         | ST9708   | ■      | 14           | 8  | 0.100                     | 500              |
| 1                            | ST9718   | ■      | 14           | 8  | 0.100                     | 500              |
| 1.5                          | ST9728   | ■      | 14           | 8  | 0.100                     | 500              |
| 2.5                          | ST9738   | ■      | 14           | 8  | 0.100                     | 500              |



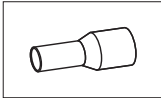
| Nominal cross section<br>mm <sup>2</sup> | Part No. | Colour | Dimension mm |    | Weight/<br>1000 pcs.~ kg | Packing unit/pcs |
|------------------------------------------|----------|--------|--------------|----|--------------------------|------------------|
|                                          |          |        | I1           | I2 |                          |                  |
| 0.5                                      | BAK9698  |        | 14           | 8  | 0.136                    | 1100             |
| 0.75                                     | BAK9708  |        | 14           | 8  | 0.154                    | 1100             |
| 1                                        | BAK9718  |        | 14           | 8  | 0.187                    | 800              |
| 1.5                                      | BAK9728  |        | 14           | 8  | 0.200                    | 800              |
| 2.5                                      | BAK9738  |        | 14           | 8  | 0.300                    | 500              |



| Nominal cross section<br>mm <sup>2</sup> | Part No. | Colour | Dimension mm |    | Weight/<br>1000 pcs.~ kg | Packing unit/pcs |
|------------------------------------------|----------|--------|--------------|----|--------------------------|------------------|
|                                          |          |        | I1           | I2 |                          |                  |
| 0.5                                      | BAG9698  |        | 14           | 8  | 0.120                    | 10000            |
| 0.75                                     | BAG9708  |        | 14           | 8  | 0.130                    | 10000            |
| 1                                        | BAG9718  |        | 14           | 8  | 0.160                    | 7500             |
| 1.5                                      | BAG9728  |        | 14           | 8  | 0.173                    | 7500             |
| 2.5                                      | BAG9738  |        | 14           | 8  | 0.230                    | 5000             |

Cable end-sleeves

Insulated cable end-sleeves, small coil



## ■ Tool application chart

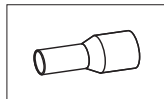
**Cable end-sleeves  
acc. to DIN 46228, part 1**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| <b>0,14-2,5</b>                                                     | K1             |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 224            |
|                                                                     | K48            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 224            |
| <b>0,14-6</b>                                                       | K32            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 225            |
|                                                                     | K37            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 226            |
|                                                                     | KP1            | +KP312                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | KP1L           | +KP312                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | EKP1           | +KP312                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 312            |
|                                                                     | TEKP1          | +KP312                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 281            |
|                                                                     | KPM15          | +KP312                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 282            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
| <b>0,14-10</b>                                                      | K303           |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 229            |
|                                                                     | KP1            | +KP303                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | KP1L           | +KP303                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | EKP1           | +KP303                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 312            |
|                                                                     | TEKP1          | +KP303                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 281            |
|                                                                     | KPM15          | +KP303                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 282            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                                 |                               |               |                |
| <b>0,14-50</b>                                                      | K50            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 259            |
|                                                                     | EK50ML         |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 278            |
|                                                                     | EK1550         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 308            |
|                                                                     | EK1550G        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 310            |
| <b>0,25-6</b>                                                       | K38ERGO        |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 228            |
| <b>0,5-2,5</b>                                                      | K4             |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 222            |
| <b>0,5-6</b>                                                        | K36            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 225            |
|                                                                     | K382           |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 227            |
| <b>0,5-16</b>                                                       | K3             |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 223            |
| <b>1,5-6</b>                                                        | K46            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 222            |
|                                                                     | KP1            | +KP351                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | KP1L           | +KP351                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | EKP1           | +KP351                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 312            |
|                                                                     | TEKP1          | +KP351                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 281            |
|                                                                     | KPM15          | +KP351                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 282            |
| <b>6-16</b>                                                         | K34            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 226            |
| <b>10-16</b>                                                        | KP1            | +KP304                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | KP1L           | +KP304                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 256            |
|                                                                     | EKP1           | +KP304                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 312            |
|                                                                     | TEKP1          | +KP304                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 281            |
|                                                                     | KPM15          | +KP304                    |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 282            |

See next page



## Cable end-sleeves



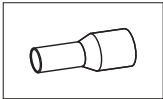
## ■ Tool application chart

Cable end-sleeves  
acc. to DIN 46228, part 1

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| 10-16                                                               | KP1            | +KP352                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ○             | 256            |
|                                                                     | KP1L           | +KP352                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ○             | 256            |
|                                                                     | EKP1           | +KP352                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | ○             | 312            |
|                                                                     | TEKP1          | +KP352                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ○             | 281            |
|                                                                     | KPM15          | +KP352                    |                              | •                                                                                                   |                                        |                                         |                                 |                               | ○             | 282            |
| 10-25                                                               | K39            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | □             | 227            |
| 10-35                                                               | K35            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ☺             | 223            |
| 10-50                                                               | K271           |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | ☺             | 230            |
|                                                                     | K28            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               | □             | 231            |
|                                                                     | EK354          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | □             | 314            |
|                                                                     | K354           |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | □             | 260            |
|                                                                     | EK354L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | □             | 316            |
|                                                                     | EK505L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | □             | 318            |
| 10-95                                                               | K18            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | □ ☺           | 262            |
|                                                                     | HK6018         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | □ ☺           | 286            |
|                                                                     | EK5018L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | □ ☺           | 320            |
|                                                                     | PK18           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | □ ☺           | 362            |
|                                                                     | THK18          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | □ ☺           | 362            |
|                                                                     | HK60UNV        | + UA18                    |                              |                                                                                                     | •                                      |                                         |                                 |                               | □ ☺           | 354            |
|                                                                     | EK60UNVL       | + UA18                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | □ ☺           | 357            |
|                                                                     | EKM60UNVL      | + UA18                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | □ ☺           | 356            |
|                                                                     | PK60UNV        | + UA18                    |                              |                                                                                                     |                                        |                                         |                                 | •                             | □ ☺           | 355            |
| 10-150                                                              | THK22          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               | □ ☺           | 364            |
| 10-240                                                              | K22            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               | □ ☺           | 264            |
|                                                                     | HK6022         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               | □ ☺           | 288            |
|                                                                     | EK6022L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | □ ☺           | 324            |
|                                                                     | EKM6022L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               | □ ☺           | 322            |
|                                                                     | PK22           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             | □ ☺           | 364            |
|                                                                     | HK60UNV        | + UA22                    |                              |                                                                                                     | •                                      |                                         |                                 |                               | □ ☺           | 354            |
|                                                                     | EK60UNVL       | + UA22                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | □ ☺           | 357            |
|                                                                     | EKM60UNVL      | + UA22                    |                              |                                                                                                     |                                        | •                                       |                                 |                               | □ ☺           | 356            |
|                                                                     | PK60UNV        | + UA22                    |                              |                                                                                                     |                                        |                                         |                                 | •                             | □ ☺           | 355            |

See next page

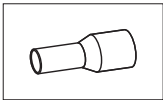


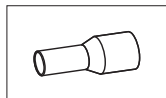


■ Tool application chart

Cable end-sleeves  
acc. to DIN 46228, part 1

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                               |                             | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------|-----------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimping<br>systems | Hydraulic crimping<br>heads |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |

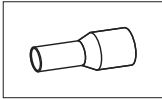




## ■ Tool application chart

**Insulated cable end-sleeves  
to DIN 46228, part 4**  
**Insulated cable end-sleeves  
for short circuit resistant conductors**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                               |                             | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------|-----------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimping<br>systems | Hydraulic crimping<br>heads |               |                |
| 0.14-2.5                                                            | K1             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 224            |
|                                                                     | K48            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 224            |
| 0.14-6                                                              | K32            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 225            |
|                                                                     | K37            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 226            |
|                                                                     | KP1            | +KP312                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | KP1L           | +KP312                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | EKP1           | +KP312                    |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 312            |
|                                                                     | TEKP1          | +KP312                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 281            |
|                                                                     | KPM15          | +KP312                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 282            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
| 0.14-10                                                             | K303           |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 229            |
|                                                                     | KP1            | +KP303                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | KP1L           | +KP303                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | EKP1           | +KP303                    |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 312            |
|                                                                     | TEKP1          | +KP303                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 281            |
|                                                                     | KPM15          | +KP303                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 282            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
| 0.14-50                                                             | K50            |                           |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 259            |
|                                                                     | EK50ML         |                           |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 278            |
|                                                                     | EK1550         |                           |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 308            |
|                                                                     | EK1550G        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 310            |
| 0.25-6                                                              | K38ERG0        |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 228            |
| 0,5-2,5                                                             | K4             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 222            |
| 0,5-6                                                               | K36            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 225            |
|                                                                     | K382           |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 227            |
| 0,5-16                                                              | K3             |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 223            |
| 1.5-6                                                               | K46            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 222            |
|                                                                     | KP1            | +KP351                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | KP1L           | +KP351                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | EKP1           | +KP351                    |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 312            |
|                                                                     | TEKP1          | +KP351                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 281            |
|                                                                     | KPM15          | +KP351                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 282            |
| 6-16                                                                | K34            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 226            |
| 10-16                                                               | KP1            | +KP304                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | KP1L           | +KP304                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | EKP1           | +KP304                    |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 312            |
|                                                                     | TEKP1          | +KP304                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 281            |
|                                                                     | KPM15          | +KP304                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 282            |
|                                                                     | KP1            | +KP352                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | KP1L           | +KP352                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | EKP1           | +KP352                    |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 312            |

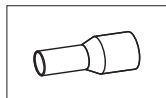


## ■ Tool application chart

**Insulated cable end-sleeves  
to DIN 46228, part 4**  
**Insulated cable end-sleeves  
for short circuit resistant conductors**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                               |                             | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------|-----------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimping<br>systems | Hydraulic crimping<br>heads |               |                |
| <b>10-16</b>                                                        | TEKP1          | +KP352                    |                              | •                                                                                                   |                                        |                                         |                               |                             | ○             | 281            |
|                                                                     | KPM15          | +KP352                    |                              | •                                                                                                   |                                        |                                         |                               |                             | ○             | 282            |
| <b>10-25</b>                                                        | K39            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | □             | 227            |
| <b>10-35</b>                                                        | K35            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ◡             | 223            |
| <b>10-50</b>                                                        | K271           |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | ◡             | 230            |
|                                                                     | K28            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             | □             | 231            |
|                                                                     | K354           |                           |                              | •                                                                                                   |                                        |                                         |                               |                             | □             | 260            |
|                                                                     | EK354          |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 314            |
|                                                                     | EK354L         |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 316            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
| <b>10-95</b>                                                        | K18            |                           |                              | •                                                                                                   |                                        |                                         |                               |                             | □             | 262            |
|                                                                     | HK6018         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | □             | 286            |
|                                                                     | EK5018L        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 320            |
|                                                                     | PK18           |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | □             | 362            |
|                                                                     | THK18          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | □             | 362            |
|                                                                     | HK60UNV        | + UA18                    |                              |                                                                                                     | •                                      |                                         |                               |                             | □             | 354            |
|                                                                     | EK60UNVL       | + UA18                    |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 357            |
|                                                                     | EKM60UNVL      | + UA18                    |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 356            |
|                                                                     | PK60UNV        | + UA18                    |                              |                                                                                                     |                                        |                                         |                               | •                           | □             | 355            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |
| <b>10-150</b>                                                       | K22            |                           |                              | •                                                                                                   |                                        |                                         |                               |                             | □             | 264            |
|                                                                     | HK6022         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | □             | 288            |
|                                                                     | EK6022L        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 324            |
|                                                                     | EKM6022L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 322            |
|                                                                     | PK22           |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | □             | 364            |
|                                                                     | THK22          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | □             | 364            |
|                                                                     | HK60UNV        | + UA22                    |                              |                                                                                                     | •                                      |                                         |                               |                             | □             | 354            |
|                                                                     | EK60UNVL       | + UA22                    |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 357            |
|                                                                     | EKM60UNVL      | + UA22                    |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 356            |
|                                                                     | PK60UNV        | + UA22                    |                              |                                                                                                     |                                        |                                         |                               | •                           | □             | 355            |
| <b>25-150</b>                                                       | HK12030        |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | □             | 292            |
|                                                                     | HK12042        |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | □             | 294            |
|                                                                     | HK120U         |                           |                              |                                                                                                     | •                                      |                                         |                               |                             | □             | 296            |
|                                                                     | EK12030L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 330            |
|                                                                     | EK12042L       |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 332            |
|                                                                     | EK120UL        |                           |                              |                                                                                                     |                                        | •                                       |                               |                             | □             | 334            |
|                                                                     | HK122EL380     |                           |                              |                                                                                                     |                                        |                                         | •                             |                             | □             | 390            |
|                                                                     | PK12042        |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | □             | 368            |
|                                                                     | PK120U         |                           |                              |                                                                                                     |                                        |                                         |                               | •                           | □             | 370            |
|                                                                     |                |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               |                |

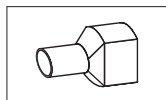
## Cable end-sleeves



## ■ Tool application chart

**Insulated cable end-sleeves  
to DIN 46228, part 4  
Insulated cable end-sleeves  
for short circuit resistant conductors**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                               |                             | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------|-----------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimping<br>systems | Hydraulic crimping<br>heads |               |                |
| 25-150                                                              | HK252          |                           |                              |                                                                                                     |                                        |                                         | •                             |                             |               | 388            |
|                                                                     | HK252EL380     |                           |                              |                                                                                                     |                                        |                                         | •                             |                             |               | 391            |
|                                                                     | PK252          |                           |                              |                                                                                                     |                                        |                                         |                               | •                           |               | 372            |
| 50-95                                                               | K272           |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 230            |
|                                                                     | K29            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 231            |

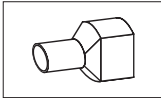


## ■ Tool application chart

**Insulated  
twin cable end-sleeves**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                               |                             | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------|-----------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimping<br>systems | Hydraulic crimping<br>heads |               |                |
| 2x0,5-2x2,5                                                         | K32            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 225            |
|                                                                     | K382           |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 227            |
|                                                                     | K38ERGO        |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 228            |
|                                                                     | KP1            | +KP312                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | KP1L           | +KP312                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | EKP1           | +KP312                    |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 312            |
|                                                                     | TEKP1          | +KP312                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 281            |
|                                                                     | KPM15          | +KP312                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 282            |
| 2x0,5-2x4                                                           | K303           |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 229            |
|                                                                     | K36            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 225            |
|                                                                     | KP1            | +KP303                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | KP1L           | +KP303                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 256            |
|                                                                     | EKP1           | +KP303                    |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 312            |
|                                                                     | TEKP1          | +KP303                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 281            |
|                                                                     | KPM15          | +KP303                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 282            |
| 2x4-2x6                                                             | K34            |                           | •                            |                                                                                                     |                                        |                                         |                               |                             |               | 226            |
|                                                                     | KP1            |                           |                              |                                                                                                     |                                        |                                         |                               |                             |               | 256            |
|                                                                     | EKP1           | +KP304                    |                              |                                                                                                     |                                        | •                                       |                               |                             |               | 312            |
|                                                                     | TEKP1          | +KP304                    |                              | •                                                                                                   |                                        |                                         |                               |                             |               | 281            |

See next page



## ■ Tool application chart

**Insulated  
twin cable end-sleeves**

| Crimping range<br>corresponds to<br>nominal<br>cross-section<br>mm² | Crimping tools |                           | Tool type                    |                                                                                                     |                                        |                                         |                                 |                               | Crimp profile | Page<br>(Tool) |
|---------------------------------------------------------------------|----------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------------------|---------------|----------------|
|                                                                     | Tools          | Crimping head/<br>Adapter | Mechanical<br>crimping tools | mechanical,<br>electrical,<br>pneumatic,<br>crimping tools<br>with<br>interchangeable<br>dies/heads | Hand<br>hydraulic<br>crimping<br>tools | Battery<br>powered<br>crimping<br>tools | Hydraulic crimp-<br>ing systems | Hydraulic crimp-<br>ing heads |               |                |
| <b>2x4-2x16</b>                                                     | K271           |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 230            |
|                                                                     | K28            |                           | •                            |                                                                                                     |                                        |                                         |                                 |                               |               | 231            |
|                                                                     | K354           |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 260            |
|                                                                     | EK354          |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 314            |
|                                                                     | EK354L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 316            |
|                                                                     | K18            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 262            |
|                                                                     | HK6018         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 286            |
|                                                                     | EK505L         |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 318            |
|                                                                     | EK5018L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 320            |
|                                                                     | PK18           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 362            |
|                                                                     | THK18          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |               | 362            |
|                                                                     | HK60UNV        | + UA18                    |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 354            |
|                                                                     | EK60UNVL       | + UA18                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 357            |
|                                                                     | EKM60UNVL      | + UA18                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 356            |
|                                                                     | PK60UNV        | + UA18                    |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 355            |
|                                                                     | THK22          |                           |                              |                                                                                                     |                                        |                                         | •                               |                               |               | 364            |
|                                                                     | K22            |                           |                              | •                                                                                                   |                                        |                                         |                                 |                               |               | 264            |
|                                                                     | HK6022         |                           |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 288            |
|                                                                     | EK6022L        |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 324            |
|                                                                     | EKM6022L       |                           |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 322            |
|                                                                     | PK22           |                           |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 364            |
|                                                                     | HK60UNV        | + UA22                    |                              |                                                                                                     | •                                      |                                         |                                 |                               |               | 354            |
|                                                                     | EK60UNVL       | + UA22                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 357            |
|                                                                     | EKM60UNVL      | + UA22                    |                              |                                                                                                     |                                        | •                                       |                                 |                               |               | 356            |
|                                                                     | PK60UNV        | + UA22                    |                              |                                                                                                     |                                        |                                         |                                 | •                             |               | 355            |

## *Small parts, big impact.*

### **Insulated and non-insulated cable connections.**

To guarantee ultimate safety at all times, specific quality and installation requirements exist for insulated and non-insulated connections. We often hear about technical failures being caused by faulty connections. That's why quality is so important. Because when it comes to electrical connections, minor causes can have major, expensive consequences.

For optimum processing of Klauke connecting materials, we therefore recommend the use of Klauke tools. A harmonised system for professional users in trade and industry.



- Insulated and non-insulated cable connections for professional users.
- Halogen-free insulation.
- Insulated connectors, heat resistant to 105 °C.
- Hard-soldered in the crimping area.



*The Klauke range carries various designs of both insulated and non-insulated cable connections for diverse applications.*

## ■ Heat resistant insulation to 105 °C.

- ▶ Cable connections with nominal cross-sections from 0.1 mm<sup>2</sup> to 6 mm<sup>2</sup>.
- ▶ Halogen-free and heat resistant to 105 °C.
- ▶ Simple processing thanks to easy-entry insulation.
- ▶ **Hard-soldered in the crimping area.**
- ▶ Grooved profile on the inside.

### Benefits:

- ▶ The use of these optimised quality materials guarantees reliable electrical connections.
- ▶ Electrical conductivity is maintained, even at higher temperatures.
- ▶ Halogen-free, flame-retardant polyamide insulation releases no toxic vapours in case of fire.
- ▶ Easy-entry polyamide insulation for simple conductor insertion.
- ▶ High-tensile strength thanks to grooved profile in the crimping area permits higher mechanical continuous stress.



## ■ Receptacles with strain relief.



▶ More from Page 179.

- ▶ Standardised connectors with 2.8; 4.8; 6.3 and 9.5 mm tab width.
- ▶ With grooved profile and additional copper ring in the insulation area.
- ▶ Receptacles, multiple type.
- ▶ Fully-insulated receptacles.

### Benefits:

- ▶ Standardised tabs enable use for a broad range of applications, including control installations and machine wiring.
- ▶ **The grooved profile increases the hold in the crimping area.**
- ▶ The connections relieved by copper rings in the crimping area better withstand stresses and vibrations.

## ■ With indent point for defined pulling forces.

- ▶ Receptacle with indent point.
- ▶ For harmonised, flexible cables.
- ▶ Receptacles also available in bronze.



### Benefits:

- ▶ The additional indent point increases the mechanical rating and **guarantees that the connections will withstand the defined pulling forces even after repeated pulling actions.**
- ▶ Thanks to the material's improved spring characteristics, connectors with bronze receptacles have a higher contact strength and are able to better withstand mechanical stresses, especially at high temperatures.

▶ More from Page 179.

## Insulated solderless terminals



- ▶ Acc. to DIN 46237 with flared insulation sleeve
- ▶ For fine and superfine stranded conductors
- ▶ High-quality brazing process in the crimp area

## Characteristics

- Total cross-section: 0.1 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Heat resistant to 105° C
- Easy-Entry insulation for easy cable insertion
- Cross-section-dependent colour-coding

## Material

- Cu-ETP
- Insulation sleeve: PA

## Surface

- Tin-plated

## Order info

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section mm <sup>2</sup> | Nominal size to DIN | Part No. | Colour | a1 | a2   | d1  | d2   | d3   | d4  | l    | s   | Weight/100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|---------------------|----------|--------|----|------|-----|------|------|-----|------|-----|----------------------|------------------|
| 0.1-0.4                               | --                  | *6192    | Yellow | -- | --   | 1.0 | 2.3  | 5.0  | 2.2 | 14.0 | 0.5 | 0.020                | 100              |
|                                       |                     | *61925   | Yellow | -- | --   | 1.0 | 2.6  | 5.0  | 2.2 | 14.0 | 0.5 | 0.020                | 100              |
|                                       |                     | *6193    | Yellow | -- | --   | 1.0 | 3.3  | 5.0  | 2.2 | 14.0 | 0.5 | 0.020                | 100              |
|                                       |                     | *61935   | Yellow | -- | --   | 1.0 | 3.8  | 6.5  | 2.2 | 16.0 | 0.5 | 0.025                | 100              |
|                                       |                     | *6194    | Yellow | -- | --   | 1.0 | 4.4  | 7.0  | 2.2 | 16.0 | 0.5 | 0.025                | 100              |
|                                       |                     | *6195    | Yellow | -- | --   | 1.0 | 5.4  | 8.0  | 2.2 | 15.0 | 0.5 | 0.025                | 100              |
| 0.5-1                                 | 2.5-1               | 62025    | Red    | 5  | 10.5 | 1.6 | 2.8  | 6.0  | 4.5 | 16.5 | 0.8 | 0.060                | 100              |
|                                       | 3.0-1               | 6203     | Red    | 5  | 10.5 | 1.6 | 3.2  | 6.0  | 4.5 | 16.5 | 0.8 | 0.060                | 100              |
|                                       | 3.5-1               | 62035    | Red    | 5  | 10.5 | 1.6 | 3.7  | 6.0  | 4.5 | 16.5 | 0.8 | 0.550                | 100              |
|                                       | 4.0-1               | 6204     | Red    | 5  | 10.5 | 1.6 | 4.3  | 8.0  | 4.5 | 17.5 | 0.8 | 0.070                | 100**            |
|                                       | 5.0-1               | 6205     | Red    | 5  | 10.5 | 1.6 | 5.3  | 10.0 | 4.5 | 18.5 | 0.8 | 0.090                | 100              |
|                                       | --                  | *6206    | Red    | 5  | 10.5 | 1.6 | 6.5  | 11.0 | 4.5 | 20.5 | 0.8 | 0.080                | 100              |
|                                       |                     | *6208    | Red    | 5  | 10.5 | 1.6 | 8.4  | 14.0 | 4.5 | 22.5 | 0.8 | 0.130                | 100              |
|                                       |                     | *62010   | Red    | 5  | 10.5 | 1.6 | 10.5 | 18.0 | 4.5 | 24.5 | 0.8 | 0.130                | 100              |
| 1.5-2.5                               | 3.0-2.5             | 6303     | Blue   | 5  | 11.5 | 2.3 | 3.2  | 6.0  | 5.1 | 17.5 | 0.8 | 0.065                | 100              |
|                                       | 3.5-2.5             | 63035    | Blue   | 5  | 11.5 | 2.3 | 3.7  | 6.0  | 5.1 | 17.5 | 0.8 | 0.065                | 100              |
|                                       | 4.0-2.5             | 6304     | Blue   | 5  | 11.5 | 2.3 | 4.3  | 8.0  | 5.1 | 18.5 | 0.8 | 0.080                | 100**            |
|                                       | 5.0-2.5             | 6305     | Blue   | 5  | 11.5 | 2.3 | 5.3  | 10.0 | 5.1 | 20.5 | 0.8 | 0.090                | 100**            |
|                                       | 6.0-2.5             | 6306     | Blue   | 5  | 11.5 | 2.3 | 6.5  | 11.0 | 5.1 | 22.5 | 0.8 | 0.110                | 100              |
|                                       | 8.0-2.5             | 6308     | Blue   | 5  | 11.5 | 2.3 | 8.4  | 14.0 | 5.1 | 23.5 | 0.8 | 0.130                | 100              |
|                                       | --                  | *63010   | Blue   | 5  | 11.5 | 2.3 | 10.5 | 18.0 | 5.1 | 25.5 | 0.8 | 0.160                | 100              |
|                                       | 4.0-6               | 6504     | Yellow | 6  | 12.5 | 3.6 | 4.3  | 8.0  | 6.5 | 20.5 | 1.0 | 0.140                | 100              |
| 4-6                                   | 5.0-6               | 6505     | Yellow | 6  | 12.5 | 3.6 | 5.3  | 10.0 | 6.5 | 21.5 | 1.0 | 0.160                | 100              |
|                                       | 6.0-6               | 6506     | Yellow | 6  | 12.5 | 3.6 | 6.5  | 11.0 | 6.5 | 22.5 | 1.0 | 0.170                | 100**            |
|                                       | 8.0-6               | 6508     | Yellow | 6  | 12.5 | 3.6 | 8.4  | 14.0 | 6.5 | 25.5 | 1.0 | 0.220                | 100              |
|                                       | 10.0-6              | 65010    | Yellow | 6  | 12.5 | 3.6 | 10.5 | 18.0 | 6.5 | 27.5 | 1.0 | 0.290                | 100              |

▶ \* = not standardized

▶ \*\* = Also available in small handy packs

▶ 0.1 - 0.4 mm<sup>2</sup> not CSA tested

▶ Tools: see chart page 193



**Insulated solderless terminals, fork type**

- ▶ Acc. to DIN 46237 with flared insulation sleeve
- ▶ For fine and superfine stranded conductors
- ▶ High-quality brazing process in the crimp area
- ▶ Fork-type version for simple and direct screw mounting


**Characteristics**

- Total cross-section: 0.1 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Heat resistant to 105° C
- Easy-Entry insulation for easy cable insertion
- Cross-section-dependent colour-coding

**Material**

- Cu-ETP
- Insulation sleeve: PA

**Surface**

- Tin-plated

| Nominal cross section mm² | Nominal size to DIN | Part No. | Colour                                                                              | a1 | a2   | d1  | Dimension mm |      |     |      |     | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------|---------------------|----------|-------------------------------------------------------------------------------------|----|------|-----|--------------|------|-----|------|-----|-----------------------|------------------|
| 0.1-0.4                   | --                  | *619C3   |    | -- | --   | --  | 3.2          | 5.0  | --  | 14.0 | 0.5 | 0.020                 | 100              |
|                           | 3.0-1               | 620C3    |    | 5  | 10.5 | 1.6 | 3.2          | 6.0  | 4.5 | 16.5 | 0.8 | 0.060                 | 100              |
| 0.5-1                     | 3.5-1               | 620C35   |    | 5  | 10.5 | 1.6 | 3.7          | 6.8  | 4.5 | 17.5 | 0.8 | 0.060                 | 100              |
|                           | 4.0-1               | 620C4    |    | 5  | 10.5 | 1.6 | 4.3          | 6.8  | 4.5 | 17.5 | 0.8 | 0.070                 | 100              |
|                           | 5.0-1               | 620C5    |    | 5  | 10.5 | 1.6 | 5.3          | 10.0 | 4.5 | 18.5 | 0.8 | 0.090                 | 100              |
|                           | --                  | *620C6   |    | 5  | 10.5 | 1.6 | 6.5          | 11.0 | 4.5 | 20.5 | 0.8 | 0.080                 | 100              |
|                           | 3.0-2.5             | 630C3    |    | 5  | 11.5 | 2.3 | 3.2          | 6.0  | 5.1 | 17.5 | 0.8 | 0.060                 | 100              |
| 1.5-2.5                   | 3.5-2.5             | 630C35   |    | 5  | 11.5 | 2.3 | 3.7          | 6.8  | 5.1 | 18.5 | 0.8 | 0.065                 | 100              |
|                           | 4.0-2.5             | 630C4    |    | 5  | 11.5 | 2.3 | 4.3          | 6.8  | 5.1 | 18.5 | 0.8 | 0.080                 | 100              |
|                           | 5.0-2.5             | 630C5    |    | 5  | 11.5 | 2.3 | 5.3          | 10.0 | 5.1 | 20.5 | 0.8 | 0.090                 | 100              |
|                           | 6.0-2.5             | 630C6    |    | 5  | 11.5 | 2.3 | 6.5          | 11.0 | 5.1 | 22.5 | 0.8 | 0.110                 | 100              |
|                           | 4.0-6               | 650C4    |  | 6  | 12.5 | 3.6 | 4.3          | 8.0  | 6.5 | 20.5 | 1.0 | 0.140                 | 100              |
| 4-6                       | 5.0-6               | 650C5    |  | 6  | 12.5 | 3.6 | 5.3          | 10.0 | 6.5 | 21.5 | 1.0 | 0.160                 | 100              |
|                           | 6.0-6               | 650C6    |  | 6  | 12.5 | 3.6 | 6.5          | 11.0 | 6.5 | 22.5 | 1.0 | 0.170                 | 100              |
|                           | 8.0-6               | 650C8    |  | 6  | 12.5 | 3.6 | 8.4          | 14.0 | 6.5 | 25.5 | 1.0 | 0.220                 | 100              |
|                           | 10.0-6              | 650C10   |  | 6  | 12.5 | 3.6 | 10.5         | 18.0 | 6.5 | 27.5 | 1.0 | 0.280                 | 100              |

▶ \* = not standardized

▶ 0.1 - 0.4 mm<sup>2</sup> not CSA tested

▶ **Tools: see chart page 193**

## Insulated pin terminals



- ▶ Acc. to DIN 46231 with flared insulation sleeve
- ▶ For fine and superfine stranded conductors
- ▶ High-quality brazing process in the crimp area

## Characteristics

- Total cross-section: 0.1 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant to 105° C
- Easy-Entry insulation for easy cable insertion

## Material

- Cu-ETP
- Insulation sleeve: PA

## Surface

- Tin-plated

| Nominal cross section mm² | Nominal size to DIN | Part No. | Colour                                                                            | Dimension mm |      |     |     |      |      |     | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------|---------------------|----------|-----------------------------------------------------------------------------------|--------------|------|-----|-----|------|------|-----|-----------------------|------------------|
|                           |                     |          |                                                                                   | a1           | a2   | d3  | d4  | l1   | l2   | s   |                       |                  |
| 0.1-0.4                   | --                  | *704     |  | --           | --   | 1.4 | --  | 18.0 | 9.0  | 0.5 | 0.020                 | 100              |
| 0.5-1                     | 1                   | 705      |  | 5            | 10.5 | 1.9 | 4.5 | 22.0 | 10.0 | 0.8 | 0.065                 | 100              |
|                           |                     | *705K    |  | 5            | 10.5 | 1.9 | 4.5 | 18.0 | 6.0  | 0.8 | 0.060                 | 100              |
| 1.5-2.5                   | 2.5                 | 710      |  | 5            | 11.5 | 1.9 | 5.1 | 23.0 | 10.0 | 0.8 | 0.065                 | 100              |
|                           |                     | *710K    |  | 5            | 11.5 | 1.9 | 5.1 | 19.5 | 6.5  | 0.8 | 0.060                 | 100              |
|                           |                     | *710L    |  | 5            | 11.5 | 1.9 | 5.1 | 27.5 | 16.0 | 0.8 | 0.100                 | 100              |
|                           |                     | 715      |  | 6            | 12.5 | 2.7 | 6.5 | 26.0 | 11.0 | 1.0 | 0.160                 | 100              |

▶ \* = not standardized

▶ 0.1 - 0.4 mm<sup>2</sup> not CSA tested

▶ Tools: see chart page 193

## Insulated pin receptacles



- ▶ For fine and superfine stranded conductors
- ▶ High quality bronze material provides optimum spring characteristic and improved contact strength

## Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Cross-section-dependent colour-coding
- Heat resistant to 70° C

## Material

- CuSnZn (bronze)
- Insulation sleeve: PVC

## Surface

- Tin-plated

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Tab dia | Dimension mm |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------|---------|--------------|------|-----------------------|------------------|
|                                       |          |        |         | l1           | s    |                       |                  |
| 0.5-1                                 | 920      | Red    | 4       | 22           | 0.35 | 0.060                 | 100              |
| 1.5-2.5                               | 930      | Blue   | 5       | 22           | 0.38 | 0.120                 | 100              |
| 4-6                                   | 950      | Yellow | 5       | 22           | 0.38 | 0.125                 | 100              |

▶ 1.5 - 2.5 mm<sup>2</sup> and 4 - 6 mm<sup>2</sup> not CSA tested

▶ Tools: see chart page 193

## Insulated pin connectors

► For fine and superfine stranded conductors

### Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Cross-section-dependent colour-coding
- Heat resistant to 70° C

### Material

- CuZn (brass)
- Insulation sleeve: PVC

### Surface

- Tin-plated to protect against corrosion



| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |    |    |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------|--------------|----|----|------|-----------------------|------------------|
|                                       |          |        | Tab dia.     | l1 | l2 | s    |                       |                  |
| 0.5-1                                 | 1020     | Red    | 4            | 22 | 9  | 0.38 | 0.060                 | 100              |
| 1.5-2.5                               | 1030     | Blue   | 5            | 22 | 9  | 0.38 | 0.075                 | 100              |
| 4-6                                   | 1050     | Yellow | 5            | 22 | 9  | 0.40 | 0.110                 | 100              |

► 1.5 - 2.5 mm<sup>2</sup> and 4 - 6 mm<sup>2</sup> not CSA tested

► Tools: see chart page 193

## Insulated pin receptacles, fully insulated

- For fine and superfine stranded conductors
- High quality bronze material provides optimum spring characteristic and improved contact strength

### Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant to 105° C

### Material

- CuSnZn (bronze)
- Insulation sleeve: PA

### Surface

- Tin-plated



| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Tab dia. | Dimension mm |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------|----------|--------------|------|-----------------------|------------------|
|                                       |          |        |          | l1           | s    |                       |                  |
| 0.5-1                                 | 920V     | Red    | 4        | 24           | 0.38 | 0.065                 | 100              |
| 4-6                                   | 950V     | Yellow | 5        | 27           | 0.40 | 0.150                 | 100              |

► 4 - 6 mm<sup>2</sup> not CSA tested

► Tools: see chart page 193

Insulated pin connectors, fully insulated



- For fine and superfine stranded conductors
- High quality bronze material provides optimum spring characteristic and improved contact strength

Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant to 105° C

Material

- CuSnZn (bronze)
- Insulation sleeve: PA

Surface

- Tin-plated

| Nominal cross section<br>mm <sup>2</sup> | Part No. | Colour | Tab dia. | Dimension mm |    |      | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|----------|--------|----------|--------------|----|------|-----------------------------|------------------|
|                                          |          |        |          | l1           | l2 | s    |                             |                  |
| 0.5-1                                    | 1020V    |        | 4        | 25           | 11 | 0.38 | 0.065                       | 100              |
| 1.5-2.5                                  | 1030V    |        | 5        | 25           | 11 | 0.38 | 0.080                       | 100              |
| 4-6                                      | 1050V    |        | 5        | 27           | 13 | 0.40 | 0.120                       | 100              |

► 1.5 - 2.5 mm<sup>2</sup> and 4 - 6 mm<sup>2</sup> not CSA tested

► Tools: see chart page 193

**Insulated receptacles, brass - tin plated**

► For fine and superfine stranded conductors

**Characteristics**

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Acc. to DIN 46245 part 1 - 3 and similar versions
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant: PVC to 70° C, PA to 105° C

**Material**

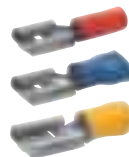
- CuZn (brass)
- Insulation sleeve: PVC/PA

**Surface**

- Tin-plated

**Order info**

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"



| Nominal cross section mm <sup>2</sup> | Nominal size to DIN | Part No. | Colour | Tab thickn. | Tab width | Dimension mm |      |      | Insulation material | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|---------------------|----------|--------|-------------|-----------|--------------|------|------|---------------------|-----------------------|-------------------|
|                                       |                     |          |        |             |           | l1           | l2   | s    |                     |                       |                   |
| 0.5-1                                 |                     | 8201     | ■      | 0.5         | 2.8       | 17.5         | 8.0  | 0.30 | PVC                 | 0.035                 | 100               |
|                                       |                     | 8201A    | ■      | 0.8         | 2.8       | 17.5         | 8.0  | 0.30 | PVC                 | 0.045                 | 100               |
|                                       |                     | 8202     | ■      | 0.5         | 4.8       | 18.0         | 6.0  | 0.35 | PVC                 | 0.065                 | 100               |
|                                       | 4.8 - 1             | 8203     | ■      | 0.8         | 4.8       | 18.0         | 6.0  | 0.35 | PVC                 | 0.065                 | 100               |
|                                       | 6.3 - 1             | 720      | ■      | 0.8         | 6.3       | 22.0         | 7.5  | 0.45 | PVC                 | 0.090                 | 100*              |
| 1.5-2.5                               |                     | 7208     | ■      | 0.8         | 7.7       | 25.0         | 9.5  | 0.40 | PVC                 | 0.110                 | 100               |
|                                       |                     | 8301     | ■      | 0.5         | 2.8       | 18.0         | 8.0  | 0.35 | PA                  | 0.050                 | 100               |
|                                       |                     | 8301A    | ■      | 0.8         | 2.8       | 18.0         | 8.0  | 0.35 | PA                  | 0.060                 | 100               |
|                                       |                     | 8302     | ■      | 0.5         | 4.8       | 18.0         | 6.0  | 0.35 | PVC                 | 0.070                 | 100               |
|                                       | 4.8 - 2.5           | 8303     | ■      | 0.8         | 4.8       | 18.0         | 6.0  | 0.35 | PVC                 | 0.070                 | 100               |
|                                       | 6.3 - 2.5           | 730      | ■      | 0.8         | 6.3       | 21.0         | 7.4  | 0.45 | PVC                 | 0.090                 | 100*              |
|                                       |                     | 7308     | ■      | 0.8         | 7.7       | 25.0         | 9.5  | 0.45 | PVC                 | 0.115                 | 100               |
| 4-6                                   |                     | 8503     | ■      | 0.8         | 4.8       | 23.0         | 7.5  | 0.45 | PA                  | 0.138                 | 100               |
|                                       | 6.3 - 6             | 750      | ■      | 0.8         | 6.3       | 21.0         | 7.5  | 0.45 | PVC                 | 0.100                 | 100*              |
|                                       |                     | 7509     | ■      | 1.2         | 9.5       | 26.5         | 12.0 | 0.45 | PVC                 | 0.150                 | 100               |

► Tools: see chart page 193

## Insulated receptacles, bronze - tin plated



- ▶ For fine and superfine stranded conductors
- ▶ High quality bronze material provides optimum spring characteristic and improved contact strength

## Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Acc. to DIN 46245, part 3
- Cross-section-dependent colour-coding
- Heat resistant to 70° C

## Material

- CuSnZn (bronze)
- Insulation sleeve: PVC

## Surface

- Tin-plated

| Nominal cross section mm <sup>2</sup> | Nominal size to DIN | Part No. | Colour | Tab thickn. | Tab width | Dimension mm |     |      | Insulation material | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|---------------------|----------|--------|-------------|-----------|--------------|-----|------|---------------------|-----------------------|-------------------|
|                                       |                     |          |        |             |           | I1           | I2  | s    |                     |                       |                   |
| 0,5-1                                 | 6,3 - 1             | 720BZ    | Red    | 0,8         | 6,3       | 22           | 7,5 | 0,45 | PVC                 | 0,09                  | 100               |
| 1,5-2,5                               | 6,3 - 2,5           | 730BZ    | Blue   | 0,8         | 6,3       | 21           | 7,4 | 0,45 | PVC                 | 0,09                  | 100               |
| 4-6                                   | 6,3 - 6             | 750BZ    | Yellow | 0,8         | 6,3       | 21           | 7,5 | 0,45 | PVC                 | 0,10                  | 100               |

► Tools: see chart page 193

## Insulated receptacles, multiple type



- ▶ For fine and superfine stranded conductors

## Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Cross-section-dependent colour-coding
- Heat resistant: PVC to 70° C

## Material

- CuZn (brass)
- Insulation sleeve: PVC

## Surface

- Tin-plated

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Tab thickn. | Tab width | Dimension mm |     |    |     | Insulation material | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|----------|--------|-------------|-----------|--------------|-----|----|-----|---------------------|-----------------------|-------------------|
|                                       |          |        |             |           | I1           | I2  | I3 | s   |                     |                       |                   |
| 0.5-1                                 | 720AZ    | Red    | 0.8         | 6.3       | 22           | 7.5 | 8  | 0.4 | PVC                 | 0.11                  | 100               |
| 1.5-2.5                               | 730AZ    | Blue   | 0.8         | 6.3       | 22           | 7.5 | 8  | 0.4 | PVC                 | 0.11                  | 100               |
| 4-6                                   | 750AZ    | Yellow | 0.8         | 6.3       | 25           | 8.0 | 8  | 0.4 | PVC                 | 0.18                  | 100               |

► Tools: see chart page 193

**Insulated receptacles, fully insulated**

► For fine and superfine stranded conductors


**Characteristics**

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant: PVC to 70° C, PA to 105° C

**Material**

- CuZn (brass)
- Insulation sleeve: PVC/PA

**Surface**

- Tin-plated

**Order info**

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section<br>mm <sup>2</sup> | Part No. | Colour | Tab thckn. | Tab width | Dimension mm |      |      | Insulation material | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|------------------------------------------|----------|--------|------------|-----------|--------------|------|------|---------------------|-----------------------------|----------------------|
|                                          |          |        |            |           | l1           | l2   | s    |                     |                             |                      |
| 0.5-1                                    | 8201V    | ■      | 0.5        | 2.8       | 19.0         | 5.5  | 0.25 | PA                  | 0.07                        | 100                  |
|                                          | 8201AV   | ■      | 0.8        | 2.8       | 19.0         | 5.5  | 0.25 | PA                  | 0.07                        | 100                  |
|                                          | 8202V    | ■      | 0.5        | 4.8       | 20.0         | 7.0  | 0.30 | PVC                 | 0.10                        | 100                  |
|                                          | 8203V    | ■      | 0.8        | 4.8       | 20.0         | 7.0  | 0.30 | PVC                 | 0.10                        | 100                  |
|                                          | 720V     | ■      | 0.8        | 6.3       | 21.0         | 7.5  | 0.45 | PVC                 | 0.08                        | 100*                 |
| 1.5-2.5                                  | 8301V    | ■      | 0.5        | 2.8       | 20.0         | 8.0  | 0.35 | PVC                 | 0.14                        | 100                  |
|                                          | 8301AV   | ■      | 0.8        | 2.8       | 20.0         | 8.0  | 0.35 | PVC                 | 0.14                        | 100                  |
|                                          | 8302V    | ■      | 0.5        | 4.8       | 20.5         | 7.0  | 0.30 | PVC                 | 0.11                        | 100                  |
|                                          | 8303V    | ■      | 0.8        | 4.8       | 20.5         | 7.0  | 0.30 | PVC                 | 0.11                        | 100                  |
|                                          | 730V     | ■      | 0.8        | 6.3       | 21.0         | 7.5  | 0.45 | PVC                 | 0.15                        | 100*                 |
| 4-6                                      | 8502V    | ■      | 0.5        | 4.8       | 20.5         | 9.5  | 0.40 | PVC                 | 0.15                        | 100                  |
|                                          | 8503V    | ■      | 0.8        | 4.8       | 20.5         | 9.5  | 0.40 | PVC                 | 0.15                        | 100                  |
|                                          | 750V     | ■      | 0.8        | 6.3       | 25.5         | 11.5 | 0.45 | PVC                 | 0.16                        | 100                  |

► \* = Also available in small handy packs

► Tools: see chart page 193

## Insulated tabs



► For fine and superfine stranded conductors

## Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant: PVC to 70° C, PA to 105° C

## Material

- CuZn (brass)
- Insulation sleeve: PVC/PA

## Surface

- Tin-plated

## Order info

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Tab thickn. | Tab width | Dimension mm |      |     | Insulation material | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------------------------|----------|--------|-------------|-----------|--------------|------|-----|---------------------|-----------------------|-------------------|
| 0.5-1                                 | 8201C    | ■      | 0.5         | 2.8       | 22.0         | 11.5 | 0.4 | PA                  | 0.040                 | 100               |
|                                       | 8201B    | ■      | 0.8         | 2.8       | 14.6         | 5.5  | 0.4 | PVC                 | 0.060                 | 100               |
|                                       | 8202B    | ■      | 0.5         | 4.8       | 22.0         | 11.5 | 0.5 | PA                  | 0.070                 | 100               |
|                                       | 8203B    | ■      | 0.8         | 4.8       | 22.0         | 11.5 | 0.4 | PA                  | 0.070                 | 100               |
|                                       | 820      | ■      | 0.8         | 6.3       | 22.0         | 8.0  | 0.4 | PVC                 | 0.060                 | 100*              |
| 1.5-2.5                               | 8302B    | ■      | 0.5         | 4.8       | 22.0         | 11.5 | 0.5 | PA                  | 0.070                 | 100               |
|                                       | 8303B    | ■      | 0.8         | 4.8       | 22.0         | 11.5 | 0.4 | PA                  | 0.070                 | 100               |
|                                       | 830      | ■      | 0.8         | 6.3       | 22.0         | 8.0  | 0.4 | PVC                 | 0.065                 | 100*              |
| 4-6                                   | 8502B    | ■      | 0.5         | 4.8       | 24.5         | 10.5 | 0.4 | PA                  | 0.120                 | 100               |
|                                       | 8503B    | ■      | 0.8         | 4.8       | 24.5         | 10.5 | 0.4 | PA                  | 0.120                 | 100               |
|                                       | 850      | ■      | 0.8         | 6.3       | 22.0         | 8.0  | 0.4 | PVC                 | 0.110                 | 100*              |

► \* = Also available in small handy packs

► Tools: see chart page 193

## Insulated closed end-splices



► For fine and superfine stranded conductors

## Characteristics

- Total cross-section: 1.5 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant to 105° C

## Material

- Cu-ETP
- Insulation sleeve: PA

## Surface

- Tin-plated

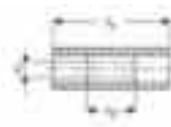
| Nominal cross section mm <sup>2</sup> | Part No. | Colour | d1  | d2  | Dimension mm |   |     | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------|-----|-----|--------------|---|-----|-----------------------|------------------|
| 1.5-2.5                               | 1130     | ■      | 2.3 | 5.2 | 16           | 7 | 0.8 | 0.05                  | 100              |
| 4-6                                   | 1150     | ■      | 3.6 | 7.0 | 18           | 7 | 1.0 | 0.14                  | 100              |

► Tools: see chart page 193



## Insulated butt connectors

- ▶ For fine and superfine stranded conductors
- ▶ With buttmarks for precise cable insertion



### Characteristics

- Total cross-section: 0.1 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant to 105° C

### Material

- Cu-ETP
- Insulation sleeve: PA

### Surface

- Tin-plated

### Order info

- Now also available in handy plastic boxes for smaller requirements, part number appendix "SB"

| Nominal cross section mm <sup>2</sup> | Part No.   | Colour | Dimension mm |    |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|------------|--------|--------------|----|----|-----------------------|------------------|
|                                       |            |        | d1           | l1 | l2 |                       |                  |
| 0.1-0.4                               | <b>669</b> |        | 1.2          | 20 | 12 | 0.030                 | 100              |
| 0.5-1                                 | <b>670</b> |        | 1.6          | 25 | 15 | 0.090                 | 100*             |
| 1.5-2.5                               | <b>680</b> |        | 2.3          | 25 | 15 | 0.115                 | 100*             |
| 4-6                                   | <b>700</b> |        | 3.6          | 27 | 15 | 0.250                 | 100*             |

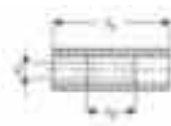
▶ \* = Also available in small handy packs

▶ 0.1 - 0.4 mm<sup>2</sup> not CSA tested

▶ **Tools: see chart page 193**

## Insulated butt connectors, with heat shrink insulation

- ▶ For fine and superfine stranded conductors
- ▶ With buttmarks for precise cable insertion
- ▶ With waterproof heat shrink insulation



### Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Special crimping tool required
- Heat resistant to 105° C

### Material

- Cu-ETP
- Insulation sleeve: PE

### Surface

- Tin-plated

| Nominal cross section mm <sup>2</sup> | Part No.     | Colour | Dimension mm |    |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|--------------|--------|--------------|----|----|-----------------------|------------------|
|                                       |              |        | d1           | l1 | l2 |                       |                  |
| 0.5-1                                 | <b>670WS</b> |        | 1.6          | 36 | 15 | 0.12                  | 100              |
| 1.5-2.5                               | <b>680WS</b> |        | 2.3          | 36 | 15 | 0.15                  | 100              |
| 4-6                                   | <b>700WS</b> |        | 3.4          | 41 | 15 | 0.25                  | 100              |

▶ **Tools: see chart page 193**

## Insulated parallel compression joints



► For fine and superfine stranded conductors

**Characteristics**

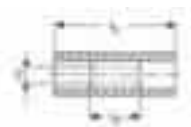
- Total cross-section: 0.1 - 6 mm<sup>2</sup>
- Insulated, halogen-free
- Cross-section-dependent colour-coding
- Heat resistant to 105° C

**Material**

- Cu-ETP
- Insulation sleeve: PA

**Surface**

- Tin-plated



| Nominal cross section mm <sup>2</sup> | Part No. | Colour | Dimension mm |    |    | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|----------|--------|--------------|----|----|-----------------------|------------------|
|                                       |          |        | d1           | l1 | l2 |                       |                  |
| 0.1-0.4                               | 769      | Yellow | 1.2          | 13 | 5  | 0.020                 | 100              |
| 0.5-1                                 | 770      | Red    | 1.6          | 17 | 7  | 0.030                 | 100              |
| 1.5-2.5                               | 780      | Blue   | 2.3          | 17 | 7  | 0.035                 | 100              |
| 4-6                                   | 790      | Yellow | 3.6          | 21 | 7  | 0.105                 | 100              |

► 0.1 - 0.4 mm<sup>2</sup> not CSA tested

► Tools: see chart page 193

## Non-insulated receptacles



► For fine and superfine stranded conductors

**Characteristics**

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Acc. to DIN 46247 part 1 - 3 and similar versions
- With grooved profile for improved contact characteristics

**Material**

- CuZn (brass)

**Surface**

- Tin-plated

**Order info**

- \* = This part is available in nickel-plated steel; part number appendix "ST"



| Nominal cross section<br>mm <sup>2</sup> | Nominal size to DIN | Part No. | Tab thickn. | Tab width | Dimension mm |     |      |      |     |      | Weight/<br>100 pcs.<br>~ kg | Packing unit/pcs |
|------------------------------------------|---------------------|----------|-------------|-----------|--------------|-----|------|------|-----|------|-----------------------------|------------------|
|                                          |                     |          |             |           | a1           | a2  | l1   | l2   | l3  | s    |                             |                  |
| 0.5-1                                    | --                  | 18251    | 0.5         | 2.8       | 5.0          | 2.8 | 12.5 | 5.0  | 3.3 | 0.30 | 0.025                       | 100              |
|                                          |                     | 18251A   | 0.8         | 2.8       | 5.5          | 2.5 | 12.5 | 5.0  | 3.3 | 0.30 | 0.025                       | 100              |
|                                          |                     | 18201A   | 0.8         | 2.8       | 5.5          | 2.5 | 14.0 | 6.3  | 3.3 | 0.25 | 0.025                       | 100              |
|                                          | --                  | 18202    | 0.5         | 4.8       | 6.0          | 3.4 | 15.6 | 6.0  | 3.8 | 0.35 | 0.050                       | 100              |
|                                          | 4.8 - 1             | 18203    | 0.8         | 4.8       | 6.0          | 3.4 | 15.6 | 6.0  | 3.8 | 0.35 | 0.050                       | 100              |
|                                          | 6.3 - 1             | 1720     | 0.8         | 6.3       | 8.5          | 4.5 | 19.0 | 7.4  | 4.0 | 0.45 | 0.085                       | 100              |
| 1.5-2.5                                  | 4.8 - 2.5           | 18303    | 0.8         | 4.8       | 6.0          | 3.4 | 15.6 | 6.0  | 3.8 | 0.35 | 0.055                       | 100              |
|                                          | 6.3 - 2.5           | *1730    | 0.8         | 6.3       | 8.5          | 4.5 | 19.0 | 7.4  | 4.0 | 0.45 | 0.082                       | 100              |
|                                          | 4-6                 | 6.3 - 6  | *1750       | 0.8       | 6.3          | 8.5 | 4.5  | 19.0 | 7.4 | 4.0  | 0.45                        | 0.100            |

► Tools: see chart page 194

## Non-insulated receptacles, multiple type

► For fine and superfine stranded conductors

### Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Acc. to DIN 46247 part 1 - 3 and similar versions
- With grooved profile for improved contact characteristics

### Material

- CuZn (brass)

### Surface

- Tin-plated

### Order info

- \* = Nickel-plated steel version also available, part number appendix "ST"



| Nominal cross section<br>mm <sup>2</sup> | Part No.       | Tab thickn. | Tab width | a1  | a2  | Dimension mm |   |     |      | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|------------------------------------------|----------------|-------------|-----------|-----|-----|--------------|---|-----|------|-----------------------------|----------------------|
| 0.5-1                                    | <b>18203AZ</b> | 0.8         | 4.8       | 6.0 | 3.4 | 15.6         | 7 | 6.0 | 0.38 | 0.09                        | 100                  |
| 1.5-2.5                                  | <b>18303AZ</b> | 0.8         | 4.8       | 6.0 | 3.4 | 15.6         | 7 | 6.0 | 0.38 | 0.09                        | 100                  |
|                                          | <b>1730AZ</b>  | 0.8         | *6.3      | 8.5 | 4.5 | 19.2         | 8 | 7.5 | 0.38 | 0.13                        | 100                  |

► \* = according to DIN 46345, also available in nickel-plated steel

► **Tools:** see chart page 194

## Non-insulated receptacles with latch

► For fine and superfine stranded conductors

### Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- Acc. to DIN 46340, sheet 3
- With latch to engage in housings
- With grooved profile for improved contact characteristics

### Material

- CuZn (brass)

### Surface

- Tin-plated



| Nominal cross section<br>mm <sup>2</sup> | Part No.    | Tab thickn. | Tab width | a1  | a2  | Dimension mm |     |   |      | Weight/<br>100 pcs.<br>~ kg | Packing unit/<br>pcs |
|------------------------------------------|-------------|-------------|-----------|-----|-----|--------------|-----|---|------|-----------------------------|----------------------|
| 0.5-1                                    | <b>2720</b> | 0.8         | 6.3       | 8.5 | 4.5 | 19.2         | 7.4 | 7 | 0.38 | 0.070                       | 100                  |
| 1.5-2.5                                  | <b>2730</b> | 0.8         | 6.3       | 8.5 | 4.5 | 19.2         | 7.4 | 7 | 0.38 | 0.075                       | 100                  |
| 4-6                                      | <b>2750</b> | 0.8         | 6.3       | 8.5 | 4.5 | 19.2         | 7.4 | 7 | 0.38 | 0.090                       | 100                  |

► **Tools:** see chart page 194

## Non-insulated receptacles with lateral conductor connector



► For fine and superfine stranded conductors



## Characteristics

- Total cross-section: 0.5 - 2.5 mm<sup>2</sup>
- With grooved profile for improved contact characteristics

## Material

- CuZn (brass)

## Surface

- Tin-plated



| Nominal cross section<br>mm <sup>2</sup> | Part No. | Tab thickn. | Tab width | Typ | Dimension mm |     |       |     |     |     |      |       | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------------------------------------|----------|-------------|-----------|-----|--------------|-----|-------|-----|-----|-----|------|-------|-----------------------------|---------------------|
|                                          |          |             |           |     | a1           | a2  | l1    | l2  | l3  | l4  | s    |       |                             |                     |
| 0.5-1                                    | 3720     | 0.8         | 6.3       | B   | 11.0         | 3.0 | 12.5  | 7.4 | 4.0 | 7.2 | 0.38 | 0.080 | 100                         |                     |
| 0.5-1.5                                  | 3725     | 0.8         | 6.3       | C   | 7.5          | 4.0 | 11.00 | 7.4 | 4.0 | 7.2 | 0.45 | 0.085 | 100                         |                     |
| 1.5 - 2.5                                | 3735     | 0.8         | 6.3       | B   | 11.0         | 3.0 | 13.5  | 7.0 | 4.0 | 7.2 | 0.38 | 0.085 | 100                         |                     |

► Tools: see chart page 194

## Non-insulated tabs



► For fine and superfine stranded conductors



## Characteristics

- Total cross-section: 0.5 - 6 mm<sup>2</sup>
- With grooved profile for improved contact characteristics

## Material

- CuZn (Messing)

## Surface

- Tin-plated



| Nominal cross section<br>mm <sup>2</sup> | Nominal size to DIN | Part No.     | Tab thickn. | Tab width | Typ | Dimension mm |     |      |      |      | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------------------------------------|---------------------|--------------|-------------|-----------|-----|--------------|-----|------|------|------|-----------------------------|---------------------|
|                                          |                     |              |             |           |     | a1           | a2  | d2   | l1   | l2   |                             |                     |
| 0.5-1                                    |                     | <b>*2235</b> | 0.8         | 2.8       | A   | 6.0          | 3.2 | 1.30 | 22.5 | 12.7 | 0.045                       | 100                 |
|                                          | 46343<br>B6.3 - 1   | <b>2220</b>  | 0.8         | 6.3       | A   | 8.2          | 4.0 | 1.65 | 28.0 | 16.0 | 0.085                       | 100                 |
| 1.5-2.5                                  | 46248<br>A6.3 - 2.5 | <b>1830</b>  | 0.8         | 6.3       | B   | 9.0          | 4.5 | 1.65 | 20.0 | 8.0  | 0.065                       | 100                 |
|                                          | 46343<br>B6.3 - 2.5 | <b>2230</b>  | 0.8         | 6.3       | A   | 8.2          | 4.0 | 1.65 | 28.0 | 16.0 | 0.090                       | 100                 |
| 4-6                                      | 46343<br>B6.3 - 6   | <b>2250</b>  | 0.8         | 6.3       | A   | 8.2          | 4.0 | 1.65 | 28.0 | 16.0 | 0.100                       | 100                 |

► \* = Dimensions in plug sector acc. to DIN 46244

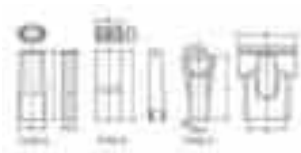
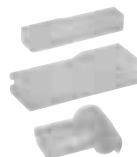
► Tools: see chart page 194

**Insulation sleeves**
**► For non-insulated tabs**
**Characteristics**

- For cross-sections from 0.5 - 6 mm<sup>2</sup>
- For post-insulation of crimped non-insulated receptacles

**Material**

- see table



| Nominal cross section mm <sup>2</sup> | Nominal size to DIN | Part No. | Colour                                                                            | Typ | Dimension mm |      |     | Insulation material | for part no.                   | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|---------------------------------------|---------------------|----------|-----------------------------------------------------------------------------------|-----|--------------|------|-----|---------------------|--------------------------------|-----------------------|------------------|
|                                       |                     |          |                                                                                   |     | b1           | l    | h1  |                     |                                |                       |                  |
| 0.5-1                                 | 2.8                 | 2755     |  | A   | 6.5          | 20.0 | 4.0 | PE                  | 1825,18251,18251A,18201,18201A | 0.015                 | 100              |
| 0.5-1.5                               | 4.8                 | 2760     |  | A   | 7.0          | 20.0 | 5.0 | PE                  | 18202,18203                    | 0.015                 | 100              |
| 1.5-2.5                               | 4.8                 | 2765     |  | A   | 9.5          | 20.0 | 5.5 | PE                  | 18302,18303                    | 0.025                 | 100              |
| 0.5-2.5                               | 6.3                 | 2770     |  | A   | 12.5         | 23.0 | 8.5 | PE                  | 1720,1730                      | 0.035                 | 100              |
| 0.5-2.5                               | 6.3                 | 2775     |  | A   | 9.5          | 25.0 | 5.0 | PE                  | 1820,1830                      | 0.030                 | 100              |
| 0.5-4                                 | 6.3                 | 2780     |  | A   | 9.5          | 25.0 | 6.0 | PE                  | 1720,1730,1820,1830            | 0.030                 | 100              |
| 0.5-6                                 | 6.3                 | 2785     |  | B   | 9.2          | 24.5 | 5.6 | PA                  | 1720,1730,1750,2720,2730,2750  | 0.055                 | 100              |
| 0.5-6                                 | 6.3                 | 2790     |  | C   | 13.5         | 15.0 | 3.1 | PVC                 | 3720, 3725, 3735               | 0.060                 | 100              |

## Non-insulated tabs, angled type



### Characteristics

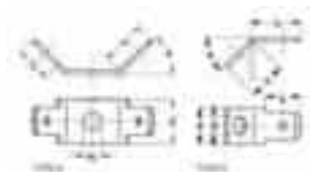
- Acc. to DIN 46342 part 1 and similar versions
- Dimensions in the plug sector to DIN 46244

### Material

- CuZn (brass)

### Surface

- Tin-plated



| Nominal size to DIN | Part No. | Tab thickn. | Tab width | Typ | Dimension mm |     |     |      |      |     | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------|----------|-------------|-----------|-----|--------------|-----|-----|------|------|-----|-----------------------|-------------------|
|                     |          |             |           |     | a1           | a2  | l1  | l2   | l3   | s   |                       |                   |
| --                  | 2040     | 0.8         | 2.8       | A   | 5.0          | 3.2 | 5.5 | 6.5  | --   | 60° | 0.040                 | 100               |
|                     | 2045     | 0.8         | 6.3       | A   | 10.0         | 4.3 | 8.0 | 10.0 | --   | 45° | 0.160                 | 100               |
|                     | 2060     | 0.8         | 6.3       | B   | 8.0          | 4.3 | 8.0 | 8.0  | 10.7 | 30° | 0.085                 | 100               |
|                     | 2070     | 0.8         | 6.3       | B   | 8.0          | 3.2 | 8.0 | 8.0  | 10.7 | 45° | 0.085                 | 100               |
|                     | 2075     | 0.8         | 6.3       | B   | 8.0          | 4.1 | 8.0 | 8.0  | 10.7 | 45° | 0.085                 | 100               |
| B 6.3 - 0.8         | 2080     | 0.8         | 6.3       | B   | 8.0          | 4.3 | 8.0 | 8.5  | 10.7 | 45° | 0.085                 | 100               |
| --                  | 2083     | 0.8         | 6.3       | B   | 8.0          | 5.3 | 8.0 | 8.5  | 10.7 | 45° | 0.080                 | 100               |
|                     | 2090     | 0.8         | 6.3       | B   | 8.0          | 5.3 | 8.0 | 8.0  | 10.7 | 45° | 0.080                 | 100               |
|                     | 2100     | 0.8         | 6.3       | B   | 7.5          | 2.5 | 8.0 | 5.7  | 11.5 | 90° | 0.075                 | 100               |
|                     | 2105     | 0.8         | 6.3       | B   | 8.0          | 3.2 | 8.0 | 8.0  | 11.5 | 90° | 0.085                 | 100               |
| C 6.3 - 0.8         | 2115     | 0.8         | 6.3       | B   | 8.0          | 4.3 | 8.0 | 8.5  | 11.5 | 90° | 0.090                 | 100               |

## Non-insulated tabs, straight type



### Characteristics

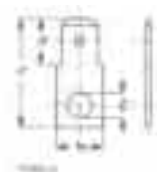
- Acc. to DIN 46342 part 1 and similar versions
- Dimensions in the plug sector to DIN 46244

### Material

- CuZn (brass)

### Surface

- Tin-plated



| Nominal size to DIN | Part No. | Tab thickn. | Tab width | Typ | Dimension mm |     |      |     |     | Weight/ 100 pcs. ~ kg | Packing unit/ pcs |
|---------------------|----------|-------------|-----------|-----|--------------|-----|------|-----|-----|-----------------------|-------------------|
|                     |          |             |           |     | b1           | d2  | l1   | l2  | s   |                       |                   |
| --                  | 2123     | 0.8         | 2.8       | A   | 4.5          | 3.1 | 13.0 | 5.5 | 0.8 | 0.028                 | 100               |
| A 6.3 - 0.8         | 2140     | 0.8         | 6.3       | A   | 8.0          | 4.3 | 19.0 | 8.0 | 0.8 | 0.086                 | 100               |
| --                  | 2145     | 0.8         | 6.3       | A   | 8.0          | 5.3 | 19.0 | 8.0 | 0.8 | 0.080                 | 100               |

## Non-insulated tabs, for soldering applications

### Characteristics

- Dimensions in the plug sector to DIN 46244
- For soldering in printed circuits

### Material

- CuZn (brass)

### Surface

- Tin-plated



| Part No.    | Tab thickn. | Tab width | Typ | Dimension mm |    |     |      |     |    |      |     | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|-------------|-------------|-----------|-----|--------------|----|-----|------|-----|----|------|-----|-----------------------------|---------------------|
|             |             |           |     | b1           | b2 | b3  | l1   | l2  | l3 | l4   | s   |                             |                     |
| <b>2010</b> | 0.8         | 2.8       | A   | --           | -- | --  | 10.5 | 6.5 | -- | --   | 0.8 | 0.015                       | 100                 |
| <b>2020</b> | 0.5         | 2.8       | C   | 1.0          | 5  | --  | --   | 7.1 | 8  | 13.4 | 0.5 | 0.025                       | 100                 |
| <b>2025</b> | 0.8         | 2.8       | C   | 1.0          | 5  | --  | --   | 7.1 | 8  | 13.4 | 0.8 | 0.040                       | 100                 |
| <b>2030</b> | 0.8         | 6.3       | D   | 3.5          | 5  | 6.4 | 16.0 | 8.0 | 4  | 12.0 | 0.8 | 0.065                       | 100                 |
| <b>2035</b> | 0.8         | 6.3       | E   | 3.8          | 5  | 6.2 | 16.0 | 8.0 | 3  | 12.0 | 0.8 | 0.085                       | 100                 |

## Non-insulated multiple tabs

### Characteristics

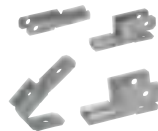
- Dimensions in the plug sector to DIN 46244

### Material

- CuZn (brass)

### Surface

- Tin-plated

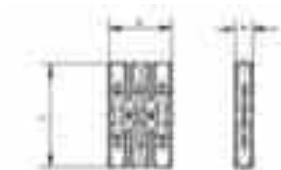


| Part No.   | Tab thickn. | Tab width | Typ | Dimension mm |     |     |      |     |     |     |     |      | Weight/<br>100 pcs.<br>~ kg | Packing<br>unit/pcs |
|------------|-------------|-----------|-----|--------------|-----|-----|------|-----|-----|-----|-----|------|-----------------------------|---------------------|
|            |             |           |     | a1           | b2  | b3  | l1   | l2  | l3  | h   | w   | s    |                             |                     |
| <b>735</b> | 0.8         | 2.8       | A   | 5            | 3.2 | 3.1 | 16.0 | 6.7 | --  | --  | --  | 0.38 | 0.060                       | 100                 |
| <b>755</b> | 0.8         | 4.8       | C   | --           | 4.4 | --  | 20.0 | 7.0 | 7.0 | 8.0 | --  | 0.38 | 0.155                       | 100                 |
| <b>725</b> | 0.8         | 6.3       | D   | --           | --  | --  | --   | 8   | 7.5 | --  | 15° | 0.38 | 0.115                       | 100                 |
| <b>775</b> | 0.8         | 6.3       | C   | --           | --  | --  | 20.5 | 12  | 7.5 | 9.6 | --  | 0.38 | 0.200                       | 100                 |

Flexible connectors, tab width 2.8 mm

Characteristics

- With tabs 2.8 x 0.8 mm
- 1, 2 and 12-poles
- Further poles on request

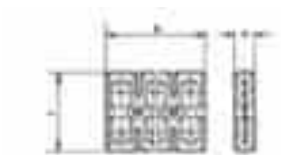


| Part No. | Tab thickn. | Tab width | Poles | Dimension mm |    |     |     | Insulation material | Bolt size in mm |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|----------|-------------|-----------|-------|--------------|----|-----|-----|---------------------|-----------------|------|-----------------------|------------------|
|          |             |           |       | b            | l  | h   | s   |                     | distance        | dia. |                       |                  |
| 8101     | 0.8         | 2.8       | 1     | 7.5          | 35 | 5.5 | 0.8 | PVC                 | --              | --   | 0.2                   | 100              |
| 8102     | 0.8         | 2.8       | 2     | 15.0         | 35 | 5.5 | 0.8 | PVC                 | --              | 2.7  | 0.3                   | 50               |
| 81012    | 0.8         | 2.8       | 12    | 88.0         | 35 | 5.5 | 0.8 | PVC                 | 75              | 2.7  | 1.6                   | 10               |

Flexible connectors, tab width 4.8 mm

Characteristics

- With tabs 4.8 x 0.8 mm
- 1, 2 and 12-poles
- Further poles on request

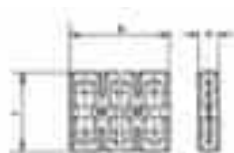


| Part No. | Tab thickn. | Tab width | Poles | Dimension mm |    |     |     | Insulation material | Bolt size in mm |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|----------|-------------|-----------|-------|--------------|----|-----|-----|---------------------|-----------------|------|-----------------------|------------------|
|          |             |           |       | b            | l  | h   | s   |                     | distance        | dia. |                       |                  |
| 8051     | 0.8         | 4.8       | 1     | 12.5         | 28 | 6.6 | 0.8 | PVC                 | --              | --   | 0.25                  | 100              |
| 8052     | 0.8         | 4.8       | 2     | 25.0         | 28 | 6.6 | 0.8 | PVC                 | --              | 3.2  | 0.50                  | 50               |
| 80512    | 0.8         | 4.8       | 12    | 142.0        | 28 | 6.6 | 0.8 | PVC                 | 120             | 3.2  | 2.80                  | 10               |



**Flexible connectors, tab width 6.3 mm**
**Characteristics**

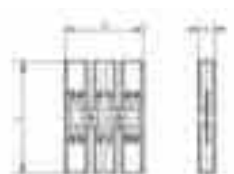
- With tabs 6.3 x 0.8 mm
- 1, 2 and 12-poles
- Further poles on request



| Part No.     | Tab thickn. | Tab width | Poles | Dimension mm |    |     |     | Insulation material | Bolt size in mm |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|--------------|-------------|-----------|-------|--------------|----|-----|-----|---------------------|-----------------|------|-----------------------|------------------|
|              |             |           |       | b            | l  | h   | s   |                     | distance        | dia. |                       |                  |
| <b>8001</b>  | 0.8         | 6.3       | 1     | 12.5         | 28 | 6.6 | 0.8 | PVC                 | --              | --   | 0.30                  | 100              |
| <b>8002</b>  | 0.8         | 6.3       | 2     | 25.0         | 28 | 6.6 | 0.8 | PVC                 | --              | 3.7  | 0.55                  | 50               |
| <b>80012</b> | 0.8         | 6.3       | 12    | 142.0        | 28 | 6.6 | 0.8 | PVC                 | 120             | 3.7  | 3.20                  | 10               |

**Polyamide connectors, tab width 2.8 and 6.3 mm**
**Characteristics**

- With tabs 2.8 x 0.8 mm and 6.3 x 0.8 mm
- 1, 2 and 12-poles
- Further poles on request



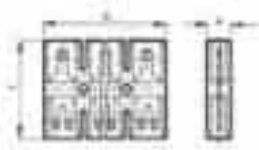
| Part No.     | Tab thickn. | Tab width       | Poles | Dimension mm |    |     |     | Insulation material | Bolt size in mm |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|--------------|-------------|-----------------|-------|--------------|----|-----|-----|---------------------|-----------------|------|-----------------------|------------------|
|              |             |                 |       | b            | l  | h   | s   |                     | distance        | dia. |                       |                  |
| <b>8011</b>  | 0.8         | 6.3 and 2 x 2.8 | 1     | 10.0         | 50 | 7.5 | 0.8 | Polyamid            | --              | --   | 0.25                  | 100              |
| <b>8012</b>  | 0.8         | 6.3 and 2 x 2.8 | 2     | 22.5         | 50 | 7.5 | 0.8 | Polyamid            | --              | 3.1  | 0.50                  | 50               |
| <b>80112</b> | 0.8         | 6.3 and 2 x 2.8 | 12    | 147.5        | 50 | 7.5 | 0.8 | Polyamid            | 125             | 3.1  | 3.10                  | 10               |

Flexible circuit distributors, tab width 2.8 mm



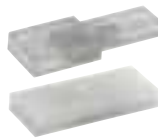
Characteristics

- With tabs 2.8 x 0.8 mm
- 1 and 12-poles
- Further poles on request



| Part No. | Tab thickn. | Tab width | Poles | Dimension mm |    |   |     | Insulation material | Bolt size in mm |      | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|----------|-------------|-----------|-------|--------------|----|---|-----|---------------------|-----------------|------|-----------------------|------------------|
|          |             |           |       | b            | l  | h | s   |                     | distance        | dia. |                       |                  |
| 8151     | 0,8         | 2,8       | 1     | 12,5         | 28 | 7 | 0,8 | PVC                 | --              | --   | 0,25                  | 100              |
| 81512    | 0,8         | 2,8       | 12    | 147,0        | 28 | 7 | 0,8 | PVC                 | 123             | 3,2  | 2,80                  | 10               |

Flexible circuit distributors, tab width 6.3 mm

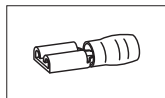


Characteristics

- With tabs 6.3 x 0.8 mm



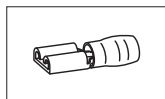
| Part No. | Tab thickn. | Tab width | Typ | Dimension mm |      |    |    |    |     |     | Insulation material | Weight/ 100 pcs. ~ kg | Packing unit/pcs |
|----------|-------------|-----------|-----|--------------|------|----|----|----|-----|-----|---------------------|-----------------------|------------------|
|          |             |           |     | b            | b1   | b2 | l  | l1 | h   | s   |                     |                       |                  |
| 816      | 0.8         | 6.3       | A   | 21           | 11.3 | 9  | 53 | 15 | 7.5 | 0.8 | PVC                 | 0.60                  | 10               |
| 817      | 0.8         | 6.3       | B   | 20           | 11.3 | 9  | 51 | 13 | 7.0 | 0.8 | PVC                 | 0.65                  | 10               |



## ■ Tool application chart

### Insulated cable connections

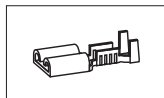
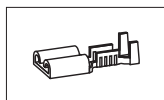
| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 0.1-1                                                   | K80            |                        | •                         |                                                                                   |                               |                                |                            |                          | ○             | 233         |
|                                                         | KP1            | +KP80                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 256         |
|                                                         | KP1L           | +KP80                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 256         |
|                                                         | EKP1           | +KP80                  |                           |                                                                                   |                               | •                              |                            |                          | ○             | 312         |
|                                                         | TEKP1          | +KP80                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 281         |
|                                                         | KPM15          | +KP80                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 282         |
| 0.5-2.5                                                 | K81            |                        | •                         |                                                                                   |                               |                                |                            |                          | ○             | 233         |
|                                                         | KP1            | +KP81                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 256         |
|                                                         | KP1L           | +KP81                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 256         |
|                                                         | EKP1           | +KP81                  |                           |                                                                                   |                               | •                              |                            |                          | ○             | 312         |
|                                                         | TEKP1          | +KP81                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 281         |
|                                                         | KPM15          | +KP81                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 282         |
| 0.5-6                                                   | K10            |                        | •                         |                                                                                   |                               |                                |                            |                          | ○             | 232         |
|                                                         | K14            |                        | •                         |                                                                                   |                               |                                |                            |                          | ○             | 232         |
|                                                         | K50            |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 259         |
|                                                         | EK50ML         |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 278         |
|                                                         | EK1550         |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 308         |
|                                                         | EK1550G        |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 310         |
|                                                         | K82            |                        | •                         |                                                                                   |                               |                                |                            |                          | ○             | 234         |
| 4-6                                                     | KP1            | +KP83                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 256         |
|                                                         | KP1L           | +KP83                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 256         |
|                                                         | EKP1           | +KP83                  |                           |                                                                                   |                               | •                              |                            |                          | ○             | 312         |
|                                                         | TEKP1          | +KP83                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 281         |
|                                                         | KPM15          | +KP83                  |                           | •                                                                                 |                               |                                |                            |                          | ○             | 282         |



## ■ Tool application chart

### Butt connectors with heat shrink insulation

| Crimping range corresponds to nominal cross-section mm² | Crimping tools |                        | Tool type                 |                                                                                   |                               |                                |                            |                          | Crimp profile | Page (Tool) |
|---------------------------------------------------------|----------------|------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------|---------------|-------------|
|                                                         | Tools          | Crimping head/ Adapter | Mechanical crimping tools | mechanical, electrical, pneumatic, crimping tools with interchangeable dies/heads | Hand hydraulic crimping tools | Battery powered crimping tools | Hydraulic crimping systems | Hydraulic crimping heads |               |             |
| 0.5-6                                                   | K50            |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 259         |
|                                                         | EK50ML         |                        |                           | •                                                                                 |                               |                                |                            |                          | ○             | 278         |
|                                                         | EK1550         |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 308         |
|                                                         | EK1550G        |                        |                           |                                                                                   |                               | •                              |                            |                          | ○             | 310         |

[illegible][illegible]

- **Tool application chart**

194



# Klauke®

## Everything in *its place.*

### Pocket boxes and assortment boxes.

Connecting materials and crimping tools immediately at hand, assorted and safely stored. Klauke assortment boxes offer you these benefits. The pocket boxes made from impact-resistant plastic are designed so that the connecting material remains in the pockets, even after an impact or strong vibrations. You save time, stay calm and don't lose any material.

Needless to say, the assortment boxes are also available empty. You can then use them for your own particular range of Klauke connecting materials.

- Pocket boxes from impact-resistant plastic with cable end-sleeves.
- Assortment boxes with tubular and compression cable lugs, cable end-sleeves and insulated cable connections with appropriate stripping and crimping tool.



*The Klauke assortment boxes are available either full or empty for individual contents (special-purpose filling on request).*



## ■ Cable end-sleeves **assorted in pocket boxes.**



- ▶ For cable end-sleeves with or without insulation.
- ▶ Rotating chute with zero positioning and indent.
- ▶ **From impact-resistant plastic.**
- ▶ Pocket boxes with raised edge.

### **Benefits:**

- ▶ The cable end-sleeves are assorted for direct use. No need to search and quick progressing.
- ▶ Thanks to the practical opening, the required number is always taken.
- ▶ The pocket boxes are the ideal solution for rough site operation.
- ▶ The raised edge makes it easier to top up the pocket boxes. The boxes can also be stacked.

## ■ Practical assortments *of connecting materials and tools.*

- ▶ Matched to the most frequent applications.
- ▶ Sorting pockets close flush with the lid.
- ▶ **From impact-resistant, high-quality plastic.**
- ▶ Sturdy designs for use on construction sites.
- ▶ Now also for integration into TÜV-tested vehicle equipment systems from SORTIMO.

### **Benefits:**

- ▶ You get a perfectly matched assortment of tools and connecting materials.
- ▶ Users always have the right materials at hand.
- ▶ The materials remain in the correct pocket during transportation, even in the event of a crash or strong vibrations.



- ▶ *All assortment boxes are also available empty for individual filling.*

## SK 65 B Metal assortment box with tubular cable lugs and crimping tool



► Hammer-tone finished assortment box

#### Characteristics

- Sturdy steel carrying case with lock and handle
- Dimensions: 400x250x50 mm

| Item                                                                         |                                                                               | Part No. |      |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------|------|
| Assortment box with tubular cable lugs "standard type" and crimping tool K05 |                                                                               | SK65B    |      |
| Scope of supply                                                              | Description                                                                   | Quantity | Page |
| SK65L                                                                        | Steel carrying case                                                           | 1        | 215  |
| K05                                                                          | Crimping tool for tubular cable lugs and connectors, standard type 6 - 50 mm² | 1        | 247  |
| 1R6                                                                          | Tubular cable lug without inspection hole, 6 mm², M6, Cu tinned               | 25       | 34   |
| 1R8                                                                          | Tubular cable lug without inspection hole, 6 mm², M8, Cu tinned               | 25       | 34   |
| 2R6                                                                          | Tubular cable lug without inspection hole, 10 mm², M6, Cu tinned              | 25       | 34   |
| 2R8                                                                          | Tubular cable lug without inspection hole, 10 mm², M8, Cu tinned              | 25       | 34   |
| 3R8                                                                          | Tubular cable lug without inspection hole, 16 mm², M8, Cu tinned              | 25       | 34   |
| 3R10                                                                         | Tubular cable lug without inspection hole, 16 mm², M10, Cu tinned             | 25       | 34   |
| 4R8                                                                          | Tubular cable lug without inspection hole, 25 mm², M8, Cu tinned              | 25       | 34   |
| 4R10                                                                         | Tubular cable lug without inspection hole, 25 mm², M10, Cu tinned             | 25       | 34   |
| 5R8                                                                          | Tubular cable lug without inspection hole, 35 mm², M8, Cu tinned              | 20       | 34   |
| 5R10                                                                         | Tubular cable lug without inspection hole, 35 mm², M10, Cu tinned             | 20       | 34   |
| 6R10                                                                         | Tubular cable lug without inspection hole, 50 mm², M10, Cu tinned             | 20       | 34   |
| 6R12                                                                         | Tubular cable lug without inspection hole, 50 mm², M12, Cu tinned             | 20       | 34   |

## SK 50 B Metal assortment box with DIN compression cable lugs and crimping tool



► Hammer-tone finished assortment box

#### Characteristics

- Sturdy steel carrying case with lock and handle
- Dimensions: 400x250x50 mm

| Item                                                                        |                                                                                                   | Part No. |      |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------|------|
| Assortment box from steel with DIN compression cable lugs and crimping tool |                                                                                                   | SK50B    |      |
| Scope of supply                                                             | Description                                                                                       | Quantity | Page |
| SK65L                                                                       | Steel carrying case                                                                               | 1        | 215  |
| K05D                                                                        | Crimping tool for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 6 - 50 mm² | 1        | 247  |
| 101R5                                                                       | Compression cable lug, DIN 46235, 6 mm², M5, Cu tinned                                            | 50       | 72   |
| 101R6                                                                       | Compression cable lug, DIN 46235, 6 mm², M6, Cu tinned                                            | 50       | 72   |
| 102R5                                                                       | Compression cable lug, DIN 46235, 10 mm², M5, Cu tinned                                           | 50       | 72   |
| 102R6                                                                       | Compression cable lug, DIN 46235, 10 mm², M6, Cu tinned                                           | 50       | 72   |
| 103R8                                                                       | Compression cable lug, DIN 46235, 16 mm², M8, Cu tinned                                           | 25       | 72   |
| 103R10                                                                      | Compression cable lug, DIN 46235, 16 mm², M10, Cu tinned                                          | 25       | 72   |
| 104R8                                                                       | Compression cable lug, DIN 46235, 25 mm², M8, Cu tinned                                           | 25       | 72   |
| 104R10                                                                      | Compression cable lug, DIN 46235, 25 mm², M10, Cu tinned                                          | 25       | 72   |
| 105R8                                                                       | Compression cable lug, DIN 46235, 35 mm², M8, Cu tinned                                           | 20       | 72   |
| 105R10                                                                      | Compression cable lug, DIN 46235, 35 mm², M10, Cu tinned                                          | 20       | 72   |
| 106R10                                                                      | Compression cable lug, DIN 46235, 50 mm², M10, Cu tinned                                          | 15       | 72   |
| 106R12                                                                      | Compression cable lug, DIN 46235, 50 mm², M12, Cu tinned                                          | 15       | 72   |



**L-BOXX 65BCB - plastic - with blue connection® equipment**

► Extensive equipment based on the blue connection® product line, including crimping tool, cutting tool and electrician's knife

**Characteristics**

- Manufactured from shock and impact resistant ABS plastic, very robust, loadable to 100 kg
- Stackable using an Easy-Click system which allows an easy opening and closing
- Dimensions: 442x357x117 mm (W/D/H)



| Item                                                |                                                                                  | Part No.          |      |
|-----------------------------------------------------|----------------------------------------------------------------------------------|-------------------|------|
| L-BOXX from plastic with blue connection® equipment |                                                                                  | <b>LBOXX65BCB</b> |      |
| Scope of supply                                     | Description                                                                      | Quantity          | Page |
| K05BC                                               | Crimping tool for tubular cable lugs and connectors, blue connection® 6 - 50 mm² | 1                 | 246  |
| K100                                                | Hand-operated cutting tool for Cu and Al cables to 14 mm dia.                    | 1                 | 268  |
| KL740416                                            | Electrician's knife, without blade 4 - 16 mm dia.                                | 1                 | 520  |
| 6B6                                                 | Rohrkabelschuhe, blue connection®, 6 mm², M6, Cu                                 | 25                | 26   |
| 6B8                                                 | Tubular cable lugs, blue connection®, 6 mm², M8, Cu                              | 25                | 26   |
| 10B6                                                | Rohrkabelschuhe, blue connection®, 10 mm², M6, Cu                                | 25                | 26   |
| 10B8                                                | Rohrkabelschuhe, blue connection®, 10 mm², M8, Cu                                | 25                | 26   |
| 16B10                                               | Tubular cable lugs, blue connection®, 16 mm², M10, Cu                            | 25                | 26   |
| 25B8                                                | Tubular cable lugs, blue connection®, 25 mm², M8, Cu                             | 20                | 26   |
| 25B10                                               | Tubular cable lugs, blue connection®, 25 mm², M10, Cu                            | 20                | 26   |
| 35B8                                                | Tubular cable lugs, blue connection®, 35 mm², M8, Cu                             | 20                | 26   |
| 35B10                                               | Tubular cable lugs, blue connection®, 35 mm², M10, Cu                            | 20                | 26   |
| 50B10                                               | Tubular cable lugs, blue connection®, 50 mm², M10, Cu                            | 20                | 26   |
| LBOXX102LFG                                         | L-BOXX with front handle (W/D/H: 442 x 357 x 117 mm)                             | 1                 |      |

**L-BOXX 65B - plastic - with standard equipment for electrical installation**
**Characteristics**

- Manufactured from shock and impact resistant ABS plastic, very robust, loadable to 100 kg
- Stackable using an Easy-Click system which allows an easy opening and closing
- Dimensions: 442x357x117 mm (W/D/H)



| Item                                                                    |                                                                               | Part No.        |      |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------|------|
| L-BOXX from plastic with standard equipment for electrical installation |                                                                               | <b>LBOXX65B</b> |      |
| Scope of supply                                                         | Description                                                                   | Quantity        | Page |
| K05                                                                     | Crimping tool for tubular cable lugs and connectors, standard type 6 - 50 mm² | 1               | 247  |
| K100                                                                    | Hand-operated cutting tool for Cu and Al cables to 14 mm dia.                 | 1               | 268  |
| KL740416                                                                | Electrician's knife, without blade 4 - 16 mm dia.                             | 1               | 520  |
| 1R6                                                                     | Tubular cable lug without inspection hole, 6 mm², M6, Cu tinned               | 25              | 34   |
| 1R8                                                                     | Tubular cable lug without inspection hole, 6 mm², M8, Cu tinned               | 25              | 34   |
| 2R6                                                                     | Tubular cable lug without inspection hole, 10 mm², M6, Cu tinned              | 25              | 34   |
| 2R8                                                                     | Tubular cable lug without inspection hole, 10 mm², M8, Cu tinned              | 25              | 34   |
| 3R10                                                                    | Tubular cable lug without inspection hole, 16 mm², M10, Cu tinned             | 25              | 34   |
| 4R8                                                                     | Tubular cable lug without inspection hole, 25 mm², M8, Cu tinned              | 20              | 34   |
| 4R10                                                                    | Tubular cable lug without inspection hole, 25 mm², M10, Cu tinned             | 20              | 34   |
| 5R8                                                                     | Tubular cable lug without inspection hole, 35 mm², M8, Cu tinned              | 20              | 34   |
| 5R10                                                                    | Tubular cable lug without inspection hole, 35 mm², M10, Cu tinned             | 20              | 34   |
| 6R10                                                                    | Tubular cable lug without inspection hole, 50 mm², M10, Cu tinned             | 15              | 34   |
| LBOXX102LFG                                                             | L-BOXX with front handle (W/D/H: 442 x 357 x 117 mm)                          | 1               |      |

## ST 23 B Pocket box with cable end-sleeves 0.25 - 1 mm²



► Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable
- \* = not standardized

| Item                                                               | Part No.                                                         |          |      |
|--------------------------------------------------------------------|------------------------------------------------------------------|----------|------|
| Pocket box with cable end-sleeves 0.25 - 1 mm² to DIN 46228 part 1 | <b>ST23B</b>                                                     |          |      |
| Scope of supply                                                    | Description                                                      | Quantity | Page |
| ST23L                                                              | Pocket box                                                       | 1        |      |
| *695V                                                              | Cable end-sleeve, 0.25 mm², 5mm long, Cu tinned                  | 1000     | 154  |
| *705V                                                              | Cable end-sleeve, 0.34 mm², 5mm long, Cu tinned                  | 1000     | 154  |
| 716V                                                               | Cable end-sleeve DIN 46228 part 1, 0.75 mm², 6mm long, Cu tinned | 1000     | 154  |
| 71S6V                                                              | Cable end-sleeve DIN 46228 part 1, 0.5 mm², 6mm long, Cu tinned  | 500      | 154  |
| 72S6V                                                              | Cable end-sleeve DIN 46228 part 1, 1.0 mm², 6mm long, Cu tinned  | 500      | 154  |

## ST 21 B Pocket box with cable end-sleeves 0.5 - 2.5 mm²



► Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                                                                | Part No.                                                         |          |      |
|---------------------------------------------------------------------|------------------------------------------------------------------|----------|------|
| Pocket box with cable end-sleeves 0.5 - 2.5 mm² to DIN 46228 part 1 | <b>ST21B</b>                                                     |          |      |
| Scope of supply                                                     | Description                                                      | Quantity | Page |
| ST21L                                                               | Pocket box                                                       | 1        |      |
| 71S6V                                                               | Cable end-sleeve DIN 46228 part 1, 0.5 mm², 6mm long, Cu tinned  | 1000     | 154  |
| 716V                                                                | Cable end-sleeve DIN 46228 part 1, 0.75 mm², 6mm long, Cu tinned | 500      | 154  |
| 72S6V                                                               | Cable end-sleeve DIN 46228 part 1, 1.0 mm², 6mm long, Cu tinned  | 500      | 154  |
| 727V                                                                | Cable end-sleeve DIN 46228 part 1, 1.5 mm², 7mm long, Cu tinned  | 500      | 154  |
| 737V                                                                | Cable end-sleeve DIN 46228 part 1, 2.5 mm², 7mm long, Cu tinned  | 500      | 154  |

## ST 22 B Pocket box with cable end-sleeves 4 - 16 mm²



► Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                                                             | Part No.                                                        |          |      |
|------------------------------------------------------------------|-----------------------------------------------------------------|----------|------|
| Pocket box with cable end-sleeves 4 - 16 mm² to DIN 46228 part 1 | <b>ST22B</b>                                                    |          |      |
| Scope of supply                                                  | Description                                                     | Quantity | Page |
| ST22L                                                            | Pocket box                                                      | 1        |      |
| 749V                                                             | Cable end-sleeve DIN 46228 part 1, 4 mm², 9mm long, Cu tinned   | 200      | 155  |
| 7512V                                                            | Cable end-sleeve DIN 46228 part 1, 6 mm², 12mm long, Cu tinned  | 100      | 155  |
| 7612V                                                            | Cable end-sleeve DIN 46228 part 1, 10 mm², 12mm long, Cu tinned | 70       | 155  |
| 7712V                                                            | Cable end-sleeve DIN 46228 part 1, 16 mm², 12mm long, Cu tinned | 70       | 155  |

## ST 15 B Pocket box with insulated twin cable end-sleeves 2 x 0.75 - 2 x 2.5 mm<sup>2</sup>

► Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                                                                      |                                                                                   |                                                      | Part No.     |      |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------|--------------|------|
| Pocket box with twin cable end-sleeves 2 x 0.75 - 2 x 2.5 mm <sup>2</sup> |                                                                                   |                                                      | <b>ST15B</b> |      |
| Scope of supply                                                           | Colour                                                                            | Description                                          | Quantity     | Page |
| ST15L                                                                     |                                                                                   | Pocket box                                           | 1            |      |
| 8708                                                                      |  | Ins. twin cable end-sleeve, 2 x 0.75 mm <sup>2</sup> | 50           | 162  |
| 8718                                                                      |  | Ins. twin cable end-sleeve, 2 x 1 mm <sup>2</sup>    | 50           | 162  |
| 8728                                                                      |  | Ins. twin cable end-sleeve, 2 x 1.5 mm <sup>2</sup>  | 50           | 162  |
| 87310                                                                     |  | Ins. twin cable end-sleeve, 2 x 2.5 mm <sup>2</sup>  | 50           | 162  |



## ST 1 B Pocket box with ins. cable end-sleeves 0.5 - 2.5 mm<sup>2</sup>, DIN 46228 p. 4, colour code 1

► Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                                                                  |                                                                                     |                                                                            | Part No.    |      |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------|------|
| Pocket box with insulated cable end-sleeves 0.5 - 2.5 mm <sup>2</sup> |                                                                                     |                                                                            | <b>ST1B</b> |      |
| Scope of supply                                                       | Colour                                                                              | Description                                                                | Quantity    | Page |
| ST1L                                                                  |                                                                                     | Pocket box                                                                 | 1           |      |
| 1690                                                                  |    | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm <sup>2</sup> , 14mm long    | 50          | 158  |
| 170W                                                                  |    | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14.6mm long | 100         | 159  |
| 171G                                                                  |    | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14.6mm long    | 100         | 159  |
| 172R0                                                                 |    | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14.6mm long  | 100         | 159  |
| 173B                                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 15.2mm long  | 50          | 159  |



## ST 11 B Pocket box with insulated cable end-sleeves 0.5 - 2.5 mm<sup>2</sup>, DIN 46228 part 4

► Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                                                                  |                                                                                     |                                                                          | Part No.     |      |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------|------|
| Pocket box with insulated cable end-sleeves 0.5 - 2.5 mm <sup>2</sup> |                                                                                     |                                                                          | <b>ST11B</b> |      |
| Scope of supply                                                       | Colour                                                                              | Description                                                              | Quantity     | Page |
| ST11L                                                                 |                                                                                     | Pocket box                                                               | 1            |      |
| 4698                                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm <sup>2</sup> , 14mm long  | 50           | 157  |
| 4708                                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14mm long | 100          | 157  |
| 4718                                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long    | 100          | 157  |
| 4728                                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long  | 100          | 157  |
| 4738                                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14mm long  | 50           | 157  |



ST 31 B Pocket box with ins. cable end-sleeves 0.5 - 2.5 mm<sup>2</sup>, DIN 46228 p. 4, colour code 2

► Pocket box made from impact-resistant plastic

## Characteristics

- Stackable and resealable

| Item                                                                  |        |                                                                            | Part No.     |      |
|-----------------------------------------------------------------------|--------|----------------------------------------------------------------------------|--------------|------|
| Pocket box with insulated cable end-sleeves 0.5 - 2.5 mm <sup>2</sup> |        |                                                                            | <b>ST31B</b> |      |
| Scope of supply                                                       | Colour | Description                                                                | Quantity     | Page |
| ST31L                                                                 |        | Pocket box                                                                 | 1            |      |
| 1698                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm <sup>2</sup> , 13mm long    | 50           | 160  |
| 1708                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 13.5mm long | 100          | 160  |
| 1718                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 13.5mm long    | 100          | 160  |
| 1728                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 13.5mm long  | 100          | 160  |
| 1738                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14.5mm long  | 50           | 160  |

ST 12 B Pocket box with insulated cable end-sleeves 4 - 16 mm<sup>2</sup>, DIN 46228 part 4

► Pocket box made from impact-resistant plastic

## Characteristics

- Stackable and resealable

| Item                                                                                   |        |                                                                        | Part No.     |      |
|----------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------|--------------|------|
| Pocket box with insulated cable end-sleeves 4 - 16 mm <sup>2</sup> to DIN 46228 part 4 |        |                                                                        | <b>ST12B</b> |      |
| Scope of supply                                                                        | Colour | Description                                                            | Quantity     | Page |
| ST12L                                                                                  |        | Pocket box                                                             | 1            |      |
| 47410                                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 4 mm <sup>2</sup> , 17mm long  | 50           | 157  |
| 47512                                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 6 mm <sup>2</sup> , 20mm long  | 20           | 157  |
| 47612                                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 10 mm <sup>2</sup> , 22mm long | 20           | 157  |
| 47712                                                                                  |        | Ins. cable end-sleeve DIN 46228 part 4, 16 mm <sup>2</sup> , 24mm long | 10           | 157  |

ST 2 B Pocket box with cable end-sleeves 4 - 16 mm<sup>2</sup>, DIN 46228 part 4, colour code 1

► Pocket box made from impact-resistant plastic

## Characteristics

- Stackable and resealable

| Item                                                               |        |                                                                          | Part No.    |      |
|--------------------------------------------------------------------|--------|--------------------------------------------------------------------------|-------------|------|
| Pocket box with insulated cable end-sleeves 4 - 16 mm <sup>2</sup> |        |                                                                          | <b>ST2B</b> |      |
| Scope of supply                                                    | Colour | Description                                                              | Quantity    | Page |
| ST2L                                                               |        | Pocket box                                                               | 1           |      |
| 174GR                                                              |        | Ins. cable end-sleeve DIN 46228 part 4, 4 mm <sup>2</sup> , 16.5mm long  | 50          | 159  |
| 175S                                                               |        | Ins. cable end-sleeve DIN 46228 part 4, 6 mm <sup>2</sup> , 20mm long    | 20          | 159  |
| 176E                                                               |        | Ins. cable end-sleeve DIN 46228 part 4, 10 mm <sup>2</sup> , 21.5mm long | 20          | 159  |
| 177GR                                                              |        | Ins. cable end-sleeve DIN 46228 part 4, 16 mm <sup>2</sup> , 22.2mm long | 10          | 159  |

**ST 32 B Pocket box with ins. cable end-sleeves 4 - 16 mm², DIN 46228 p. 4, colour code 2**

▶ Pocket box made from impact-resistant plastic

**Characteristics**

- Stackable and resealable

| Item                                                   |                                                                                   |                                                             | Part No.     |      |
|--------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------|--------------|------|
| Pocket box with insulated cable end-sleeves 4 - 16 mm² |                                                                                   |                                                             | <b>ST32B</b> |      |
| Scope of supply                                        | Colour                                                                            | Description                                                 | Quantity     | Page |
| ST32L                                                  |                                                                                   | Pocket box                                                  | 1            |      |
| 17410                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 4 mm², 16.5mm long  | 50           | 160  |
| 17512                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 6 mm², 20mm long    | 20           | 160  |
| 17612                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 10 mm², 21.5mm long | 20           | 160  |
| 17712                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 16 mm², 23.5mm long | 10           | 160  |


**ST 3 B Pocket box with ins. cable end-sleeves 0.25 - 1 mm², DIN 46228 p. 4, colour code 1**

▶ Pocket box made from impact-resistant plastic

**Characteristics**

- Stackable and resealable
- \* = Part No. 167H and 168T are not standardized

| Item                                                        |                                                                                    |                                                               | Part No.    |      |
|-------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------|------|
| Pocket box with insulated twin cable end-sleeves 0.25-1 mm² |                                                                                    |                                                               | <b>ST3B</b> |      |
| Scope of supply                                             | Colour                                                                             | Description                                                   | Quantity    | Page |
| ST3L                                                        |                                                                                    | Pocket box                                                    | 1           |      |
| *167H                                                       |   | Ins. cable end-sleeve, 0.25 mm², 10.4mm long                  | 30          | 158  |
| *168T                                                       |   | Ins. cable end-sleeve, 0.34 mm², 10.4mm long                  | 30          | 158  |
| 1690                                                        |   | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm², 14mm long    | 30          | 158  |
| 170W                                                        |   | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm², 14.6mm long | 30          | 159  |
| 171G                                                        |  | Ins. cable end-sleeve DIN 46228 part 4, 1 mm², 14.6mm long    | 30          | 159  |


**ST 13 B Pocket box with ins. cable end-sleeves 0.25 - 1 mm², DIN 46228 p. 4 and similar, colour code 1**

▶ Pocket box made from impact-resistant plastic

**Characteristics**

- Stackable and resealable
- \* = Part No. 167H and 168T are not standardized

| Item                                                                         |                                                                                     |                                                             | Part No.     |      |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------|------|
| Pocket box with insulated cable end-sleeves 0.25 - 1 mm² to DIN 46228 part 4 |                                                                                     |                                                             | <b>ST13B</b> |      |
| Scope of supply                                                              | Colour                                                                              | Description                                                 | Quantity     | Page |
| ST13L                                                                        |                                                                                     | Pocket box                                                  | 1            |      |
| *167H                                                                        |  | Ins. cable end-sleeve, 0.25 mm², 10.4mm long                | 30           | 158  |
| *168T                                                                        |  | Ins. cable end-sleeve, 0.34 mm², 10.4mm long                | 30           | 158  |
| 4698                                                                         |  | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm², 14mm long  | 30           | 157  |
| 4708                                                                         |  | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm², 14mm long | 30           | 157  |
| 4718                                                                         |  | Ins. cable end-sleeve DIN 46228 part 4, 1 mm², 14mm long    | 30           | 157  |



ST 33 B Pocket box with ins. cable end-sleeves 0.25 - 1 mm², DIN46228 p.4 and similar, colour code 2



► Pocket box made from impact-resistant plastic

Characteristics

- Stackable and resealable
- \* = not standardized

| Item                                                     |                                                                                   |                                                               | Part No.     |      |
|----------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------|--------------|------|
| Pocket box with insulated cable end-sleeves 0.25 - 1 mm² |                                                                                   |                                                               | <b>ST33B</b> |      |
| Scope of supply                                          | Colour                                                                            | Description                                                   | Quantity     | Page |
| ST33L                                                    |                                                                                   | Pocket box                                                    | 1            |      |
| *1676                                                    |  | Ins. cable end-sleeve, 0.25 mm², 11mm long                    | 30           | 160  |
| *1686                                                    |  | Ins. cable end-sleeve, 0.34 mm², 11mm long                    | 30           | 160  |
| 1698                                                     |  | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm², 13mm long    | 30           | 160  |
| 1708                                                     |  | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm², 13.5mm long | 30           | 160  |
| 1718                                                     |  | Ins. cable end-sleeve DIN 46228 part 4, 1 mm², 13.5mm long    | 30           | 160  |

GR 4698 DO Pocket box with insulated cable end-sleeves 0.5 mm²



► Pocket box made from impact-resistant plastic

Characteristics

- Stackable and resealable

| Item                                                                    |                                                                                   |                                                            | Part No.        |      |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------|-----------------|------|
| Pocket box with insulated cable end-sleeves 0.5 mm² to DIN 46228 part 4 |                                                                                   |                                                            | <b>GR4698DO</b> |      |
| Scope of supply                                                         | Colour                                                                            | Description                                                | Quantity        | Page |
| 4698                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm², 14mm long | 1000            | 157  |

GR 4708 DO Pocket box with insulated cable end-sleeves 0.75 mm²



► Pocket box made from impact-resistant plastic

Characteristics

- Stackable and resealable

| Item                                                                  |                                                                                     |                                                             | Part No.        |      |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------|------|
| Pocket box with insulated cable end-sleeves 0.75 mm² DIN 46228 part 4 |                                                                                     |                                                             | <b>GR4708DO</b> |      |
| Scope of supply                                                       | Colour                                                                              | Description                                                 | Quantity        | Page |
| 4708                                                                  |  | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm², 14mm long | 1000            | 157  |

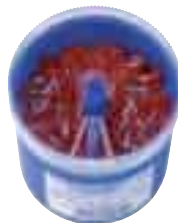
## GR 4718 DO Pocket box with insulated cable end-sleeves 1 mm<sup>2</sup>

▶ Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                                                                           |                                                                                   |                                                                       | Part No.        |      |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------|------|
| Pocket box with insulated cable end-sleeves 1 mm <sup>2</sup> DIN 46228 part 4 |                                                                                   |                                                                       | <b>GR4718DO</b> |      |
| Scope of supply                                                                | Colour                                                                            | Description                                                           | Quantity        | Page |
| 4718                                                                           |  | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long | 1000            | 157  |



## GR 4728 DO Pocket box with insulated cable end-sleeves 1.5 mm<sup>2</sup>

▶ Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                                                                             |                                                                                   |                                                                         | Part No.        |      |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------|------|
| Pocket box with insulated cable end-sleeves 1.5 mm <sup>2</sup> DIN 46228 part 4 |                                                                                   |                                                                         | <b>GR4728DO</b> |      |
| Scope of supply                                                                  | Colour                                                                            | Description                                                             | Quantity        | Page |
| 4728                                                                             |  | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long | 1000            | 157  |



## GR 4738 DO Pocket box with insulated cable end-sleeves 2.5 mm<sup>2</sup>

▶ Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                                                                             |                                                                                     |                                                                         | Part No.        |      |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------|------|
| Pocket box with insulated cable end-sleeves 2.5 mm <sup>2</sup> DIN 46228 part 4 |                                                                                     |                                                                         | <b>GR4738DO</b> |      |
| Scope of supply                                                                  | Colour                                                                              | Description                                                             | Quantity        | Page |
| 4738                                                                             |  | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14mm long | 1000            | 157  |



## ST 5 L Assortment of empty pocket boxes

▶ Pocket box made from impact-resistant plastic

### Characteristics

- Stackable and resealable

| Item                       |  | Part No.    |
|----------------------------|--|-------------|
| Assortment of pocket boxes |  | <b>ST5L</b> |



## SK 30 B Metal assortment box with cable end-sleeves and crimping tool



► Hammer-tone finished assortment box

## Characteristics

- Dimensions: 200x140x40 mm

| Item                                                               |                                                                               | Part No. |      |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------|----------|------|
| Assortment box from steel with cable end-sleeves and crimping tool |                                                                               | SK30B    |      |
| Scope of supply                                                    | Description                                                                   | Quantity | Page |
| SK30L                                                              | Steel carrying case                                                           | 1        | 213  |
| K48                                                                | Crimping tool for cable end-sleeves 0.14 - 2.5 mm <sup>2</sup>                | 1        | 224  |
| 716V                                                               | Cable end-sleeve DIN 46228 part 1, 0.75 mm <sup>2</sup> , 6mm long, Cu tinned | 1000     | 154  |
| 7256V                                                              | Cable end-sleeve DIN 46228 part 1, 1.0 mm <sup>2</sup> , 6mm long, Cu tinned  | 1000     | 154  |
| 727V                                                               | Cable end-sleeve DIN 46228 part 1, 1.5 mm <sup>2</sup> , 7mm long, Cu tinned  | 1000     | 154  |
| 737V                                                               | Cable end-sleeve DIN 46228 part 1, 2.5 mm <sup>2</sup> , 7mm long, Cu tinned  | 1000     | 154  |

## SK 32 B Metal assortment box with cable end-sleeves and crimping tool



- Broad cable end-sleeve range with single-acting crimping tool
- Hammer-tone finished assortment box

## Characteristics

- Dimensions: 285x155x45 mm

| Item                                                               |                                                                               | Part No. |      |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------|----------|------|
| Assortment box from steel with cable end-sleeves and crimping tool |                                                                               | SK32B    |      |
| Scope of supply                                                    | Description                                                                   | Quantity | Page |
| SK32L                                                              | Steel carrying case                                                           | 1        | 213  |
| K3                                                                 | Crimping tool for cable end-sleeves 0.5 - 16 mm <sup>2</sup>                  | 1        | 223  |
| 716V                                                               | Cable end-sleeve DIN 46228 part 1, 0.75 mm <sup>2</sup> , 6mm long, Cu tinned | 1000     | 154  |
| 7256V                                                              | Cable end-sleeve DIN 46228 part 1, 1.0 mm <sup>2</sup> , 6mm long, Cu tinned  | 1000     | 154  |
| 727V                                                               | Cable end-sleeve DIN 46228 part 1, 1.5 mm <sup>2</sup> , 7mm long, Cu tinned  | 1000     | 154  |
| 737V                                                               | Cable end-sleeve DIN 46228 part 1, 2.5 mm <sup>2</sup> , 7mm long, Cu tinned  | 500      | 154  |
| 749V                                                               | Cable end-sleeve DIN 46228 part 1, 4 mm <sup>2</sup> , 9mm long, Cu tinned    | 500      | 155  |
| 7510V                                                              | Cable end-sleeve DIN 46228 part 1, 6 mm <sup>2</sup> , 10mm long, Cu tinned   | 500      | 155  |
| 7618V                                                              | Cable end-sleeve DIN 46228 part 1, 10 mm <sup>2</sup> , 18mm long, Cu tinned  | 250      | 155  |
| 7718V                                                              | Cable end-sleeve DIN 46228 part 1, 16 mm <sup>2</sup> , 18mm long, Cu tinned  | 150      | 155  |



## SK 45 B Metal assortment box with insulated cable end-sleeves and crimping tool

- ▶ Four of the most important insulated cable end-sleeves in a steel carrying case including single-acting crimping tool
- ▶ Hammer-tone finished assortment box

### Characteristics

- Dimensions: 200x140x40 mm

| Item                                                                    |                                                                                   |                                                                          | Part No.     |      |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------|------|
| Assortment box from steel with Ins. cable end-sleeves and crimping tool |                                                                                   |                                                                          | <b>SK45B</b> |      |
| Scope of supply                                                         | Colour                                                                            | Description                                                              | Quantity     | Page |
| SK30L                                                                   |                                                                                   | Steel carrying case                                                      | 1            | 213  |
| K48                                                                     |                                                                                   | Crimping tool for cable end-sleeves 0.14 - 2.5 mm <sup>2</sup>           | 1            | 224  |
| 4708                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14mm long | 300          | 157  |
| 4718                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long    | 300          | 157  |
| 4728                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long  | 300          | 157  |
| 4738                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14mm long  | 200          | 157  |



## SK 47 B Metal assortment box with insulated cable end-sleeves and crimping tool

- ▶ Hammer-tone finished assortment box

### Characteristics

- Dimensions: 285x155x45 mm

| Item                                                                    |                                                                                     |                                                                          | Part No.     |      |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------|------|
| Assortment box from steel with Ins. cable end-sleeves and crimping tool |                                                                                     |                                                                          | <b>SK47B</b> |      |
| Scope of supply                                                         | Colour                                                                              | Description                                                              | Quantity     | Page |
| SK32L                                                                   |                                                                                     | Steel carrying case                                                      | 1            | 213  |
| K3                                                                      |                                                                                     | Crimping tool for cable end-sleeves 0.5 - 16 mm <sup>2</sup>             | 1            | 223  |
| 4708                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14mm long | 200          | 157  |
| 4718                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long    | 200          | 157  |
| 4728                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long  | 200          | 157  |
| 4738                                                                    |  | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14mm long  | 200          | 157  |
| 47410                                                                   |  | Ins. cable end-sleeve DIN 46228 part 4, 4 mm <sup>2</sup> , 17mm long    | 100          | 157  |
| 47512                                                                   |  | Ins. cable end-sleeve DIN 46228 part 4, 6 mm <sup>2</sup> , 20mm long    | 100          | 157  |
| 47618                                                                   |  | Ins. cable end-sleeve DIN 46228 part 4, 10 mm <sup>2</sup> , 28mm long   | 100          | 157  |
| 47718                                                                   |  | Ins. cable end-sleeve DIN 46228 part 4, 16 mm <sup>2</sup> , 28mm long   | 50           | 157  |



## SK 30/3 P Plastic assortment box with insulated cable end-sleeves and tools



## Characteristics

- Dimensions: 395x295x106 mm

| Item                                                              |        |                                                                                          |          | Part No.      |  |
|-------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------|----------|---------------|--|
| Assortment box from plastic with Ins. cable end-sleeves and tools |        |                                                                                          |          | <b>SK303P</b> |  |
| Scope of supply                                                   | Colour | Description                                                                              | Quantity | Page          |  |
| K432                                                              |        | Automatic wire stripping tool K43/2 0.02 - 10 mm <sup>2</sup>                            | 1        | 516           |  |
| K303                                                              |        | Crimping tool for cable end-sleeves and twin cable end-sleeves 0.08 - 10 mm <sup>2</sup> | 1        | 229           |  |
| 4698                                                              |        | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm <sup>2</sup> , 14mm long                  | 400      | 157           |  |
| 4708                                                              |        | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14mm long                 | 400      | 157           |  |
| 4718                                                              |        | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long                    | 400      | 157           |  |
| 4728                                                              |        | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long                  | 400      | 157           |  |
| 4738                                                              |        | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14mm long                  | 200      | 157           |  |
| 47410                                                             |        | Ins. cable end-sleeve DIN 46228 part 4, 4 mm <sup>2</sup> , 17mm long                    | 200      | 157           |  |
| 47512                                                             |        | Ins. cable end-sleeve DIN 46228 part 4, 6 mm <sup>2</sup> , 20mm long                    | 100      | 157           |  |
| 47612                                                             |        | Ins. cable end-sleeve DIN 46228 part 4, 10 mm <sup>2</sup> , 22mm long                   | 100      | 157           |  |

## SK 30/3 S Plastic assortment box with insulated cable end-sleeves and crimping tool



## Characteristics

- Dimensions: 275x230x83 mm

| Item                                                                      |        |                                                                                          |          | Part No.      |  |
|---------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------|----------|---------------|--|
| Assortment box from plastic with Ins. cable end-sleeves and crimping tool |        |                                                                                          |          | <b>SK303S</b> |  |
| Scope of supply                                                           | Colour | Description                                                                              | Quantity | Page          |  |
| K303                                                                      |        | Crimping tool for cable end-sleeves and twin cable end-sleeves 0.08 - 10 mm <sup>2</sup> | 1        | 229           |  |
| 4698                                                                      |        | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm <sup>2</sup> , 14mm long                  | 100      | 157           |  |
| 4708                                                                      |        | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14mm long                 | 100      | 157           |  |
| 4718                                                                      |        | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long                    | 100      | 157           |  |
| 4728                                                                      |        | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long                  | 100      | 157           |  |
| 4738                                                                      |        | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14mm long                  | 50       | 157           |  |
| 47410                                                                     |        | Ins. cable end-sleeve DIN 46228 part 4, 4 mm <sup>2</sup> , 17mm long                    | 50       | 157           |  |
| 47512                                                                     |        | Ins. cable end-sleeve DIN 46228 part 4, 6 mm <sup>2</sup> , 20mm long                    | 30       | 157           |  |
| 47612                                                                     |        | Ins. cable end-sleeve DIN 46228 part 4, 10 mm <sup>2</sup> , 22mm long                   | 30       | 157           |  |

## SK 43 NB Metal assortment box with insulated cable end-sleeves and tools

► High-performance 4-edge crimping tool including wire stripping tool

### Characteristics

■ Dimensions: 370x210x40 mm

| Item                                                            |                                                                                   |                                                                                          | Part No.      |      |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------|------|
| Assortment box from steel with Ins. cable end-sleeves and tools |                                                                                   |                                                                                          | <b>SK43NB</b> |      |
| Scope of supply                                                 | Colour                                                                            | Description                                                                              | Quantity      | Page |
| SK43L                                                           |                                                                                   | Steel carrying case                                                                      | 1             | 213  |
| K432                                                            |                                                                                   | Automatic wire stripping tool K43/2 0.02 - 10 mm <sup>2</sup>                            | 1             | 516  |
| K303                                                            |                                                                                   | Crimping tool for cable end-sleeves and twin cable end-sleeves 0.08 - 10 mm <sup>2</sup> | 1             | 229  |
| 4698                                                            |  | Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm <sup>2</sup> , 14mm long                  | 500           | 157  |
| 4708                                                            |  | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14mm long                 | 500           | 157  |
| 4718                                                            |  | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long                    | 400           | 157  |
| 4728                                                            |  | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long                  | 400           | 157  |
| 4738                                                            |  | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14mm long                  | 300           | 157  |
| 47410                                                           |  | Ins. cable end-sleeve DIN 46228 part 4, 4 mm <sup>2</sup> , 17mm long                    | 100           | 157  |
| 47512                                                           |  | Ins. cable end-sleeve DIN 46228 part 4, 6 mm <sup>2</sup> , 20mm long                    | 100           | 157  |
| 47612                                                           |  | Ins. cable end-sleeve DIN 46228 part 4, 10 mm <sup>2</sup> , 22mm long                   | 100           | 157  |



## MK 210 B Metal assortment box with insulated terminals and crimping tool

► Hammer-tone finished assortment box

### Characteristics

■ Dimensions: 250x155x40 mm

| Item                                                                    |                                                                                     |                                                                                     | Part No.      |      |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|------|
| Assortment box from steel with Ins. cable connections and crimping tool |                                                                                     |                                                                                     | <b>MK210B</b> |      |
| Scope of supply                                                         | Colour                                                                              | Description                                                                         | Quantity      | Page |
| MK210L                                                                  |                                                                                     | Steel carrying case                                                                 | 1             | 214  |
| K10                                                                     |                                                                                     | Crimping tool for insulated cable connections 0.5 - 6 mm <sup>2</sup>               | 1             | 232  |
| 620C4                                                                   |  | Ins. solderless terminal M4 DIN 46237, 0.5-1 mm <sup>2</sup> , fork-type            | 50            | 175  |
| 6305                                                                    |  | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 50            | 174  |
| 710                                                                     |  | Ins. pin terminal DIN 46231, 1.5-2.5 mm <sup>2</sup> , 23mm long                    | 50            | 176  |
| 6505                                                                    |  | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 4-6 mm <sup>2</sup>     | 25            | 174  |



## MK 220 B Metal assortment box with insulated terminals and crimping tool



▶ Hammer-tone finished assortment box

## Characteristics

- Dimensions: 370x160x40 mm

| Item                                                                    |        |                                                                                     | Part No.      |      |
|-------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|---------------|------|
| Assortment box from steel with Ins. cable connections and crimping tool |        |                                                                                     | <b>MK220B</b> |      |
| Scope of supply                                                         | Colour | Description                                                                         | Quantity      | Page |
| MK220L                                                                  |        | Steel carrying case                                                                 | 1             | 214  |
| K10                                                                     |        | Crimping tool for insulated cable connections 0.5 - 6 mm <sup>2</sup>               | 1             | 232  |
| 6205                                                                    | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 0.5-1 mm <sup>2</sup>   | 50            | 174  |
| 6305                                                                    | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 50            | 174  |
| 620C4                                                                   | ■      | Ins. solderless terminal M4 DIN 46237, 0.5-1 mm <sup>2</sup> , fork-type            | 50            | 175  |
| 630C4                                                                   | ■      | Ins. solderless terminal M4 DIN 46237, 1.5-2.5 mm <sup>2</sup> , fork-type          | 50            | 175  |
| 705                                                                     | ■      | Ins. pin terminal DIN 46231, 0.5-1 mm <sup>2</sup> , 22mm long                      | 50            | 176  |
| 710                                                                     | ■      | Ins. pin terminal DIN 46231, 1.5-2.5 mm <sup>2</sup> , 23mm long                    | 50            | 176  |
| 6505                                                                    | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 4-6 mm <sup>2</sup>     | 25            | 174  |
| 715                                                                     | ■      | Ins. pin terminal DIN 46231, 0.1-0.4 mm <sup>2</sup> , 26mm long                    | 25            | 176  |

## MK 230 B 507 Metal assortment box with insulated terminals and crimping tool



▶ Hammer-tone finished assortment box

## Characteristics

- Dimensions: 366x230x51 mm
- \* = not standardized

| Item                                                                    |        |                                                                                     | Part No.         |      |
|-------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|------------------|------|
| Assortment box from steel with Ins. cable connections and crimping tool |        |                                                                                     | <b>MK230B507</b> |      |
| Scope of supply                                                         | Colour | Description                                                                         | Quantity         | Page |
| MK230L                                                                  |        | Steel carrying case                                                                 | 1                | 214  |
| K507                                                                    |        | Crimping tool with interchangeable dies                                             | 1                | 258  |
| 6204                                                                    | ■      | Ins. solderless terminal M4 DIN 46237, PA insulated sleeve, 0.5-1 mm <sup>2</sup>   | 50               | 174  |
| 6205                                                                    | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 0.5-1 mm <sup>2</sup>   | 50               | 174  |
| *6206                                                                   | ■      | Ins. solderless terminal M6, PA insulated sleeve, 0.5-1 mm <sup>2</sup>             | 50               | 174  |
| 6304                                                                    | ■      | Ins. solderless terminal M4 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 50               | 174  |
| 6305                                                                    | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 50               | 174  |
| 6306                                                                    | ■      | Ins. solderless terminal M6 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 50               | 174  |
| 670                                                                     | ■      | Ins. butt connector, 0.5-1 mm <sup>2</sup>                                          | 50               | 183  |
| 680                                                                     | ■      | Ins. butt connector, 1.5-2.5 mm <sup>2</sup>                                        | 50               | 183  |
| 705                                                                     | ■      | Ins. pin terminal DIN 46231, 0.5-1 mm <sup>2</sup> , 22mm long                      | 50               | 176  |
| 710                                                                     | ■      | Ins. pin terminal DIN 46231, 1.5-2.5 mm <sup>2</sup> , 23mm long                    | 50               | 176  |
| 730                                                                     | ■      | Ins. receptacle 6.3x0.8 mm DIN 46245 part 3, 1.5-2.5 mm <sup>2</sup>                | 50               | 179  |
| 830                                                                     | ■      | Ins. tab 6.3x0.8 mm, 1.5-2.5 mm <sup>2</sup>                                        | 50               | 182  |
| 620C4                                                                   | ■      | Ins. solderless terminal M4 DIN 46237, 0.5-1 mm <sup>2</sup> , fork-type            | 50               | 175  |
| 630C4                                                                   | ■      | Ins. solderless terminal M4 DIN 46237, 1.5-2.5 mm <sup>2</sup> , fork-type          | 50               | 175  |
| 715                                                                     | ■      | Ins. pin terminal DIN 46231, 0.1-0.4 mm <sup>2</sup> , 26mm long                    | 25               | 176  |
| 700                                                                     | ■      | Ins. butt connector, 4-6 mm <sup>2</sup>                                            | 25               | 183  |
| 6505                                                                    | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 4-6 mm <sup>2</sup>     | 25               | 174  |
| 6506                                                                    | ■      | Ins. solderless terminal M6 DIN 46237, PA insulated sleeve, 4-6 mm <sup>2</sup>     | 25               | 174  |
| 650C6                                                                   | ■      | Ins. solderless terminal M6 DIN 46237, 4-6 mm <sup>2</sup> , fork-type              | 25               | 175  |

**LBOXX 230 B - plastic - with standard equipment for electrical installation**
**Characteristics**

- Dimensions: 442x357x117 mm (W/D/H)



| Item                                                                     |        |                                                                                     | Part No.         |      |
|--------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|------------------|------|
| L-BOXX from plastic with standard equipment for electrical installation. |        |                                                                                     | <b>LBOXX230B</b> |      |
| Scope of supply                                                          | Colour | Description                                                                         | Quantity         | Page |
| K432                                                                     |        | Automatic wire stripping tool K43/2 0.02 - 10 mm <sup>2</sup>                       | 1                | 516  |
| K507                                                                     |        | Crimping tool with interchangeable dies                                             | 1                | 258  |
| 720                                                                      | ■      | Ins. receptacle 6.3x0.8 mm DIN 46245 part 3, 0.5-1 mm <sup>2</sup>                  | 50               | 179  |
| 730                                                                      | ■      | Ins. receptacle 6.3x0.8 mm DIN 46245 part 3, 1.5-2.5 mm <sup>2</sup>                | 50               | 179  |
| 820                                                                      | ■      | Ins. tab 6.3x0.8 mm, 0.5-1 mm <sup>2</sup>                                          | 50               | 182  |
| 830                                                                      | ■      | Ins. tab 6.3x0.8 mm, 1.5-2.5 mm <sup>2</sup>                                        | 50               | 182  |
| 6204                                                                     | ■      | Ins. solderless terminal M4 DIN 46237, PA insulated sleeve, 0.5-1 mm <sup>2</sup>   | 50               | 174  |
| 6305                                                                     | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 50               | 174  |
| 6506                                                                     | ■      | Ins. solderless terminal M6 DIN 46237, PA insulated sleeve, 4-6 mm <sup>2</sup>     | 50               | 174  |
| 670                                                                      | ■      | Ins. butt connector, 0.5-1 mm <sup>2</sup>                                          | 50               | 183  |
| 680                                                                      | ■      | Ins. butt connector, 1.5-2.5 mm <sup>2</sup>                                        | 50               | 183  |
| 700                                                                      | ■      | Ins. butt connector, 4-6 mm <sup>2</sup>                                            | 25               | 183  |
| 16505                                                                    |        | Solderless terminals DIN 46234, 4-6 mm <sup>2</sup> , M5, Cu tinned                 | 50               | 88   |
| 16506                                                                    |        | Solderless terminals, DIN 46234, 4-6 mm <sup>2</sup> , M6, Cu tinned                | 50               | 88   |
| 1652C5                                                                   |        | Solderless terminals, fork-type, 10 mm <sup>2</sup> , M5, Cu-ETP tinned             | 50               | 92   |
| 1652C6                                                                   |        | Solderless terminals, fork-type, 10 mm <sup>2</sup> , M6, Cu-ETP tinned             | 50               | 92   |
| 4708                                                                     | ■      | Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14mm long            | 400              | 157  |
| 4718                                                                     | ■      | Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long               | 400              | 157  |
| 4728                                                                     | ■      | Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long             | 400              | 157  |
| 4738                                                                     | ■      | Ins. cable end-sleeve DIN 46228 part 4, 2.5 mm <sup>2</sup> , 14mm long             | 200              | 157  |
| 47410                                                                    | ■      | Ins. cable end-sleeve DIN 46228 part 4, 4 mm <sup>2</sup> , 17mm long               | 100              | 157  |
| 47512                                                                    | ■      | Ins. cable end-sleeve DIN 46228 part 4, 6 mm <sup>2</sup> , 20mm long               | 100              | 157  |
| 47612                                                                    | ■      | Ins. cable end-sleeve DIN 46228 part 4, 10 mm <sup>2</sup> , 22mm long              | 100              | 157  |
| LBOXX102LFG                                                              |        | L-BOXX with front handle (W/D/H: 442 x 357 x 117 mm)                                | 1                |      |

## SK 82 P Plastic assortment box with insulated terminals and tools



## Characteristics

- Dimensions: 395x295x106 mm

| Item                                                           |        |                                                                                     | Part No.     |      |
|----------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|--------------|------|
| Assortment box from plastic with insulated terminals and tools |        |                                                                                     | <b>SK82P</b> |      |
| Scope of supply                                                | Colour | Description                                                                         | Quantity     | Page |
| K432                                                           |        | Automatic wire stripping tool K43/2 0.02 - 10 mm <sup>2</sup>                       | 1            | 516  |
| K82A                                                           |        | Crimping tool for insulated cable connections 0,5 - 6 mm <sup>2</sup>               | 1            | 234  |
| 6204                                                           | ■      | Ins. solderless terminal M4 DIN 46237, PA insulated sleeve, 0.5-1 mm <sup>2</sup>   | 50           | 174  |
| 6205                                                           | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 0.5-1 mm <sup>2</sup>   | 50           | 174  |
| 670                                                            | ■      | Ins. butt connector, 0.5-1 mm <sup>2</sup>                                          | 50           | 183  |
| 720                                                            | ■      | Ins. receptacle 6.3x0.8 mm DIN 46245 part 3, 0.5-1 mm <sup>2</sup>                  | 50           | 179  |
| 6304                                                           | ■      | Ins. solderless terminal M4 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 50           | 174  |
| 6305                                                           | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 50           | 174  |
| 680                                                            | ■      | Ins. butt connector, 1.5-2.5 mm <sup>2</sup>                                        | 50           | 183  |
| 730                                                            | ■      | Ins. receptacle 6.3x0.8 mm DIN 46245 part 3, 1.5-2.5 mm <sup>2</sup>                | 50           | 179  |
| 6505                                                           | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 4-6 mm <sup>2</sup>     | 20           | 174  |
| 6506                                                           | ■      | Ins. solderless terminal M6 DIN 46237, PA insulated sleeve, 4-6 mm <sup>2</sup>     | 20           | 174  |
| 700                                                            | ■      | Ins. butt connector, 4-6 mm <sup>2</sup>                                            | 20           | 183  |
| 715                                                            | ■      | Ins. pin terminal DIN 46231, 0.1-0.4 mm <sup>2</sup> , 26mm long                    | 20           | 176  |
| 620C4                                                          | ■      | Ins. solderless terminal M4 DIN 46237, 0.5-1 mm <sup>2</sup> , fork-type            | 20           | 175  |
| 630C4                                                          | ■      | Ins. solderless terminal M4 DIN 46237, 1.5-2.5 mm <sup>2</sup> , fork-type          | 20           | 175  |
| 705                                                            | ■      | Ins. pin terminal DIN 46231, 0.5-1 mm <sup>2</sup> , 22mm long                      | 20           | 176  |
| 710                                                            | ■      | Ins. pin terminal DIN 46231, 1.5-2.5 mm <sup>2</sup> , 23mm long                    | 20           | 176  |

## SK 82 S Plastic assortment box with insulated terminals and tools



| Item                                                           |        |                                                                                     | Part No.     |      |
|----------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|--------------|------|
| Assortment box from plastic with insulated terminals and tools |        |                                                                                     | <b>SK82S</b> |      |
| Scope of supply                                                | Colour | Description                                                                         | Quantity     | Page |
| K82A                                                           |        | Crimping tool for insulated cable connections 0,5 - 6 mm <sup>2</sup>               | 1            | 234  |
| 6204                                                           | ■      | Ins. solderless terminal M4 DIN 46237, PA insulated sleeve, 0.5-1 mm <sup>2</sup>   | 20           | 174  |
| 6205                                                           | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 0.5-1 mm <sup>2</sup>   | 20           | 174  |
| 670                                                            | ■      | Ins. butt connector, 0.5-1 mm <sup>2</sup>                                          | 20           | 183  |
| 720                                                            | ■      | Ins. receptacle 6.3x0.8 mm DIN 46245 part 3, 0.5-1 mm <sup>2</sup>                  | 20           | 179  |
| 6304                                                           | ■      | Ins. solderless terminal M4 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 20           | 174  |
| 680                                                            | ■      | Ins. butt connector, 1.5-2.5 mm <sup>2</sup>                                        | 20           | 183  |
| 730                                                            | ■      | Ins. receptacle 6.3x0.8 mm DIN 46245 part 3, 1.5-2.5 mm <sup>2</sup>                | 20           | 179  |
| 6305                                                           | ■      | Ins. solderless terminal M5 DIN 46237, PA insulated sleeve, 1.5-2.5 mm <sup>2</sup> | 20           | 174  |

**SK 30 L Steel carrying case**

## ▶ Hammer-tone finished assortment box

**Characteristics**

- 4 small and 1 large additional compartments with lock
- For optional storage of crimping tools type K1, K4, K46 and K48
- Dimensions: 200x140x40 mm
- Weight: 1.2 kg

| Item                | Part No.     |
|---------------------|--------------|
| Steel carrying case | <b>SK30L</b> |


**SK 32 L Steel carrying case**

## ▶ Hammer-tone finished assortment box

**Characteristics**

- 8 small and 1 large additional compartments with lock
- For optional storage of crimping tools type K3 and K35
- Dimensions: 285x155x45 mm
- Weight: 1.3 kg

| Item                | Part No.     |
|---------------------|--------------|
| Steel carrying case | <b>SK32L</b> |


**SK 4 L Steel carrying case**

## ▶ Hammer-tone finished assortment box

**Characteristics**

- 6 small and 1 large additional compartments with lock
- For optional storage of crimping tools type K02, K2, K16, K25, K28 and K29
- Dimensions: 370x160x40 mm
- Weight: 1.4 kg

| Item                | Part No.    |
|---------------------|-------------|
| Steel carrying case | <b>SK4L</b> |


**SK 43 L Steel carrying case**

## ▶ Hammer-tone finished assortment box

**Characteristics**

- 8 small and 2 large additional compartments with lock
- For storage of crimping tool K 32 and wire stripper K 41
- Dimensions: 370x210x40 mm
- Weight: 1.9 kg

| Item                | Part No.     |
|---------------------|--------------|
| Steel carrying case | <b>SK43L</b> |



## MK 55 Steel carrying case



► Hammer-tone finished assortment box

#### Characteristics

- 8 small and 1 large additional compartments with lock
- For storage of 8 pairs of dies and crimping tool K50
- Dimensions: 245x130x37 mm
- Weight: 0.7 kg

| Item                | Part No.    |
|---------------------|-------------|
| Steel carrying case | <b>MK55</b> |

## MK 210 L Steel carrying case



► Hammer-tone finished assortment box

#### Characteristics

- 4 small and 1 large additional compartments with lock
- For storage of crimping tools K 10 or K 82
- Dimensions: 250x155x40 mm
- Weight: 1.0 kg

| Item                | Part No.      |
|---------------------|---------------|
| Steel carrying case | <b>MK210L</b> |

## MK 220 L Steel carrying case



► Hammer-tone finished assortment box

#### Characteristics

- 8 small and 1 large additional compartments with lock
- For storage of crimping tools K 10 or K 82
- Dimensions: 370x160x40 mm
- Weight: 1.4 kg

| Item                | Part No.      |
|---------------------|---------------|
| Steel carrying case | <b>MK220L</b> |

## MK 230 L Steel carrying case



► Hammer-tone finished assortment box

#### Characteristics

- 19 small and 1 large additional compartments with lock and handle
- For storage of crimping tools K 10 or K 82
- Dimensions: 366x230x51 mm
- Weight: 2.4 kg

| Item                | Part No.      |
|---------------------|---------------|
| Steel carrying case | <b>MK230L</b> |



**SK 65 L Steel carrying case**

▶ Hammer-tone finished assortment box

**Characteristics**

- 12 small and 1 large additional compartments with lock and handle
- For optional storage of crimping tools type K 05, K 05 BC, K 35/4
- Dimensions: 400x250x50 mm
- Weight: 2.3 kg

| Item                | Part No.     |
|---------------------|--------------|
| Steel carrying case | <b>SK65L</b> |


**SK 120 L Steel carrying case**

▶ Hammer-tone finished assortment box

**Characteristics**

- 8 small and 1 large additional compartments with lock and handle
- For optional storage of crimping tools type K 06, K 06 BC, K 08, K 09 and K 09 BC or cable cutters K 105/1
- Dimensions: 680x265x65 mm
- Weight: 4.7 kg

| Item                | Part No.      |
|---------------------|---------------|
| Steel carrying case | <b>SK120L</b> |


**MK 18 Steel carrying case**

▶ Hammer-tone finished assortment box

**Characteristics**

- 34 small and 1 large additional compartments with lock and handle
- For storage of 34 pairs of dies and crimping tool K 18
- Dimensions: 605x300x50 mm
- Weight: 4.6 kg

| Item                | Part No.    |
|---------------------|-------------|
| Steel carrying case | <b>MK18</b> |



## MK 22 Steel carrying case



► Hammer-tone finished assortment box

## Characteristics

- 17 small and 1 large additional compartments with lock and handle
- For storage of 17 pairs of dies and crimping tool K 22
- Dimensions: 600x220x65 mm
- Weight: 3.5 kg

| Item                | Part No.    |
|---------------------|-------------|
| Steel carrying case | <b>MK22</b> |

## KKPE Plastic case



## Characteristics

- For storing complete crimping die sets
- With lock and handle

| Item                                        | Part No.       |
|---------------------------------------------|----------------|
| Plastic case for crimping dies of series 22 | <b>KKPE</b>    |
| Plastic case for crimping dies of series 4  | <b>KKPEH25</b> |

## MK/KP 1 Plastic case



## Characteristics

- For storage of crimping tools KP1 and KP1L and 10 crimping heads of the Klauke Pro Series
- With lock and handle
- Dimensions: 395x295x106 mm
- Weight: 1.0 kg

| Item         | Part No.      |
|--------------|---------------|
| Plastic case | <b>MK/KP1</b> |

## MKU Steel carrying case with wheels



► Hammer-tone finished assortment box

## Characteristics

- With additional compartment for dies with lock and handle
- For storage of hydraulic crimping tools HK12/2, HK25/2 or HK45
- Dimensions: 810x310x210 mm
- Weight: 10.0 kg

| Item                | Part No.   |
|---------------------|------------|
| Steel carrying case | <b>MKU</b> |

## TT2 Carrying bag

### Characteristics

- For storage of all crimping and cutting heads (except SDK 105, SDK 120 and PK1000)
- Weight: 0.48 kg

| Item         | Part No. |
|--------------|----------|
| Carrying bag | TT2      |



## TT4 Carrying bag

### Characteristics

- For storage of cutting heads SDK 105 and SDK 120
- Weight: 0.73 kg

| Item         | Part No. |
|--------------|----------|
| Carrying bag | TT4      |



” *High-performance at the touch of a button, where conventional hand tools fail. For this reason we developed battery powered tools with intelligent crimping, cutting and punching functions.“*



Sonja Abele,  
Development

**Mechanical crimping and cutting tools 220**

|                                                     |     |
|-----------------------------------------------------|-----|
| Mechanical crimping tools                           | 220 |
| Mechanical crimping tools for the photovoltaic      | 253 |
| Mechanical crimping tools with interchangeable dies | 256 |
| Mechanical cutting tools                            | 266 |

**Electric and pneumatic crimping tools 276**

|                                              |     |
|----------------------------------------------|-----|
| Electromechanical crimping tool Klauke micro | 276 |
| Electric and pneumatic crimping tools        | 280 |

**Hand-operated hydraulic crimping and cutting tools 284**

|                                        |     |
|----------------------------------------|-----|
| Hand-operated hydraulic crimping tools | 284 |
| Hand-operated hydraulic cutting tools  | 298 |

**Battery-powered crimping and cutting tools 304**

|                                |     |
|--------------------------------|-----|
| Battery-powered crimping tools | 306 |
| Battery-powered cutting tools  | 336 |

**Hydraulic universal tools and heads 353**
**Hydraulic crimping and cutting heads 360**
**Hydraulic drive units 380**
**Hydraulic systems 386**

|                            |     |
|----------------------------|-----|
| Hydraulic crimping systems | 388 |
| Hydraulic cutting systems  | 392 |
| Safety cutting units       | 394 |

**Accessories for hydraulic tools 396**

|                          |     |
|--------------------------|-----|
| Batteries and mains sets | 397 |
| Battery chargers         | 399 |

**Force and pressure gauge systems 405**


## Powerful crimping *by hand.*

### Mechanical tools for crimping.

We all have overwhelming power - as long we have the right tool to hand.

The diversity of conductor types and connecting materials calls for numerous different standards for crimping tools. Klauke offers the right solution for all applications. All mechanical crimping tools are made from the highest quality materials, are rust-proof and surface-finished. The products are set apart by their extremely long service life. Unique precision and high quality material guarantee safe and, most important, long-lasting electrical connections. The tools' ergonomic handles and perfected drives optimise transmission of the hand force.

- Crimping tools for Klauke connecting material with nominal cross sections from 0.08 to 400 mm<sup>2</sup>.
- Optimised profile forms for all applications.
- Precise drives for exact crimping results.
- Clear designation of the crimping profiles.



## ■ Precise crimping *for all cross-sections.*

- ▶ The use of high-grade steels and the annealing process that follows guarantee a long service life for the mechanical crimping tools.
- ▶ Power-optimized drive with integrated ratchet and pre-tension setting.
- ▶ Ergonomic handles, low weight, clear designation of the crimping profiles and telescopic handles for two-handed operation.

### Benefits:

- ▶ Many years of low wear use.
- ▶ The integrated ratchet with pre-tension setting guarantees process safety and complete crimping results.
- ▶ Materials processed quickly and effortlessly.



## ■ Tools for cable end-sleeves: *Which tool for which cable end-sleeve?*

| Cross-section<br>max. mm² | Tool                | Crimping profile |   |   |   |   | Design         |               | Drive    |                 |
|---------------------------|---------------------|------------------|---|---|---|---|----------------|---------------|----------|-----------------|
|                           |                     |                  |   |   |   |   | Front crimping | Side crimping | 10.68 mm | Force-supported |
| 2.5                       | K4                  | ✓                |   |   |   |   |                | ✓             | ✓        |                 |
|                           | K1                  |                  | ✓ |   |   |   |                | ✓             | ✓        |                 |
|                           | K48                 |                  | ✓ |   |   |   |                | ✓             | ✓        |                 |
| 6                         | K46                 | ✓                |   |   |   |   |                | ✓             | ✓        |                 |
|                           | K36                 |                  | ✓ |   |   |   | ✓              |               | ✓        |                 |
|                           | K32                 |                  | ✓ |   |   |   | ✓              |               |          | ✓               |
|                           | K37                 |                  | ✓ |   |   |   |                | ✓             |          | ✓               |
|                           | K38/2               |                  |   |   | ✓ |   | ✓              |               |          | ✓               |
|                           | KP31/2*             |                  | ✓ |   |   |   |                | ✓             |          | ✓               |
|                           | K38Ergo             |                  |   |   | ✓ |   | ✓              |               |          | ✓               |
|                           | K50 <sup>1)</sup>   |                  | ✓ |   |   |   |                | ✓             |          | ✓               |
|                           | KP35/1              |                  |   |   |   | ✓ |                |               |          | ✓               |
| 10                        | K30/3               |                  |   |   | ✓ |   |                | ✓             |          | ✓               |
|                           | KP30/3              |                  |   |   | ✓ |   |                | ✓             |          | ✓               |
|                           | K507                |                  | ✓ |   |   |   |                | ✓             |          | ✓               |
| 16                        | K3                  | ✓                |   |   |   |   |                | ✓             | ✓        |                 |
|                           | K34                 |                  | ✓ |   |   |   | ✓              |               |          | ✓               |
|                           | KP30/4              |                  |   |   | ✓ |   |                | ✓             |          | ✓               |
|                           | KP35/2              |                  |   |   |   | ✓ |                | ✓             |          | ✓               |
| 25                        | K39                 |                  | ✓ |   |   |   |                | ✓             |          | ✓               |
| 35                        | K35                 | ✓                |   |   |   |   |                | ✓             | ✓        |                 |
| 50                        | K27/1               |                  |   | ✓ |   |   |                | ✓             |          | ✓               |
|                           | K28                 |                  | ✓ |   |   |   |                | ✓             |          | ✓               |
|                           | K35/4 <sup>1)</sup> |                  | ✓ |   |   |   |                | ✓             |          | ✓               |
| 95                        | K27/2               |                  |   | ✓ |   |   |                | ✓             |          | ✓               |
|                           | K29                 |                  | ✓ |   |   |   |                | ✓             |          | ✓               |
|                           | K18 <sup>1)</sup>   |                  | ✓ | ✓ |   |   |                | ✓             |          | ✓               |
| 240                       | K22 <sup>1)</sup>   |                  | ✓ | ✓ |   |   |                | ✓             |          | ✓               |

K = Crimping tool

KP = Pro series crimping head

<sup>1)</sup> Interchangeable dies

\*Also available as Pro series

K 4 Crimping tool for cable end-sleeves 0.5 - 2.5 mm<sup>2</sup>

- ▶ Indent crimping for round clamp opening
- ▶ Spring-supported tool opening

**Characteristics**

- One crimp profile per cross-section
- Lateral insertion
- Exact cross-section assignment
- Ergonomic handles

| Technical data                                                |                           |
|---------------------------------------------------------------|---------------------------|
| Crimping range                                                | 0.5 - 2.5 mm <sup>2</sup> |
| Length                                                        | 150 mm                    |
| Weight                                                        | 0.16 kg                   |
| Item                                                          | Part No.                  |
| Crimping tool for cable end-sleeves 0.5 - 2.5 mm <sup>2</sup> | <b>K4</b>                 |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK30L    | 213  |

K 46 Crimping tool for cable end-sleeves 1.5 - 6 mm<sup>2</sup>

- ▶ Indent crimping for round clamp opening
- ▶ Spring-supported tool opening

**Characteristics**

- One crimp profile per cross-section
- Lateral insertion
- Exact cross-section assignment
- Ergonomic handles

| Technical data                                              |                         |
|-------------------------------------------------------------|-------------------------|
| Crimping range                                              | 1.5 - 6 mm <sup>2</sup> |
| Length                                                      | 150 mm                  |
| Weight                                                      | 0.16 kg                 |
| Item                                                        | Part No.                |
| Crimping tool for cable end-sleeves 1.5 - 6 mm <sup>2</sup> | <b>K46</b>              |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK30L    | 213  |



### K 3 Crimping tool for cable end-sleeves 0.5 - 16 mm<sup>2</sup>

- ▶ Indent crimping for round clamp opening
- ▶ With wire cutter

#### Characteristics

- One crimp profile per cross-section
- Lateral insertion
- Exact cross-section assignment
- Ergonomic handles

| Technical data                                               |                          |
|--------------------------------------------------------------|--------------------------|
| Crimping range                                               | 0.5 - 16 mm <sup>2</sup> |
| Length                                                       | 230 mm                   |
| Weight                                                       | 0.24 kg                  |
| Item                                                         | Part No.                 |
| Crimping tool for cable end-sleeves 0.5 - 16 mm <sup>2</sup> | <b>K3</b>                |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK32L    | 213  |



### K 35 Crimping tool for cable end-sleeves 10 - 35 mm<sup>2</sup>

- ▶ Indent crimping for round clamp opening
- ▶ For large cross-sections to 35 mm<sup>2</sup>

#### Characteristics

- One crimp profile per cross-section
- Lateral insertion
- Exact cross-section assignment
- Ergonomic handles

| Technical data                                              |                         |
|-------------------------------------------------------------|-------------------------|
| Crimping range                                              | 10 - 35 mm <sup>2</sup> |
| Length                                                      | 230 mm                  |
| Weight                                                      | 0.24 kg                 |
| Item                                                        | Part No.                |
| Crimping tool for cable end-sleeves 10 - 35 mm <sup>2</sup> | <b>K35</b>              |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK32L    | 213  |



K 1 Crimping tool for cable end-sleeves 0.14 - 2.5 mm<sup>2</sup>

- ▶ Trapezoid crimping suitable for box terminals
- ▶ Spring-supported tool opening
- ▶ With wire stripper and cutter

**Characteristics**

- One crimp profile per cross-section
- Lateral insertion
- Exact cross-section assignment
- Ergonomic handles
- Interchangeable stripping blades

| Technical data                                     |                |
|----------------------------------------------------|----------------|
| Crimping range                                     | 0.14 - 2.5 mm² |
| Length                                             | 175 mm         |
| Weight                                             | 0.19 kg        |
| Item                                               | Part No.       |
| Crimping tool for cable end-sleeves 0.14 - 2.5 mm² | <b>K1</b>      |
| Accessories                                        |                |
| Steel carrying case                                | SK30L          |
|                                                    | 213            |

K 48 Crimping tool for cable end-sleeves 0.14 - 2.5 mm<sup>2</sup>

- ▶ Trapezoid crimping suitable for box terminals
- ▶ Spring-supported tool opening

**Characteristics**

- One crimp profile per cross-section
- Lateral insertion
- Exact cross-section assignment
- Ergonomic handles

| Technical data                                     |                |
|----------------------------------------------------|----------------|
| Crimping range                                     | 0.14 - 2.5 mm² |
| Length                                             | 150 mm         |
| Weight                                             | 0.16 kg        |
| Item                                               | Part No.       |
| Crimping tool for cable end-sleeves 0.14 - 2.5 mm² | <b>K48</b>     |
| Accessories                                        |                |
| Steel carrying case                                | SK30L          |
|                                                    | 213            |

## K 36 Crimping tool for cable end-sleeves and twin cable end-sleeves 0.5 - 6 mm<sup>2</sup>

- ▶ Two crimping profiles with the cross-section areas 0.5 - 2.5 mm<sup>2</sup> and 4 - 6 mm<sup>2</sup>
- ▶ Spring-supported tool opening

### Characteristics

- Front insertion (front crimping)
- Ergonomic non-slip handles

| Technical data                                                                         |                                               |
|----------------------------------------------------------------------------------------|-----------------------------------------------|
| Crimping range total                                                                   | 0.5 - 6 mm <sup>2</sup>                       |
| Cable end-sleeves                                                                      | 0.5 - 2.5 and 4 - 6 mm <sup>2</sup>           |
| Twin cable end-sleeves                                                                 | 2x0.5 - 2x1.5 and 2x2.5 - 2x4 mm <sup>2</sup> |
| Length                                                                                 | 200 mm                                        |
| Weight                                                                                 | 0.22 kg                                       |
| Item                                                                                   | Part No.                                      |
| Crimping tool for cable end-sleeves and twin cable end-sleeves 0.5 - 6 mm <sup>2</sup> | <b>K36</b>                                    |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK32L    | 213  |



## K 32 Crimping tool for cable end-sleeves and twin cable end-sleeves 0.14 - 6 mm<sup>2</sup>

- ▶ One crimping profile for cross-sections from 0.14 - 6 mm<sup>2</sup> due to automatic cross-section adjustment
- ▶ Trapezoid crimping suitable for box terminals
- ▶ Spring-supported tool opening

### Characteristics

- With ratchet for consistent crimp results
- Front insertion (front crimping)
- Ergonomic handles
- Non-slip handles

| Technical data                                                                          |                                   |
|-----------------------------------------------------------------------------------------|-----------------------------------|
| Crimping range total                                                                    | 0.14 - 6 mm <sup>2</sup>          |
| Cable end-sleeves                                                                       | 0.14 - 6 mm <sup>2</sup>          |
| Twin cable end-sleeves                                                                  | 2 x 0.5 - 2 x 2.5 mm <sup>2</sup> |
| Length                                                                                  | 210 mm                            |
| Weight                                                                                  | 0.35 kg                           |
| Item                                                                                    | Part No.                          |
| Crimping tool for cable end-sleeves and twin cable end-sleeves 0.14 - 6 mm <sup>2</sup> | <b>K32</b>                        |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK43L    | 213  |



K 34 Crimping tool for cable end-sleeves and twin cable end-sleeves 6 - 16 mm<sup>2</sup>

- ▶ Trapezoid crimping suitable for box terminals
- ▶ Spring-supported tool opening
- ▶ One crimping profile for cross-sections from 6 - 16 mm<sup>2</sup> due to automatic cross-section adjustment

**Characteristics**

- With ratchet for consistent crimp results
- Front insertion (front crimping)
- Non-slip handles

| Technical data                                                                        |                               |
|---------------------------------------------------------------------------------------|-------------------------------|
| Crimping range total                                                                  | 6 - 16 mm <sup>2</sup>        |
| cable end-sleeves                                                                     | 6 - 16 mm <sup>2</sup>        |
| Twincable end-sleeves                                                                 | 2 x 4 - 2 x 6 mm <sup>2</sup> |
| Length                                                                                | 210 mm                        |
| Weight                                                                                | 0.5 kg                        |
| Item                                                                                  | Part No.                      |
| Crimping tool for cable end-sleeves and twin cable end-sleeves 6 - 16 mm <sup>2</sup> | <b>K34</b>                    |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK43L    | 213  |

K 37 Crimping tool for cable end-sleeves 0.14 - 6 mm<sup>2</sup>

- ▶ Trapezoid crimping suitable for box terminals
- ▶ Tool pre-tensioning adjustable

**Characteristics**

- An adjusting disc balances the wear of the crimping tool
- One crimp profile per cross-section
- With ratchet for consistent crimp results
- Lateral insertion
- Exact cross-section assignment

| Technical data                                               |                          |
|--------------------------------------------------------------|--------------------------|
| Crimping range                                               | 0.14 - 6 mm <sup>2</sup> |
| Length                                                       | 200 mm                   |
| Weight                                                       | 0.36 kg                  |
| Item                                                         | Part No.                 |
| Crimping tool for cable end-sleeves 0.14 - 6 mm <sup>2</sup> | <b>K37</b>               |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK43L    | 213  |

## K 39 Crimping tool for cable end-sleeves 10 - 25 mm<sup>2</sup>

- ▶ Trapezoid crimping suitable for box terminals
- ▶ Tool pre-tensioning adjustable

### Characteristics

- An adjusting disc balances the wear of the crimping tool
- One crimp profile per cross-section
- With ratchet for consistent crimp results
- Lateral insertion
- Exact cross-section assignment

| Technical data                                              |                         |
|-------------------------------------------------------------|-------------------------|
| Crimping range                                              | 10 - 25 mm <sup>2</sup> |
| Length                                                      | 200 mm                  |
| Weight                                                      | 0.36 kg                 |
| Item                                                        | Part No.                |
| Crimping tool for cable end-sleeves 10 - 25 mm <sup>2</sup> | <b>K39</b>              |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK43L    | 213  |



## K 38/2 Crimping tool for cable end-sleeves and twin cable end-sleeves 0.5 - 6 mm<sup>2</sup>

- ▶ Square crimping suitable for box terminals and spring clamp technology
- ▶ An adjusting disc balances the wear of the crimping tool
- ▶ One crimping profile for cross-sections from 0.5 - 6 mm<sup>2</sup> due to automatic cross-section adjustment

### Characteristics

- Accurate drive
- With ratchet for consistent crimp results
- Front insertion (front crimping)

| Technical data                                                                         |                                   |
|----------------------------------------------------------------------------------------|-----------------------------------|
| Crimping range total                                                                   | 0.5 - 6 mm <sup>2</sup>           |
| Cable end-sleeves                                                                      | 0.5 - 6 mm <sup>2</sup>           |
| Twin cable end-sleeves                                                                 | 2 x 0.5 - 2 x 2.5 mm <sup>2</sup> |
| Length                                                                                 | 190 mm                            |
| Weight                                                                                 | 0.3 kg                            |
| Item                                                                                   | Part No.                          |
| Crimping tool for cable end-sleeves and twin cable end-sleeves 0.5 - 6 mm <sup>2</sup> | <b>K382</b>                       |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK43L    | 213  |



**K 38 ERGO Crimping tool for cable end-sleeves and twin cable end-sleeves 0.25 - 6 mm<sup>2</sup>**

- ▶ Square crimping suitable for box terminals and spring clamp technology
- ▶ Ergonomic design
- ▶ Low hand crimping force

**Characteristics**

- Precise drive with ratchet for consistent crimp results
- Front insertion (front crimping)
- Reduced space requirement for processing
- Automatic cross-section range adjustment from 0.25 - 6 mm<sup>2</sup>
- Max. length of cable end-sleeves to be crimped 18 mm, from 12 mm in two steps

| Technical data                                                                          |                                   |
|-----------------------------------------------------------------------------------------|-----------------------------------|
| Crimping range total                                                                    | 0.25 - 6 mm <sup>2</sup>          |
| Cable end-sleeves                                                                       | 0.25 - 6 mm <sup>2</sup>          |
| Twin cable end-sleeves                                                                  | 2 x 0.5 - 2 x 2.5 mm <sup>2</sup> |
| Length                                                                                  | 160 mm                            |
| Weight                                                                                  | 0.4 kg                            |
| Item                                                                                    | Part No.                          |
| Crimping tool for cable end-sleeves and twin cable end-sleeves 0.25 - 6 mm <sup>2</sup> | <b>K38ERGO</b>                    |

## K 38 ERGO SET Plastic case with cable end-sleeves, twin cable end-sleeves and crimping tool

- ▶ Square crimping suitable for box terminals and spring clamp technology
- ▶ Ergonomic design
- ▶ Low hand crimping force
- ▶ Plastic tool case

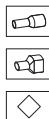
### Characteristics

- Accurate drive with ratchet
- Front insertion (front crimping)
- Reduced space requirement for processing
- Automatic cross-section range adjustment from 0.25 - 6 mm<sup>2</sup>
- Max. length of cable end-sleeves to be crimped 18 mm, from 12 mm in two steps

| Technical data         |                                   |
|------------------------|-----------------------------------|
| Crimping range total   | 0.25 - 6 mm <sup>2</sup>          |
| Cable end-sleeves      | 0.25 - 6 mm <sup>2</sup>          |
| Twin cable end-sleeves | 2 x 0.5 - 2 x 2.5 mm <sup>2</sup> |
| Dimensions             | 235 x 180 x 50 mm                 |
| Length                 | 160 mm                            |
| Weight                 | 0.740 kg                          |

| Item                                                                          | Part No.          |
|-------------------------------------------------------------------------------|-------------------|
| Plastic case with cable end-sleeves, twin cable end-sleeves and crimping tool | <b>K38ERGOSET</b> |

| Scope of supply                                                                         | Colour                                                                            | Part No. | Quantity | Page |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------|----------|------|
| Crimping tool for cable end-sleeves and twin cable end-sleeves 0.25 - 6 mm <sup>2</sup> |                                                                                   | K38ERGO  | 1        | 228  |
| Ins. cable end-sleeve DIN 46228 part 4, 0.5 mm <sup>2</sup> , 14mm long                 |  | 4698     | 100      | 157  |
| Ins. cable end-sleeve DIN 46228 part 4, 0.75 mm <sup>2</sup> , 14mm long                |  | 4708     | 100      | 157  |
| Ins. cable end-sleeve DIN 46228 part 4, 1 mm <sup>2</sup> , 14mm long                   |  | 4718     | 100      | 157  |
| Ins. cable end-sleeve DIN 46228 part 4, 1.5 mm <sup>2</sup> , 14mm long                 |  | 4728     | 100      | 157  |



## K 30/3 Crimping tool for cable end-sleeves and twin cable end-sleeves 0.08 - 10 mm<sup>2</sup>

- ▶ Square crimping suitable for box terminals and spring clamp technology

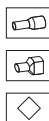
### Characteristics

- One crimping profile for cross-sections from 0.08 - 10 mm<sup>2</sup> due to automatic cross-section adjustment
- With ratchet for consistent crimp results
- Lateral insertion
- Non-slip handles

| Technical data         |                                 |
|------------------------|---------------------------------|
| Crimping range total   | 0.08 - 10 mm <sup>2</sup>       |
| Cable end-sleeves      | 0.08 - 10 mm <sup>2</sup>       |
| Twin cable end-sleeves | 2 x 0.5 - 2 x 4 mm <sup>2</sup> |
| Length                 | 190 mm                          |
| Weight                 | 0.3 kg                          |

| Item                                                                                     | Part No.    |
|------------------------------------------------------------------------------------------|-------------|
| Crimping tool for cable end-sleeves and twin cable end-sleeves 0.08 - 10 mm <sup>2</sup> | <b>K303</b> |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK30L    | 213  |



K 27/1 Crimping tool for cable end-sleeves and twin cable end-sleeves 4 - 50 mm<sup>2</sup>

- ▶ Special trapezoid crimping suitable for box terminals
- ▶ Special type, especially suitable for fine stranded conductors

**Characteristics**

- One crimp profile per cross-section
- With ratchet for consistent crimp results
- Lateral insertion
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- Non-slip handles

| Technical data                                                                            |                                |
|-------------------------------------------------------------------------------------------|--------------------------------|
| Crimping range total                                                                      | 2 x 4 - 50 mm <sup>2</sup>     |
| Cable end-sleeves                                                                         | 10 - 50 mm <sup>2</sup>        |
| Twin cable end-sleeves                                                                    | 2 x 4 - 2 x 16 mm <sup>2</sup> |
| Length                                                                                    | 335 mm                         |
| Weight                                                                                    | 0.8 kg                         |
| Item                                                                                      | Part No.                       |
| Crimping tool for cable end-sleeves and twin cable end-sleeves 2 x 4 - 50 mm <sup>2</sup> | <b>K271</b>                    |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK4L     | 213  |

K 27/2 Crimping tool for cable end-sleeves 50 - 95 mm<sup>2</sup>

- ▶ Special trapezoid crimping suitable for box terminals
- ▶ Special type, especially suitable for fine stranded conductors
- ▶ For large cross-sections to 95 mm<sup>2</sup>

**Characteristics**

- One crimp profile per cross-section
- With ratchet for consistent crimp results
- Lateral insertion
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- Non-slip handles

| Technical data                                              |                         |
|-------------------------------------------------------------|-------------------------|
| Crimping range                                              | 50 - 95 mm <sup>2</sup> |
| Length                                                      | 335 mm                  |
| Weight                                                      | 0.8 kg                  |
| Item                                                        | Part No.                |
| Crimping tool for cable end-sleeves 50 - 95 mm <sup>2</sup> | <b>K272</b>             |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK4L     | 213  |



## K 28 Crimping tool for cable end-sleeves and twin cable end-sleeves 4 - 50 mm<sup>2</sup>

▶ Trapezoid crimping suitable for box terminals

### Characteristics

- One crimp profile per cross-section
- With ratchet for consistent crimp results
- Lateral insertion
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- Non-slip handles

| Technical data         |                              |
|------------------------|------------------------------|
| Crimping range total   | 4-50 mm <sup>2</sup>         |
| Cable end-sleeves      | 10-50 mm <sup>2</sup>        |
| Twin cable end-sleeves | 2 x 4-2 x 16 mm <sup>2</sup> |
| Length                 | 335 mm                       |
| Weight                 | 0.8 kg                       |

| Item                                                                                  | Part No.   |
|---------------------------------------------------------------------------------------|------------|
| Crimping tool for cable end-sleeves and twin cable end-sleeves 4 - 50 mm <sup>2</sup> | <b>K28</b> |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK4L     | 213  |



## K 29 Crimping tool for cable end-sleeves 50 - 95 mm<sup>2</sup>

▶ Trapezoid crimping suitable for box terminals  
▶ For large cross-sections to 95 mm<sup>2</sup>

### Characteristics

- One crimp profile per cross-section
- With ratchet for consistent crimp results
- Lateral insertion
- Non-slip handles

| Technical data |                         |
|----------------|-------------------------|
| Crimping range | 50 - 95 mm <sup>2</sup> |
| Length         | 335 mm                  |
| Weight         | 0.8 kg                  |

| Item                                                        | Part No.   |
|-------------------------------------------------------------|------------|
| Crimping tool for cable end-sleeves 50 - 95 mm <sup>2</sup> | <b>K29</b> |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK4L     | 213  |



K 10 Crimping tool for insulated cable connections 0.5 - 6 mm<sup>2</sup>

- ▶ Oval crimping
- ▶ To shorten screws M2.6 - M6
- ▶ With wire stripper and cutter

**Characteristics**

- Stripping and crimping is done in two operations
- Wire stripping tool for cross-sections 0.5 - 6 mm<sup>2</sup>
- Colour-coded cross-section assignment

| Technical data                                                        |                           |
|-----------------------------------------------------------------------|---------------------------|
| Crimping range total                                                  | 0.5 - 6 mm <sup>2</sup>   |
| Red insulation sleeve                                                 | 0.5 - 1.0 mm <sup>2</sup> |
| Blue insulation sleeve                                                | 1.5 - 2.5 mm <sup>2</sup> |
| Yellow insulation sleeve                                              | 4.0 - 6.0 mm <sup>2</sup> |
| Length                                                                | 210 mm                    |
| Weight                                                                | 0.19 kg                   |
| Item                                                                  | Part No.                  |
| Crimping tool for insulated cable connections 0.5 - 6 mm <sup>2</sup> | <b>K10</b>                |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | MK210L   | 214  |

K 14 Crimping tool for insulated cable connections 0.5 - 6 mm<sup>2</sup>

- ▶ Oval crimping
- ▶ Spring-supported tool opening
- ▶ With wire stripper and cutter

**Characteristics**

- Additional three-stage positioning
- Colour-coded cross-section assignment
- Adjustable tool pre-tensioning

| Technical data                                                        |                           |
|-----------------------------------------------------------------------|---------------------------|
| Crimping range total                                                  | 0.5 - 6 mm <sup>2</sup>   |
| Red insulation sleeve                                                 | 0.5 - 1.0 mm <sup>2</sup> |
| Blue insulation sleeve                                                | 1.5 - 2.5 mm <sup>2</sup> |
| Yellow insulation sleeve                                              | 4.0 - 6.0 mm <sup>2</sup> |
| Length                                                                | 215 mm                    |
| Weight                                                                | 0.5 kg                    |
| Item                                                                  | Part No.                  |
| Crimping tool for insulated cable connections 0.5 - 6 mm <sup>2</sup> | <b>K14</b>                |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | MK210L   | 214  |

## K 80 Presswerkzeug für isolierte Kabelverbindungen 0,1 - 1 mm<sup>2</sup>

- ▶ Crimping of conductor and insulation in one step
- ▶ An adjusting disc balances the wear of the crimping tool

### Characteristics

- Accurate drive
- With ratchet for consistent crimp results
- Colour-coded cross-section assignment
- Non-slip handles

| Technical data                                                        |                           |
|-----------------------------------------------------------------------|---------------------------|
| Crimping range total                                                  | 0.1 - 1 mm <sup>2</sup>   |
| Red insulation sleeve                                                 | 0.5 - 1.0 mm <sup>2</sup> |
| Yellow insulation sleeve                                              | 0.1 - 0.4 mm <sup>2</sup> |
| Length                                                                | 195 mm                    |
| Weight                                                                | 0.38 kg                   |
| Item                                                                  | Part No.                  |
| Crimping tool for insulated cable connections 0.1 - 1 mm <sup>2</sup> | <b>K80</b>                |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK43L    | 213  |



## K 81 Crimping tool for insulated cable connections 0.5 - 2.5 mm<sup>2</sup>

- ▶ Crimping of conductor and insulation in one step
- ▶ An adjusting disc balances the wear of the crimping tool

### Characteristics

- Double crimping, oval shape
- Accurate drive
- With ratchet for consistent crimp results
- Colour-coded cross-section assignment

| Technical data                                                          |                           |
|-------------------------------------------------------------------------|---------------------------|
| Crimping range total                                                    | 0.5 - 2.5 mm <sup>2</sup> |
| Red insulation sleeve                                                   | 0.5 - 1.0 mm <sup>2</sup> |
| Blue insulation sleeve                                                  | 1.5 - 2.5 mm <sup>2</sup> |
| Length                                                                  | 195 mm                    |
| Weight                                                                  | 0.38 kg                   |
| Item                                                                    | Part No.                  |
| Crimping tool for insulated cable connections 0.5 - 2.5 mm <sup>2</sup> | <b>K81</b>                |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK43L    | 213  |



K 82 Crimping tool for insulated cable connections 0.5 - 6 mm<sup>2</sup>

- ▶ 33% less effort
- ▶ 3-component handle
- ▶ Highest material quality for a long service life
- ▶ Precise pre-tension setting for the maintenance of a constant crimping performance

**Characteristics**

- Less effort required due to a new mechanical lever system
- 3-component handles. Yellow: a hard core for perfect power transmission. Blue: soft ergonomic handle surface. Grey: super soft non-slip handles.
- Easy handling due to the reduced opening width of the tool, optimal ergonomic due to the position of the palms and fingers, which is gentle to the joints.
- Crimping of conductor and insulation in one step

| Technical data                                                        |                           |
|-----------------------------------------------------------------------|---------------------------|
| Crimping range total                                                  | 0.5 - 6.0 mm <sup>2</sup> |
| Red insulation sleeve                                                 | 0.5 - 1.0 mm <sup>2</sup> |
| Blue insulation sleeve                                                | 1.5 - 2.5 mm <sup>2</sup> |
| Yellow insulation sleeve                                              | 4.0 - 6.0 mm <sup>2</sup> |
| Length                                                                | 225 mm                    |
| Weight                                                                | 0.53 kg                   |
| Item                                                                  | Part No.                  |
| Crimping tool for insulated cable connections 0.5 - 6 mm <sup>2</sup> | <b>K82A</b>               |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | MK230L   | 214  |

K 16 Crimping tool for insulated solderless terminals 10 + 16 mm<sup>2</sup>

- ▶ Oval crimping
- ▶ Crimping tool even for meter connections

**Characteristics**

- With ratchet for consistent crimp results
- Colour-coded cross-section assignment

| Technical data                                                           |                         |
|--------------------------------------------------------------------------|-------------------------|
| Crimping range total                                                     | 10 + 16 mm <sup>2</sup> |
| Red insulation sleeve                                                    | 10 mm <sup>2</sup>      |
| Blue insulation sleeve                                                   | 16 mm <sup>2</sup>      |
| Length                                                                   | 305 mm                  |
| Weight                                                                   | 0.61 kg                 |
| Item                                                                     | Part No.                |
| Crimping tool for insulated solderless terminals 10 + 16 mm <sup>2</sup> | <b>K16</b>              |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK4L     | 213  |

## K 60 Crimping tool for non-insulated tabs and receptacles 0.5 - 6 mm<sup>2</sup>

- ▶ Roll-crimping
- ▶ To shorten screws M2.5 - M6

### Characteristics

- Crimping of conductor and insulation in two steps
- With wire stripper and cutter for cross-sections 0.75 - 6 mm<sup>2</sup>
- For 2.8 and 4.8 and 6.3 mm tab widths

| Technical data                                                               |                         |
|------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                               | 0.5 - 6 mm <sup>2</sup> |
| Length                                                                       | 225 mm                  |
| Weight                                                                       | 0.2 kg                  |
| Item                                                                         | Part No.                |
| Crimping tool for non-insulated tabs and receptacles 0.5 - 6 mm <sup>2</sup> | <b>K60</b>              |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | MK210L   | 214  |



## K 57/2 Crimping tool for non-insulated tabs and receptacles 2.8 mm; 0.1 - 1 mm<sup>2</sup>

- ▶ Roll-crimping
- ▶ Crimping of conductor and insulation in one step
- ▶ Spring-supported tool opening
- ▶ Tool pre-tensioning adjustable

### Characteristics

- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- An adjusting disc balances the wear of the crimping tool
- For tabs and receptacles, tab width 2.8 mm

| Technical data                                                                       |                         |
|--------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                       | 0.1 - 1 mm <sup>2</sup> |
| Length                                                                               | 220 mm                  |
| Weight                                                                               | 0.55 kg                 |
| Item                                                                                 | Part No.                |
| Crimping tool for non-insulated tabs and receptacles 2.8 mm; 0.1 - 1 mm <sup>2</sup> | <b>K572</b>             |



**K 58/2 Crimping tool for non-insulated tabs and receptacles 4.8 mm; 0.5 - 2.5 mm<sup>2</sup>**

- ▶ Roll-crimping
- ▶ Crimping of conductor and insulation in one step
- ▶ Tool pre-tensioning adjustable

**Characteristics**

- Spring-supported tool opening
- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- An adjusting disc balances the wear of the crimping tool
- For tabs and receptacles, tab width 4.8 mm

| Technical data                                                                            |                           |
|-------------------------------------------------------------------------------------------|---------------------------|
| Crimping range                                                                            | 0.5 - 2.5 mm <sup>2</sup> |
| Length                                                                                    | 220 mm                    |
| Weight                                                                                    | 0.55 kg                   |
| Item                                                                                      | Part No.                  |
| Crimping tool for non-insulated tabs and receptacles 4.8 mm;<br>0.5 - 2.5 mm <sup>2</sup> | <b>K582</b>               |

**K 59/2 Crimping tool for non-insulated tabs and receptacles 6.3 mm; 0.5 - 6 mm<sup>2</sup>**

- ▶ Roll-crimping
- ▶ Crimping of conductor and insulation in one step
- ▶ Tool pre-tensioning adjustable

**Characteristics**

- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- Spring-supported tool opening
- An adjusting disc balances the wear of the crimping tool
- For tabs and receptacles, tab width 6.3 mm

| Technical data                                                                          |                         |
|-----------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                          | 0.5 - 6 mm <sup>2</sup> |
| Length                                                                                  | 220 mm                  |
| Weight                                                                                  | 0.51 kg                 |
| Item                                                                                    | Part No.                |
| Crimping tool for non-insulated tabs and receptacles 6.3 mm;<br>0.5 - 6 mm <sup>2</sup> | <b>K592</b>             |

## K 67 Crimping tool for non-insulated tabs and receptacles 2.8 mm; 0.1 - 1 mm<sup>2</sup>

- ▶ Roll-crimping
- ▶ Crimping of conductor and insulation in one step
- ▶ Spring-supported tool opening

### Characteristics

- With ratchet for consistent crimp results
- Parallel guided crimping jaws
- For tabs and receptacles, tab width 2.8 mm

| Technical data                                                                       |                         |
|--------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                       | 0.1 - 1 mm <sup>2</sup> |
| Length                                                                               | 210 mm                  |
| Weight                                                                               | 0.5 kg                  |
| Item                                                                                 | Part No.                |
| Crimping tool for non-insulated tabs and receptacles 2.8 mm; 0.1 - 1 mm <sup>2</sup> | <b>K67</b>              |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | MK210L   | 214  |



## K 65 Crimping tool for non-insulated tabs and receptacles 4.8 mm; 0.5 - 2.5 mm<sup>2</sup>

- ▶ Roll-crimping
- ▶ Crimping of conductor and insulation in one step
- ▶ Spring-supported tool opening

### Characteristics

- With ratchet for consistent crimp results
- Parallel guided crimping jaws
- For tabs and receptacles, tab width 4.8 mm

| Technical data                                                                         |                           |
|----------------------------------------------------------------------------------------|---------------------------|
| Crimping range                                                                         | 0.5 - 2.5 mm <sup>2</sup> |
| Length                                                                                 | 265 mm                    |
| Weight                                                                                 | 0.6 kg                    |
| Item                                                                                   | Part No.                  |
| Crimping tool for non-insulated tabs and receptacles 4.8 mm; 0.5 - 2.5 mm <sup>2</sup> | <b>K65</b>                |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | MK210L   | 214  |



K 63 Crimping tool for non-insulated tabs and receptacles 6.3 mm; 0.5 - 2.5 mm<sup>2</sup> with lateral conductor connector

- ▶ Roll-crimping
- ▶ Crimping of conductor and insulation in one step

**Characteristics**

- With ratchet for consistent crimp results
- Excellent leverage
- Parallel guided crimping jaws
- For tabs and receptacles, tab width 6.3 mm

**Technical data**

|                |                           |
|----------------|---------------------------|
| Crimping range | 0.5 - 2.5 mm <sup>2</sup> |
| Length         | 265 mm                    |
| Weight         | 0.6 kg                    |

| Item                                                                                                                       | Part No.   |
|----------------------------------------------------------------------------------------------------------------------------|------------|
| Crimping tool for non-insulated tabs and receptacles 6.3 mm;<br>0.5 - 2.5 mm <sup>2</sup> with lateral conductor connector | <b>K63</b> |

K 64 Crimping tool for non-insulated tabs and receptacles 6.3 mm; 0.5 - 1.5 mm<sup>2</sup> with lateral conductor connector

- ▶ Roll-crimping
- ▶ Crimping of conductor and insulation in one step

**Characteristics**

- With ratchet for consistent crimp results
- Excellent leverage
- Parallel guided crimping jaws
- For tabs and receptacles, tab width 6.3 mm

**Technical data**

|                |                           |
|----------------|---------------------------|
| Crimping range | 0.5 - 1.5 mm <sup>2</sup> |
| Length         | 265 mm                    |
| Weight         | 0.6 kg                    |

| Item                                                                                                                       | Part No.   |
|----------------------------------------------------------------------------------------------------------------------------|------------|
| Crimping tool for non-insulated tabs and receptacles 6.3 mm;<br>0.5 - 1.5 mm <sup>2</sup> with lateral conductor connector | <b>K64</b> |



## K 68 Crimping tool for non-insulated tabs and receptacles 6.3 mm; 0.5 - 2.5 mm<sup>2</sup>

- ▶ Roll-crimping
- ▶ Crimping of conductor and insulation in one step
- ▶ Spring-supported tool opening

### Characteristics

- With ratchet for consistent crimp results
- Parallel guided crimping jaws
- For tabs and receptacles, tab width 6.3 mm

| Technical data                                                                                  |                           |
|-------------------------------------------------------------------------------------------------|---------------------------|
| Crimping range                                                                                  | 0.5 - 2.5 mm <sup>2</sup> |
| Length                                                                                          | 265 mm                    |
| Weight                                                                                          | 0.6 kg                    |
| Item                                                                                            | Part No.                  |
| Crimping tool for non-insulated tabs and receptacles 6.3 mm tab width 0.5 - 2.5 mm <sup>2</sup> | <b>K68</b>                |



## K 93 Crimping tool for connectors for solid conductors 1.5 - 4 mm<sup>2</sup>

- ▶ Hexagonal crimping
- ▶ Tool pre-tensioning adjustable

### Characteristics

- Accurate drive
- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- Non-slip handles
- An adjusting disc balances the wear of the crimping tool

| Technical data                                                            |                         |
|---------------------------------------------------------------------------|-------------------------|
| Crimping range                                                            | 1.5 - 4 mm <sup>2</sup> |
| Length                                                                    | 220 mm                  |
| Weight                                                                    | 0.56 kg                 |
| Item                                                                      | Part No.                |
| Crimping tool for connectors for solid conductors 1.5 - 4 mm <sup>2</sup> | <b>K93</b>              |



### K 94 Crimping tool for tubular cable lugs and connectors for solid conductors 6 - 10 mm<sup>2</sup>



- ▶ Hexagonal crimping
- ▶ Tool pre-tensioning adjustable

#### Characteristics

- Accurate drive
- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- Non-slip handles
- An adjusting disc balances the wear of the crimping tool

| Technical data                                                                                  |                        |
|-------------------------------------------------------------------------------------------------|------------------------|
| Crimping range                                                                                  | 6 - 10 mm <sup>2</sup> |
| Length                                                                                          | 220 mm                 |
| Weight                                                                                          | 0.56 kg                |
| Item                                                                                            | Part No.               |
| Crimping tool for tubular cable lugs and connectors for solid conductors 6 - 10 mm <sup>2</sup> | <b>K94</b>             |

### K 13 Crimping tool 0.5 - 6 mm<sup>2</sup>



- ▶ Indent crimping
- ▶ To shorten screws M2.6 - M6
- ▶ With wire stripper and cutter

#### Characteristics

- For tubular cable lugs and connectors standard type, as well as solderless terminals DIN 46234 and pin terminals DIN 46230

| Technical data            |             |
|---------------------------|-------------|
| Crimping range            | 0.5 - 6 mm² |
| Length                    | 210 mm      |
| Weight                    | 0.23 kg     |
| Item                      | Part No.    |
| Crimping tool 0.5 - 6 mm² | <b>K13</b>  |
| Accessories               |             |
| Steel carrying case       | MK210L      |
|                           | 214         |

## K 2 Crimping tool for tubular cable lugs and connectors, standard type, 0.75 - 16 mm<sup>2</sup>

- ▶ Indent crimping
- ▶ Ideal crimping tool with spring supported tool opening

### Characteristics

- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool

| Technical data                                                                               |                           |
|----------------------------------------------------------------------------------------------|---------------------------|
| Crimping range                                                                               | 0.75 - 16 mm <sup>2</sup> |
| Length                                                                                       | 325 mm                    |
| Weight                                                                                       | 0.6 kg                    |
| Item                                                                                         | Part No.                  |
| Crimping tool for tubular cable lugs and connectors, standard type 0.75 - 16 mm <sup>2</sup> | <b>K2</b>                 |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK4L     | 213  |



## K 02 Crimping tool for tubular cable lugs and connectors for solid conductors 0.75 - 16 mm<sup>2</sup>

- ▶ Indent crimping
- ▶ Ideal crimping tool with spring supported tool opening
- ▶ For tubular cable lugs and connectors for solid conductors

### Characteristics

- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool

| Technical data                                                                                     |                           |
|----------------------------------------------------------------------------------------------------|---------------------------|
| Crimping range                                                                                     | 0.75 - 16 mm <sup>2</sup> |
| Length                                                                                             | 325 mm                    |
| Weight                                                                                             | 0.6 kg                    |
| Item                                                                                               | Part No.                  |
| Crimping tool for tubular cable lugs and connectors for solid conductors 0.75 - 16 mm <sup>2</sup> | <b>K02</b>                |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK4L     | 213  |



K 25 Crimping tool 0.5 - 16 mm<sup>2</sup>

- ▶ Indent crimping
- ▶ Ideal crimping tool with spring supported tool opening
- ▶ For solderless terminals DIN 46234, pin terminals DIN 46230
- ▶ For nickel and stainless steel tubular cable lugs and connectors to 6 mm<sup>2</sup>

## Characteristics

- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool

| Technical data                         |                          |
|----------------------------------------|--------------------------|
| Crimping range                         | 0.5 - 16 mm <sup>2</sup> |
| Length                                 | 325 mm                   |
| Weight                                 | 0.6 kg                   |
| Item                                   | Part No.                 |
| Crimping tool 0.5 - 16 mm <sup>2</sup> | K25                      |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK4L     | 213  |

K 95 Crimping tool 16 - 95 mm<sup>2</sup>

- ▶ Indent crimping

## Characteristics

- For tubular cable lugs and connectors, standard type
- For tubular cable lugs and connectors for fine stranded conductors
- For solderless terminals DIN 46234, pin terminals DIN 46230
- With revolving dies
- Excellent leverage

| Technical data                        |                         |
|---------------------------------------|-------------------------|
| Crimping range                        | 16 - 95 mm <sup>2</sup> |
| Length                                | 630 mm                  |
| Weight                                | 3.6 kg                  |
| Item                                  | Part No.                |
| Crimping tool 16 - 95 mm <sup>2</sup> | K95                     |

## TK 95 Crimping tool 16 - 95 mm<sup>2</sup> for workbench mounting

- ▶ Indent crimping
- ▶ Ideal tool for work bench mounting

### Characteristics

- For tubular cable lugs and connectors, standard type
- For tubular cable lugs and connectors for fine stranded conductors
- For solderless terminals DIN 46234, pin terminals DIN 46230
- With revolving dies
- Excellent leverage

| Technical data                                               |                         |
|--------------------------------------------------------------|-------------------------|
| Crimping range                                               | 16 - 95 mm <sup>2</sup> |
| Length                                                       | 700 mm                  |
| Weight                                                       | 3.9 kg                  |
| Item                                                         | Part No.                |
| Crimping tool 16 - 95 mm <sup>2</sup> for workbench mounting | <b>TK95</b>             |



## K 5 / K 5 SP Crimping tools 6 - 50 mm<sup>2</sup>

- ▶ Indent crimping
- ▶ Version with ratchet for consistent crimp results
- ▶ Low maintenance mechanical drive

### Characteristics

- For tubular cable lugs and connectors, standard type
- For tubular cable lugs and connectors for fine stranded conductors
- With revolving dies
- Exact cross-section designation on the dies

| Technical data                                    |                        |
|---------------------------------------------------|------------------------|
| Crimping range                                    | 6 - 50 mm <sup>2</sup> |
| Length                                            | 600 mm                 |
| Weight                                            | 2.4 kg                 |
| Item                                              | Part No.               |
| Crimping tool 6 - 50 mm <sup>2</sup>              | <b>K5</b>              |
| Crimping tool with ratchet 6 - 50 mm <sup>2</sup> | <b>K5SP</b>            |



## K 6 / K 6 SP Crimping tools 50 - 120 mm<sup>2</sup>



- ▶ Indent crimping
- ▶ Version with ratchet for consistent crimp results
- ▶ Low maintenance mechanical drive

### Characteristics

- For tubular cable lugs and connectors, standard type
- For tubular cable lugs and connectors for fine stranded conductors
- With revolving dies
- Exact cross-section designation on the dies
- Telescopic lever handles

### Technical data

|                |                          |
|----------------|--------------------------|
| Crimping range | 50 - 120 mm <sup>2</sup> |
| Length         | 970 mm                   |
| Weight         | 4.4 kg                   |

| Item                                                | Part No.    |
|-----------------------------------------------------|-------------|
| Crimping tool 50 - 120 mm <sup>2</sup>              | <b>K6</b>   |
| Crimping tool with ratchet 50 - 120 mm <sup>2</sup> | <b>K6SP</b> |

## K 07 / K 07 SP Crimping tools 185 - 400 mm<sup>2</sup>



- ▶ Indent crimping
- ▶ Extremely wide cross section range up to 400 mm<sup>2</sup>
- ▶ Version with ratchet for consistent crimp results
- ▶ Low maintenance mechanical drive

### Characteristics

- For tubular cable lugs and connectors, standard type
- For tubular cable lugs and connectors for fine stranded conductors
- With revolving dies
- Exact cross-section designation on the dies
- Telescopic lever handles

### Technical data

|                |                           |
|----------------|---------------------------|
| Crimping range | 185 - 400 mm <sup>2</sup> |
| Length         | 975 mm                    |
| Weight         | 4.7 kg                    |

| Item                                                 | Part No.     |
|------------------------------------------------------|--------------|
| Crimping tool 185 - 400 mm <sup>2</sup>              | <b>K07</b>   |
| Crimping tool with ratchet 185 - 400 mm <sup>2</sup> | <b>K07SP</b> |

## K 7 / K 7 SP Crimping tools 120 - 240 mm²

- ▶ Indent crimping
- ▶ Large cross section range up to 240 mm²
- ▶ Version with ratchet for consistent crimp results
- ▶ Low maintenance mechanical drive

### Characteristics

- For tubular cable lugs and connectors, standard type
- For tubular cable lugs and connectors for fine stranded conductors
- With revolving dies
- Exact cross-section designation on the dies
- Telescopic lever handles

| Technical data                            |               |
|-------------------------------------------|---------------|
| Crimping range                            | 120 - 240 mm² |
| Length                                    | 975 mm        |
| Weight                                    | 4.6 kg        |
| Item                                      | Part No.      |
| Crimping tool 120 - 240 mm²               | <b>K7</b>     |
| Crimping tool 120 - 240 mm², with ratchet | <b>K7SP</b>   |



## K 8 / K 8 SP Crimping tools 35 - 95 mm²

- ▶ Indent crimping
- ▶ Version with ratchet for consistent crimp results
- ▶ Low maintenance mechanical drive

### Characteristics

- For tubular cable lugs and connectors, standard type
- For tubular cable lugs and connectors for fine stranded conductors
- With revolving dies
- Exact cross-section designation on the dies
- Telescopic lever handles

| Technical data                         |             |
|----------------------------------------|-------------|
| Crimping range                         | 35 - 95 mm² |
| Length                                 | 970 mm      |
| Weight                                 | 4.4 kg      |
| Item                                   | Part No.    |
| Crimping tool 35 - 95 mm²              | <b>K8</b>   |
| Crimping tool with ratchet 35 - 95 mm² | <b>K8SP</b> |



K 04 Crimping tool for tubular cable lugs and connectors, standard type, 10 - 25 mm<sup>2</sup>

- ▶ Hexagonal crimping
- ▶ Tool pre-tensioning adjustable
- ▶ Large cross-section range up to 25 mm<sup>2</sup>

**Characteristics**

- Energy-efficient ergonomic drive
- With ratchet for consistent crimp results
- Exact cross-section assignment thanks to permanent marking on the crimping tool
- An adjusting disc balances the wear of the crimping tool

| Technical data                                                                             |                         |
|--------------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                             | 10 - 25 mm <sup>2</sup> |
| Length                                                                                     | 260 mm                  |
| Weight                                                                                     | 0.56 kg                 |
| Item                                                                                       | Part No.                |
| Crimping tool for tubular cable lugs and connectors, standard type 10 - 25 mm <sup>2</sup> | <b>K04</b>              |

K 05 BC Crimping tool for tubular cable lugs and connectors blue connection® 6 - 50 mm<sup>2</sup>

- ▶ Accurate assignment of crimping tool/crimping die through colour-coding system
- ▶ For compacted conductors to VDE 0295 class 2
- ▶ Effort-saving and low maintenance mechanical drive

**Characteristics**

- Hexagonal crimping
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                               |                        |
|----------------------------------------------------------------------------------------------|------------------------|
| Crimping range                                                                               | 6 - 50 mm <sup>2</sup> |
| Length                                                                                       | 390 mm                 |
| Weight                                                                                       | 1.1 kg                 |
| Item                                                                                         | Part No.               |
| Crimping tool for tubular cable lugs and connectors, blue connection® 6 - 50 mm <sup>2</sup> | <b>K05BC</b>           |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK65L    | 215  |



**K 05 / K 05 SP Crimping tools for tubular cable lugs and connectors, standard type, 6 - 50 mm<sup>2</sup>**

- ▶ Hexagonal crimping
- ▶ Effort-saving and low maintenance mechanical drive
- ▶ Version with ratchet for consistent crimp results

**Characteristics**

- With revolving dies
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                                       |                        |
|------------------------------------------------------------------------------------------------------|------------------------|
| Crimping range                                                                                       | 6 - 50 mm <sup>2</sup> |
| Length                                                                                               | 390 mm                 |
| Weight                                                                                               | 1.1 kg                 |
| Item                                                                                                 | Part No.               |
| Crimping tool for tubular cable lugs and connectors, standard type 6 - 50 mm <sup>2</sup>            | <b>K05</b>             |
| Crimping tool with ratchet for tubular cable lugs and connectors, standard type 6-50 mm <sup>2</sup> | <b>K05SP</b>           |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK65L    | 215  |



**K 05 D / K 05 D SP Crimping tools for DIN compression cable lugs and connectors 6 - 50 mm<sup>2</sup>**

- ▶ Hexagonal crimping
- ▶ Effort-saving and low maintenance mechanical drive
- ▶ Version with ratchet for consistent crimp results

**Characteristics**

- With revolving dies
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                                                           |                        |
|--------------------------------------------------------------------------------------------------------------------------|------------------------|
| Crimping range                                                                                                           | 6 - 50 mm <sup>2</sup> |
| Length                                                                                                                   | 390 mm                 |
| Weight                                                                                                                   | 1.1 kg                 |
| Item                                                                                                                     | Part No.               |
| Crimping tool for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 6 - 50 mm <sup>2</sup>            | <b>K05D</b>            |
| Crimping tool with ratchet for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 6-50 mm <sup>2</sup> | <b>K05DSP</b>          |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK65L    | 215  |



### K 08 / K 08 SP Crimping tools for tubular cable lugs and connectors, standard type, 16 - 95 mm<sup>2</sup>



- ▶ Hexagonal crimping
- ▶ Effort-saving and low maintenance mechanical drive
- ▶ Version with ratchet for consistent crimp results

#### Characteristics

- With revolving dies
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                                        |                         |
|-------------------------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                                        | 16 - 95 mm <sup>2</sup> |
| Length                                                                                                | 530 mm                  |
| Weight                                                                                                | 1.8 kg                  |
| Item                                                                                                  | Part No.                |
| Crimping tool for tubular cable lugs and connectors, standard type 16 - 95 mm <sup>2</sup>            | <b>K08</b>              |
| Crimping tool with ratchet for tubular cable lugs and connectors, standard type 16-95 mm <sup>2</sup> | <b>K08SP</b>            |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK120L   | 215  |

### K 08 D / K 08 D SP Crimping tools for DIN compression cable lugs and connectors 16 - 95 mm<sup>2</sup>



- ▶ Hexagonal crimping
- ▶ Effort-saving and low maintenance mechanical drive
- ▶ Version with ratchet for consistent crimp results

#### Characteristics

- With revolving dies
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                                                              |                         |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                                                              | 16 - 95 mm <sup>2</sup> |
| Length                                                                                                                      | 530 mm                  |
| Weight                                                                                                                      | 1.8 kg                  |
| Item                                                                                                                        | Part No.                |
| Crimping tool for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 16 - 95 mm <sup>2</sup>              | <b>K08D</b>             |
| Crimping tool with ratchet for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 16 - 95 mm <sup>2</sup> | <b>K08DSP</b>           |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK120L   | 215  |

## K 06 BC Crimping tool for tubular cable lugs and connectors blue connection® 10 - 120 mm<sup>2</sup>

- ▶ Accurate assignment of crimping tool/crimping die through colour-coding system
- ▶ For compacted conductors to VDE 0295 class 2
- ▶ Effort-saving and low maintenance mechanical drive



### Characteristics

- Hexagonal crimping
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                     |              |
|------------------------------------------------------------------------------------|--------------|
| Crimping range                                                                     | 10 - 120 mm² |
| Length                                                                             | 650 mm       |
| Weight                                                                             | 2.9 kg       |
| Item                                                                               | Part No.     |
| Crimping tool for tubular cable lugs and connectors, blue connection® 10 - 120 mm² | K06BC        |
| Accessories                                                                        |              |
| Steel carrying case                                                                | SK120L       |
|                                                                                    | 215          |

## K 06 / K 06 SP Crimping tools for tubular cable lugs and connectors, standard type, 10 - 120 mm<sup>2</sup>

- ▶ Hexagonal crimping
- ▶ Effort-saving and low maintenance mechanical drive
- ▶ Version with ratchet for consistent crimp results



### Characteristics

- With revolving dies
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                             |              |
|--------------------------------------------------------------------------------------------|--------------|
| Crimping range                                                                             | 10 - 120 mm² |
| Length                                                                                     | 650 mm       |
| Weight                                                                                     | 2.9 kg       |
| Item                                                                                       | Part No.     |
| Crimping tool for tubular cable lugs and connectors, standard type 10-120 mm²              | <b>K06</b>   |
| Crimping tool with ratchet for tubular cable lugs and connectors, standard type 10-120 mm² | <b>K06SP</b> |
| Accessories                                                                                |              |
| Steel carrying case                                                                        | SK120L       |
|                                                                                            | 215          |

### K 06 D / K 06 D SP Crimping tools for DIN compression cable lugs and connectors 10 - 120 mm<sup>2</sup>



- ▶ Hexagonal crimping
- ▶ Effort-saving and low maintenance mechanical drive
- ▶ Version with ratchet for consistent crimp results

#### Characteristics

- With revolving dies
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                                                             |                          |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Crimping range                                                                                                             | 10 - 120 mm <sup>2</sup> |
| Length                                                                                                                     | 650 mm                   |
| Weight                                                                                                                     | 2.9 kg                   |
| Item                                                                                                                       | Part No.                 |
| Crimping tool for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 10 - 120 mm <sup>2</sup>            | <b>K06D</b>              |
| Crimping tool with ratchet for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 10-120 mm <sup>2</sup> | <b>K06DSP</b>            |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK120L   | 215  |

### K 09 BC Crimping tool for tubular cable lugs and connectors blue connection® 25 - 150 mm<sup>2</sup>



- ▶ Accurate assignment of crimping tool/crimping die through colour-coding system
- ▶ Large cross section range up to 150 mm<sup>2</sup>
- ▶ For compacted conductors to VDE 0295 class 2
- ▶ Effort-saving and low maintenance mechanical drive

#### Characteristics

- Hexagonal crimping
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                               |                          |
|----------------------------------------------------------------------------------------------|--------------------------|
| Crimping range                                                                               | 25 - 150 mm <sup>2</sup> |
| Length                                                                                       | 650 mm                   |
| Weight                                                                                       | 2.9 kg                   |
| Item                                                                                         | Part No.                 |
| Crimping tool for tubular cable lugs and connectors, blue connection® 25-150 mm <sup>2</sup> | <b>K09BC</b>             |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK120L   | 215  |

**K 09 / K 09 SP Crimping tools for tubular cable lugs and connectors, standard type, 25 - 150 mm<sup>2</sup>**

- ▶ Hexagonal crimping
- ▶ Large cross section range up to 150 mm<sup>2</sup>
- ▶ Effort-saving and low maintenance mechanical drive
- ▶ Version with ratchet for consistent crimp results

**Characteristics**

- With revolving dies
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                                         |                          |
|--------------------------------------------------------------------------------------------------------|--------------------------|
| Crimping range                                                                                         | 25 - 150 mm <sup>2</sup> |
| Length                                                                                                 | 650 mm                   |
| Weight                                                                                                 | 2.9 kg                   |
| Item                                                                                                   | Part No.                 |
| Crimping tool for tubular cable lugs and connectors, standard type 25-150 mm <sup>2</sup>              | <b>K09</b>               |
| Crimping tool with ratchet for tubular cable lugs and connectors, standard type 25-150 mm <sup>2</sup> | <b>K09SP</b>             |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK120L   | 215  |



**K 09 D / K 09 D SP Crimping tools for DIN compression cable lugs and connectors 25 - 150 mm<sup>2</sup>**

- ▶ Hexagonal crimping
- ▶ Large cross section range up to 150 mm<sup>2</sup>
- ▶ Effort-saving and low maintenance mechanical drive
- ▶ Version with ratchet for consistent crimp results

**Characteristics**

- With revolving dies
- Exact cross-section assignment thanks to permanent marking on the dies

| Technical data                                                                                                             |                          |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Crimping range                                                                                                             | 25 - 150 mm <sup>2</sup> |
| Length                                                                                                                     | 650 mm                   |
| Weight                                                                                                                     | 2.9 kg                   |
| Item                                                                                                                       | Part No.                 |
| Crimping tool for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 25 - 150 mm <sup>2</sup>            | <b>K09D</b>              |
| Crimping tool with ratchet for compression cable lugs and connectors (DIN 46235 / DIN 46267 part 1) 25-150 mm <sup>2</sup> | <b>K09DSP</b>            |

| Accessories         | Part No. | Page |
|---------------------|----------|------|
| Steel carrying case | SK120L   | 215  |



## K 511 / K 512 Crimping tools for gas-tight connections



- ▶ Parallel guided crimping jaws
- ▶ Suitable for gas-tight connections

**Characteristics**

- Non-insulated tubular cable lugs, ring and fork type
- Parallel and butt connectors
- Optimised force transmission
- With ratchet for consistent crimp results
- Non-slip handles

| Technical data                                  |                                   |             |
|-------------------------------------------------|-----------------------------------|-------------|
| Length                                          | 270 mm                            |             |
| Weight                                          | 0.7 kg                            |             |
| Item                                            | Crimping range<br>mm <sup>2</sup> | Part No.    |
| Mechanical crimping tool 1 - 4 mm <sup>2</sup>  | 1-4                               | <b>K511</b> |
| Mechanical crimping tool 6 + 10 mm <sup>2</sup> | 6+10                              | <b>K512</b> |

## DN-K 74/2 Mechanical crimping tool for BNC connectors and coax cables



- ▶ Hexagonal crimping
- ▶ Tool pre-tensioning adjustable

**Characteristics**

- With ratchet for consistent crimp results
- An adjusting disc balances the wear of the crimping tool
- Suitable for: Coax cable RG 58, RG 59, RG 62 and RG 71

| Technical data                                                                       |          |               |
|--------------------------------------------------------------------------------------|----------|---------------|
| Length                                                                               | 220 mm   |               |
| Weight                                                                               | 0.560 kg |               |
| Item                                                                                 |          | Part No.      |
| Mechanical crimping tool for BNC connector, coax cable RG 58, RG 59, RG 62 and RG 71 |          | <b>DNK742</b> |

## K 90 MC3 2 Crimping tool for multi-contact plug connectors MC3, 2.5 - 6 mm<sup>2</sup>

- ▶ Parallel guided crimping jaws
- ▶ Includes positioning facility to protect against incorrect crimps



### Characteristics

- Accurate drive
- With ratchet for consistent crimp results
- Optimised force transmission
- Non-slip handles

| Technical data                                                                         |                         |
|----------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                         | 2.5 - 6 mm <sup>2</sup> |
| Length                                                                                 | 270 mm                  |
| Weight                                                                                 | 0.735 kg                |
| Item                                                                                   | Part No.                |
| Mechanical crimping tool for Multi-Contact-Plug-in system MC3, 2.5 - 6 mm <sup>2</sup> | <b>K90MC32</b>          |



## K90 MC4 1 Crimping tool for multi-contact plug connectors MC4, 1.5 - 4 mm<sup>2</sup>

- ▶ Parallel guided crimping jaws
- ▶ Includes positioning facility to protect against incorrect crimps



### Characteristics

- Accurate drive
- With ratchet for consistent crimp results
- Optimised force transmission
- Non-slip handles

| Technical data                                                                         |                         |
|----------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                         | 1.5 - 4 mm <sup>2</sup> |
| Length                                                                                 | 270 mm                  |
| Weight                                                                                 | 0.735 kg                |
| Item                                                                                   | Part No.                |
| Mechanical crimping tool for Multi-Contact-Plug-in system MC4, 1.5 - 4 mm <sup>2</sup> | <b>K90MC41</b>          |



K90 MC4 2 Crimping tool for multi-contact plug connectors MC4, 2.5 - 6 mm<sup>2</sup>



- ▶ Parallel guided crimping jaws
- ▶ Includes positioning facility to protect against incorrect crimps

Characteristics

- Accurate drive
- With ratchet for consistent crimp results
- Optimised force transmission
- Non-slip handles

| Technical data                                                                         |                         |
|----------------------------------------------------------------------------------------|-------------------------|
| Crimping range                                                                         | 2.5 - 6 mm <sup>2</sup> |
| Length                                                                                 | 270 mm                  |
| Weight                                                                                 | 0.735 kg                |
| Item                                                                                   | Part No.                |
| Mechanical crimping tool for Multi-Contact-Plug-in system MC4, 2.5 - 6 mm <sup>2</sup> | K90MC42                 |



## K907 MC SET Case with crimping tool for multi-contact plug connectors and photovoltaic stripper

- ▶ Roll-crimping
- ▶ Spring supported tool opening
- ▶ Adjustable tool pretension
- ▶ An adjusting disc balances the wear of the crimping tool

### Characteristics

- Includes positioning facility to protect against incorrect crimps
- Precise drive with ratchet for consistent crimp results
- Complete set in plastic case
- Optimised force transmission
- Precise and simple stripping options
- Crimping dies with easy-to-replace fixing pins

| Technical data                                                                      |                   |      |
|-------------------------------------------------------------------------------------|-------------------|------|
| Crimping range                                                                      | 1.5-6 mm²         |      |
| Multi-contact-Plug-in system:                                                       | MC4: 1.5 - 6 mm²  |      |
| Dimensions                                                                          | 235 x 180 x 50 mm |      |
| Total weight                                                                        | 900 g             |      |
| Item                                                                                | Part No.          |      |
| Case with crimping tool for multi-contact plug connectors and photovoltaic stripper | K907MCSET         |      |
| Scope of supply                                                                     | Part No.          | Page |
| Mechanical crimping tool for Multi-Contact-Plug-in system MC4, 1.5 - 6 mm²          |                   |      |
| Crimping dies MC4 1.5, 2.5 mm²                                                      |                   |      |
| Crimping dies MC4 4, 6 mm²                                                          |                   |      |
| Positionier MC4 contacts                                                            |                   |      |
| Photovoltaic stripper                                                               | KL735PV           | 521  |



### KP 1 / KP 1 L Mechanical basic tools of the Klauke Pro-Series



- ▶ Easy change of crimping head without tools
- ▶ Compatible with all crimping heads of the Klauke Pro-Series

#### Characteristics

- Standardised mounting of crimping heads
- With ratchet for consistent crimp results

| Item                                                 | Weight<br>kg | Part No.    |
|------------------------------------------------------|--------------|-------------|
| Basic tool from the Klauke Pro-Series, length 151 mm | 0.2          | <b>KP1</b>  |
| Basic tool from the Klauke Pro-Series, length 207 mm | 0.3          | <b>KP1L</b> |

| Accessories  | Part No. | Page |
|--------------|----------|------|
| Plastic case | MKKP1    | 216  |

| Suitable for                                                                                                                                 | Crimping range mm <sup>2</sup> | Crimp profile                                                                       | Part No.          |
|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------|-------------------|
| <b>Crimping heads for cable end-sleeves</b>                                                                                                  |                                |                                                                                     |                   |
|  Cable end-sleeves, trapezoid crimping                      | 0.14 - 6                       |    | <b>KP 312</b>     |
|  Cable end-sleeves, square pressing                         | 0.08 - 10                      |    | <b>KP 303</b>     |
|  Cable end-sleeves, square pressing                         | 10 - 16                        |    | <b>KP 304</b>     |
|  Cable end-sleeves, round pressing                          | 0.14 - 2.5                     |    | <b>KP 350</b>     |
|  Cable end-sleeves, round pressing for narrow chamber sizes | 1.5 - 6                        |    | <b>KP 351</b>     |
|  Cable end-sleeves, round pressing for narrow chamber sizes | 10 - 16                        |    | <b>KP 352</b>     |
|  Cable end-sleeves DIN 46228, part 2, roll-crimping        | 0.5 - 2.5                      |   | <b>KP 66</b>      |
| <b>Crimping heads for insulated cable connections</b>                                                                                        |                                |                                                                                     |                   |
|  Insulated cable connections (yellow and red)             | 0.1 - 1                        |  | <b>KP 80</b>      |
|  Insulated cable connections (red and blue)               | 0.5 - 2.5                      |  | <b>KP 81</b>      |
|  Insulated cable connections (red, yellow, blue)          | 0.5 - 6                        |  | <b>KP 82</b>      |
|  Insulated cable connections (yellow)                     | 4 - 6                          |  | <b>KP 83</b>      |
| <b>Crimping heads for tubular cable lugs and solderless terminals</b>                                                                        |                                |                                                                                     |                   |
|  Tubular cable lugs and solderless terminals              | 0.5 - 6                        |  | <b>KP 232</b>     |
|  Tubular cable lugs and solderless terminals              | 4 - 10                         |  | <b>KP 242</b>     |
| <b>Crimping heads for photovoltaic</b>                                                                                                       |                                |                                                                                     |                   |
|  Connector for photovoltaics 3 mm dia.                    | 2.5 - 4                        |  | <b>KP 90 MC31</b> |

| Suitable for                                                                      |                                                                          | Crimping range mm <sup>2</sup> | Crimp profile                                                                     | Part No. |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------|----------|
| Crimping heads for receptacles                                                    |                                                                          |                                |                                                                                   |          |
|  | Part No. 3720. Receptacles 6.3 x 0.8 mm with lateral conductor connector | 0.5 - 1                        |  | KP 631   |
|  | Part No. 3725, receptacles 6.3 x 0.8 mm with lateral conductor connector | 0.5 - 1.5                      |  | KP 64    |
|  | Part No. 3735, receptacles 6.3 x 0.8 mm with lateral conductor connector | 1.5 - 2.5                      |  | KP 632   |
|  | For receptacles 2.8 mm tab width                                         | 0.1 - 1                        |  | KP 67    |
|  | For receptacles 4.8 mm tab width                                         | 0.5 - 2.5                      |  | KP 65    |
|  | For receptacles 6.3 mm tab width                                         | 0.5 - 2.5                      |  | KP 68    |

### SKP 1 Crimping head set of the Klauke Pro-Series

- ▶ Easy change of crimping head without tools
- ▶ Crimping of conductor and insulation in one step
- ▶ Spring supported tool opening

#### Characteristics

- Parallel guided crimping heads
- With ratchet for consistent crimp results

| Technical data                                                                                      |                   |      |
|-----------------------------------------------------------------------------------------------------|-------------------|------|
| Dimension                                                                                           | 250 x 115 x 40 mm |      |
| Weight                                                                                              | 0.8 kg            |      |
| Item                                                                                                | Part No.          |      |
| Crimping head set of the Klauke Pro-Series                                                          | SKP1              |      |
| Scope of supply                                                                                     | Part No.          | Page |
| Basic tool from the Klauke Pro-Series, length 151 mm                                                | KP1               | 256  |
| Crimping head for insulated cable connections 0.5 - 2.5 mm <sup>2</sup> (red, blue)                 | KP81              |      |
| Crimping head for cable end-sleeves, square pressing, 0.08 - 10 mm <sup>2</sup>                     | KP303             |      |
| Crimping head for non-insulated tubular cable lugs and solderless terminals 0.5 - 6 mm <sup>2</sup> | KP232             |      |



## SKP 6 Crimping heads set of the Klauke Pro-Series



- ▶ Easy change of crimping head without tools
- ▶ Crimping of conductor and insulation in one step
- ▶ Parallel guided crimping heads
- ▶ Spring supported tool opening

## Characteristics

- Roll-crimping
- For crimping of non-insulated receptacles with lateral conductor connector
- With ratchet for consistent crimp results

| Technical data                                                                                                         |                   |      |
|------------------------------------------------------------------------------------------------------------------------|-------------------|------|
| Dimension                                                                                                              | 250 x 115 x 40 mm |      |
| Weight                                                                                                                 | 0.8 kg            |      |
| Item                                                                                                                   | Part No.          |      |
| Crimping head set of the Klauke Pro-Series                                                                             | <b>SKP6</b>       |      |
| Scope of supply                                                                                                        | Part No.          | Page |
| Basic tool from the Klauke Pro-Series, length 151 mm                                                                   | KP1               | 256  |
| Crimping head for receptacles 6.3 x 0.8 mm with lateral conductor connector, 0.5 - 1 mm <sup>2</sup> , for Item 3720   | KP631             |      |
| Crimping head for receptacles 6.3 x 0.8 mm with lateral conductor connector, 1.5 - 2.5 mm <sup>2</sup> , for Item 3735 | KP632             |      |
| Crimping head for receptacles 6.3 x 0.8 mm with lateral conductor connector, 0.5 - 1.5 mm <sup>2</sup> , for Item 3725 | KP64              |      |

## K 507 Crimping tool with interchangeable dies



- ▶ Fast change of crimping die, no tools required, without readjustment by special fixing system
- ▶ Additional crimping dies integrated in the handle

## Characteristics

- With ratchet for consistent crimp results
- An adjusting disc balances the wear of the crimping tool

| Technical data                                                |             |      |
|---------------------------------------------------------------|-------------|------|
| Length                                                        | 220 mm      |      |
| Weight                                                        | 0.6 kg      |      |
| Item                                                          | Part No.    |      |
| Crimping tool with interchangeable dies                       | <b>K507</b> |      |
| Scope of supply                                               | Part No.    | Page |
| Crimping die for insl. connector 0.5 - 6 mm <sup>2</sup>      | IS5071      |      |
| Crimping dies AE 50, 0.14 - 10 mm <sup>2</sup>                | AE501       | 414  |
| Crimping die for insulated connectors 0.5 - 6 mm <sup>2</sup> | Q5071       |      |

## K 50 Crimping tool for interchangeable dies

- ▶ Parallel guided crimping jaws
- ▶ Fast change of crimping die without readjustment by special fixing system

### Characteristics

- Optimised force transmission
- With ratchet
- Non-slip handles

| Technical data                                      |            |      |
|-----------------------------------------------------|------------|------|
| Length                                              | 220 mm     |      |
| Weight                                              | 0.6 kg     |      |
| Item                                                | Part No.   |      |
| Crimping tool for interchangeable dies 0.1 - 50 mm² | <b>K50</b> |      |
| Accessories                                         | Part No.   | Page |
| Steel carrying case                                 | MK55       | 214  |



**50**  
KLAUKE

### Available dies for Series 50 for K 50

| Suitable for                                                                                 | Connection material | Crimping range mm² | Crimp profile | Page |
|----------------------------------------------------------------------------------------------|---------------------|--------------------|---------------|------|
| Tubular cable lugs and connectors, Cu                                                        |                     |                    |               |      |
| Tubular cable lugs and connectors, Cu, standard type                                         |                     | 0.75 - 10          |               | 414  |
| Tubular cable lugs and connectors for solid conductors, Cu                                   |                     | 1.5 - 10           |               | 414  |
| Terminals, connectors and pin terminals acc. to DIN - Cu                                     |                     |                    |               |      |
| Terminals (DIN 46234) and pin terminals (DIN 46230) Cu, solderless connectors (DIN 46341) Cu |                     | 0.5 - 10           |               | 414  |
| Cable end-sleeves                                                                            |                     |                    |               |      |
| Cable end-sleeves                                                                            |                     | 0.14 - 50          |               | 414  |
| Cable connections, insulated and non-insulated                                               |                     |                    |               |      |
| Non insulated receptacles                                                                    |                     | 0.25 - 6           |               | 415  |
| for pin and shielded receptacles, BNC connectors for coax cables RG 58,59,60 and 71          |                     |                    |               | 415  |
| Turned pin connectors, pin receptacles                                                       |                     | 0.1 - 4            |               | 415  |
| Insulated cable connections, double crimping                                                 |                     | 0.1 - 6            |               | 415  |
| Insulated cable connections, single crimping                                                 |                     | 0.5 - 16           |               | 415  |

K 35/4 Crimping tool for interchangeable dies 6 - 150 mm<sup>2</sup>



- ▶ Change of crimping dies without tools
- ▶ Optimised for cable glands and panel building
- ▶ Effort-saving and low maintenance mechanical drive

Characteristics

- Narrow crimping
- With telescopic handles
- Crimping head rotates 360°
- Fast change of crimping die without readjustment by special fixing system

| Technical data                                                 |                       |           |
|----------------------------------------------------------------|-----------------------|-----------|
| Length                                                         | Stepless 420 - 590 mm |           |
| Weight                                                         | 1.9 kg                |           |
| Item                                                           | Part No.              |           |
| Crimping tool for interchangeable dies 6 - 150 mm <sup>2</sup> | K354                  |           |
| Accessories                                                    |                       | Page      |
| Steel carrying case                                            |                       | SK65L 215 |



**Available dies for Series 4 for K 35/4**

|                                                                                                     |    |                      |    | 416 |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type, tubular cable lugs for switchgear connections |    | 6 - 150              |    | 417 |
| Insulated tubular cable lugs and connectors, standard type, insulated pin terminals                 |    | 10 - 70              |    | 417 |
| Tubular cable lugs and connectors for fine stranded conductors                                      |    | 10 - 35              |    | 418 |
| Tubular cable lugs and compression joints for solid conductors                                      |    | 1.5 - 16             |    | 418 |
| Tubular cable lugs and connectors, Ni, stainless steel                                              |                                                                                     |                      |                                                                                     |     |
| Tubular cable lugs and connectors, stainless steel                                                  |    | 0.5 - 16             |    | 418 |
| Tubular cable lugs and connectors, Ni                                                               |    | 0.5 - 16             |    | 418 |
| Compression cable lugs and connectors acc. to DIN - Cu                                              |                                                                                     |                      |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu                            |    | 6 - 120              |    | 418 |
| Terminals, connectors and pin terminals acc. to DIN - Cu                                            |                                                                                     |                      |                                                                                     |     |
| Solderless terminals (DIN 46234), connectors (DIN 46341) and pin terminals (DIN 46230) - Cu         |    | 10 - 35              |    | 419 |
| Insulated solderless terminals and connectors                                                       |    | 10 - 16              |    | 419 |
| Sleeves for compacted conductors and sector shaped conductors                                       |                                                                                     |                      |                                                                                     |     |
| Pre-rounding dies for sector shaped Al and Cu conductors                                            |    | 10sm - 150se / 120sm |    | 419 |
| Aluminum compression cable lugs and connectors to DIN                                               |                                                                                     |                      |                                                                                     |     |
| Aluminum compression cable lugs and connectors to DIN                                               |    | 10 - 70              |    | 420 |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182               |    | 25 - 50              |    | 420 |
| Aluminum/copper compression cable lugs and connectors                                               |                                                                                     |                      |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                               |    | 10 - 70              |    | 420 |
| Clamps and screw connectors                                                                         |                                                                                     |                      |                                                                                     |     |
| Clamps, C-type                                                                                      |  | 4 - 35               |  | 420 |
| Cable end-sleeves                                                                                   |                                                                                     |                      |                                                                                     |     |
| Cable end-sleeves                                                                                   |  | 10 - 50              |  | 420 |
| Twin cable end-sleeves                                                                              |  | 2 x 4 - 2 x 16       |  | 421 |
| Twin cable end-sleeves for fine stranded conductors                                                 |  | 2 x 4 - 2 x 16       |  | 421 |
| Cable end-sleeves for fine stranded conductors                                                      |  | 10 - 50              |  | 421 |

Please observe the restrictions in the technical index when crimping connectors!

**K 18 Crimping tool for interchangeable dies acc. to DIN 48083, part 1, 6 - 185 mm<sup>2</sup>**



- ▶ Change of crimping dies without tools
- ▶ Optimised for cable glands and panel building
- ▶ Effort-saving and low maintenance mechanical drive

**Characteristics**

- Narrow crimping
- With telescopic handles
- C-head rotates 360°
- Fast change of crimping die without readjustment by special fixing system

| Technical data                                                                             |                       |          |
|--------------------------------------------------------------------------------------------|-----------------------|----------|
| Length                                                                                     | Stepless 580 - 830 mm |          |
| Weight                                                                                     | 2.5 kg                |          |
| Item                                                                                       | Part No.              |          |
| Crimping tool for interchangeable dies acc. to DIN 48083, sheet 1, 6 - 185 mm <sup>2</sup> | <b>K18</b>            |          |
| Accessories                                                                                |                       | Page     |
| Steel carrying case                                                                        |                       | MK18 215 |



**Available dies for Series 18 for K 18**

|                                                              |    |                |    |     |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|-----|
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    |     |
|                                                              |    |                |    | 430 |
| <b>Aluminum/copper compression cable lugs and connectors</b> |                                                                                     |                |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors        |   | 10 - 185       |   | 430 |
| <b>Clamps and screw connectors</b>                           |                                                                                     |                |                                                                                     |     |
| Clamps, C-type                                               |  | 4 - 50         |  | 430 |
| <b>Cable end-sleeves</b>                                     |                                                                                     |                |                                                                                     |     |
| Cable end-sleeves                                            |  | 10 - 95        |  | 431 |
| Twin cable end-sleeves                                       |  | 2 x 4 - 2 x 16 |  | 431 |
| Cable end-sleeves for fine stranded conductors               |  | 10 - 95        |  | 431 |
| Twin cable end-sleeves for fine stranded conductors          |  | 2 x 4 - 2 x 16 |  | 432 |
| <b>Cutting die</b>                                           |                                                                                     |                |                                                                                     |     |
| Cutting die 18 mm                                            |                                                                                     | 18 mm dia.     |                                                                                     | 432 |

Please observe the restrictions in the technical index when crimping connectors!



K 22 Crimping tool for interchangeable dies 6 - 300 mm<sup>2</sup>



- ▶ Change of crimping dies without tools
- ▶ Optimised for cable glands and panel building
- ▶ Effort-saving and low maintenance mechanical drive

Characteristics

- Narrow crimping
- Large cross section by half shell dies
- With telescopic handles
- Crimping head rotates 360°, flip flop style
- Fast change of crimping die without readjustment by special fixing system

| Technical data                                                 |                       |     |
|----------------------------------------------------------------|-----------------------|-----|
| Length                                                         | Stepless 560 - 860 mm |     |
| Weight                                                         | 2.5 kg                |     |
| Item                                                           | Part No.              |     |
| Crimping tool for interchangeable dies 6 - 300 mm <sup>2</sup> | K22                   |     |
| Accessories                                                    |                       |     |
| Steel carrying case                                            | MK22                  | 216 |

**Available dies for Series 22 for K 22**

|                                                                                                                                        |    |                         |    | 433 |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, standard type,<br>tubular cable lugs for switchgear connections                                     |    | 6 - 300                 |    | 434 |
| Insulated tubular cable lugs and compression joints, standard<br>type, insulated pin terminals                                         |    | 10 - 150                |    | 434 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                         |    | 10 - 70                 |    | 435 |
| Tubular cable lugs and connectors for solid conductors                                                                                 |    | 1.5 - 16                |    | 435 |
| <b>Tubular cable lugs and connectors, Ni, stainless steel</b>                                                                          |                                                                                     |                         |                                                                                     |     |
| Tubular cable lugs and connectors, stainless steel                                                                                     |    | 0.5 - 16                |    | 435 |
| Tubular cable lugs and connectors, Ni                                                                                                  |    | 10 - 50                 |    | 435 |
| <b>Compression cable lugs and connectors acc. to DIN - Cu</b>                                                                          |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors<br>(DIN 46267, part 1) Cu                                                            |    | 6 - 300                 |    | 436 |
| Double compression cable lugs                                                                                                          |    | 2 x 50 - 2 x 70         |    | 436 |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                                                                        |                                                                                     |                         |                                                                                     |     |
| Solderless terminals (DIN 46234), connectors (DIN 46267,<br>part 1) acc. to DIN                                                        |    | 10 - 70                 |    | 437 |
| Insulated solderless terminals                                                                                                         |    | 10 - 70                 |    | 437 |
| <b>Sleeves for compacted conductors and sector shaped conductors, Cu</b>                                                               |                                                                                     |                         |                                                                                     |     |
| Pre-rounding dies for sector shaped Al and Cu conductors                                                                               |    | 10 sm - 300 se / 240 sm |    | 437 |
| <b>Aluminum compression cable lugs and connectors to DIN</b>                                                                           |                                                                                     |                         |                                                                                     |     |
| Aluminum compression cable lugs and connectors acc.<br>to DIN - Al                                                                     |    | 10 - 300                |    | 438 |
| Compression joints for full tension connections of Aldrey cables<br>acc. to DIN EN 50182, Al conductors DIN EN 50182,<br>120 - 185 mm² |    | 25 - 185                |    | 438 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, aluminum crimping                            |   | 25 / 4 - 120 / 20       |   | 439 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, steel crimping                               |  | 25/4 - 120/20           |  | 439 |
| <b>Aluminum/copper compression cable lugs and connectors</b>                                                                           |                                                                                     |                         |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                                                  |  | 10 - 300                |  | 438 |
| <b>Clamps and screw connectors</b>                                                                                                     |                                                                                     |                         |                                                                                     |     |
| C-clamps                                                                                                                               |  | 4 - 50                  |  | 439 |
| H-clamps                                                                                                                               |  | 70                      |  | 439 |
| <b>Cable end-sleeves</b>                                                                                                               |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                      |  | 10 - 240                |  | 440 |
| Twin cable end-sleeves                                                                                                                 |  | 2 x 4 - 2 x 16          |  | 440 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                           |  | 10 - 240                |  | 440 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors                                                                      |  | 2 x 4 - 2 x 16          |  | 441 |

Please observe the restrictions in the technical index when crimping connectors!



## Precise cutting by hand.

### Mechanical tools for cutting.

Precise cuts are no longer rocket science - as long as you have the right tool to hand.

The potential for cutting is endless. That's why Klauke places so much importance on the quality of its cutting tools. They are all made from high-quality materials, are rust-proof and surface-finished. This symbiosis of quality and longevity expand the product features and make them unique. The cutting tools are accurately finished and are set apart by high material quality and precision. Because precision plays a key role, Klauke's cutting tools have ergonomically-designed handles and are perfectly matched to the drive, thereby maximising hand force transmission.

- Cutting tools for aluminum and copper cables up to 100 mm dia.
- Fully-insulated cutting tools up to 1000 V to DIN EN 60900.
- Lever mechanism for optimized force exertion.
- High-grade cutting blades for precise cuts.



## ■ **Precise** *cutting results.*

- ▶ The use of high-grade steels and the annealing process guarantee a long service life for the manual cutting tools.
- ▶ A special lever mechanism allows low-force, effortless operations.
- ▶ Small handy tools offering great benefits.

### **Benefits:**

- ▶ Many years of low wear use.
- ▶ Effortless operations.
- ▶ Fit into any toolbox and is to hand at all times.



## ■ *Which* **cutting tool** *for which application?*

| Type                 | max.<br>mm<br>dia. <sup>1)</sup> | Application                     |                 |                        | Design       |             | Drive                  |                          |
|----------------------|----------------------------------|---------------------------------|-----------------|------------------------|--------------|-------------|------------------------|--------------------------|
|                      |                                  | Copper/<br>aluminum<br>stranded | Copper,<br>fine | VDE,<br>insu-<br>lated | Open<br>head | Closed head | Single-acting<br>drive | Force-supported<br>drive |
| K118                 | 12                               | ✓                               | ✓               |                        | ✓            |             | ✓                      |                          |
| K100                 | 14                               | ✓                               | ✓               |                        | ✓            |             | ✓                      |                          |
| K102                 | 20                               |                                 | ✓               |                        | ✓            |             | ✓                      |                          |
| K130                 | 30                               | ✓                               | ✓               |                        | ✓            |             | ✓                      |                          |
| K150                 | 50                               | ✓                               | ✓               |                        | ✓            |             | ✓                      |                          |
| K230 <sup>2)</sup>   | 39                               | ✓                               | ✓               | ✓                      | ✓            |             | ✓                      |                          |
| K250 <sup>2)</sup>   | 50                               | ✓                               | ✓               | ✓                      | ✓            |             | ✓                      |                          |
| K101/1               | 26                               | ✓                               | ✓               |                        | ✓            |             |                        | ✓                        |
| K105/1               | 26                               | ✓                               | ✓               |                        | ✓            |             |                        | ✓                        |
| K201/1 <sup>2)</sup> | 26                               | ✓                               | ✓               | ✓                      | ✓            |             |                        | ✓                        |
| K101/2               | 38                               | ✓                               | ✓               |                        | ✓            |             |                        | ✓                        |
| K18 (S18)            | 18                               | ✓                               |                 |                        | ✓            |             |                        | ✓                        |
| K106/1               | 32                               | ✓                               |                 |                        |              | ✓           |                        | ✓                        |
| K106/2               | 52                               | ✓                               |                 |                        |              | ✓           |                        | ✓                        |
| K103/1               | 60                               | ✓                               |                 |                        |              | ✓           |                        | ✓                        |
| K104/1               | 100                              | ✓                               |                 |                        |              | ✓           |                        | ✓                        |

<sup>1)</sup> The exact cutting capacity depends on the type of cable or rope.

<sup>2)</sup> With fully-insulated levers to IEC 60900.

## K 118 Hand-operated cutting tool for Cu and Al cables up to 12 mm dia.



|    |
|----|
| Cu |
| Al |

- ▶ Handy design with high performance
- ▶ Cutting tool for solid, stranded, fine stranded and super fine stranded conductors, e.g. VDE 0295 class 1, 2, 5 and 6
- ▶ High cutting performance by specially designed cutting blades
- ▶ Two cutting blades for small and large cable dimensions for high user comfort

## Characteristics

- One hand operation
- For solid conductors class 1 up to 10 mm<sup>2</sup> (max. 4 mm dia.)
- For copper stranded conductors class 2 up to 16 mm<sup>2</sup> (max. 5 mm dia.)
- For aluminum stranded conductors class 2 up to 25 mm<sup>2</sup> (max. 10 mm dia.)
- For copper fine and super fine stranded conductors class 5 and 6 up to 50 mm<sup>2</sup> (max. 12 mm dia.)

| Technical data                           |                                                    |
|------------------------------------------|----------------------------------------------------|
| Cutting range                            | max. 12 mm dia., e.g. 1 x 50 mm <sup>2</sup> H07VK |
| Length                                   | 165 mm                                             |
| Weight                                   | 0.17 kg                                            |
| Item                                     | Part No.                                           |
| Hand-operated cutting tool to 12 mm dia. | <b>K118</b>                                        |

## K 100 Hand-operated cutting tool for Al and Cu cables up to 14 mm dia.



|    |
|----|
| Cu |
| Al |

- ▶ Outstanding cutting tool for fine and multi-stranded cables

## Characteristics

- Short design
- Two-hand operation

| Technical data                                           |                                                    |
|----------------------------------------------------------|----------------------------------------------------|
| Cutting range                                            | max. 14 mm dia., e.g. 1 x 50 mm <sup>2</sup> H07VK |
| Length                                                   | 280 mm                                             |
| Weight                                                   | 0.55 kg                                            |
| Item                                                     | Part No.                                           |
| Hand-operated cutting tool for Cu and Al cables to 14 mm | <b>K100</b>                                        |

## K 102 Hand-operated cutting tool up to 20 mm dia.

- ▶ Outstanding cutting tool for fine and superfine stranded copper cables acc. to VDE 0295 class 5 and 6

### Characteristics

- Non-slip handles

| Technical data                           |                                                     |
|------------------------------------------|-----------------------------------------------------|
| Cutting range                            | max. 20 mm dia., e.g. 1 x 95 mm <sup>2</sup> H07V-K |
| Length                                   | 225 mm                                              |
| Weight                                   | 0.35 kg                                             |
| Item                                     | Part No.                                            |
| Hand-operated cutting tool to 20 mm dia. | <b>K102</b>                                         |



**Cu**

## K 106/1 Hand-operated cutting tool for Al and Cu cables up to 32 mm dia.

- ▶ For earth, plastic and rubber cables
- ▶ Lightweight design with great cutting performance

### Characteristics

- One-hand operation
- Effort-saving 2-stage ratchet system
- Not suitable for cutting steel or steel wire
- Non-slip handles

| Technical data                                                |                                                  |
|---------------------------------------------------------------|--------------------------------------------------|
| Cutting range                                                 | max. 32 mm dia., e.g. 4 x 35 mm <sup>2</sup> NYY |
| Length                                                        | 250 mm                                           |
| Weight                                                        | 0.55 kg                                          |
| Item                                                          | Part No.                                         |
| Hand-operated cutting tool for Cu and Al cables to 32 mm dia. | <b>K1061</b>                                     |



**Cu  
Al**

## K 106/2 Hand-operated cutting tool for Al and Cu cables up to 50 mm dia.



|    |
|----|
| Cu |
| Al |

- ▶ For earth, plastic and rubber cables
- ▶ Lightweight design with great cutting performance

## Characteristics

- One-hand operation
- Effort-saving 2-stage ratchet system
- Not suitable for cutting steel or steel wire
- Non-slip handles

| Technical data                                                |                                                   |
|---------------------------------------------------------------|---------------------------------------------------|
| Cutting range                                                 | e.g. 4 x 120 mm <sup>2</sup> NYV, max. 50 mm dia. |
| Length                                                        | 280 mm                                            |
| Weight                                                        | 0.74 kg                                           |
| Item                                                          | Part No.                                          |
| Hand-operated cutting tool for Cu and Al cables to 50 mm dia. | <b>K1062</b>                                      |

## K 103/1 Hand-operated cutting tool for Al and Cu cables up to 60 mm dia.



|    |
|----|
| Cu |
| Al |

- ▶ For earth, plastic and rubber cables
- ▶ Cutting range up to 60 mm diameter

## Characteristics

- Two-hand operation
- Effort-saving 2-stage ratchet system
- Not suitable for cutting steel or steel wire

| Technical data                                                |                                                    |
|---------------------------------------------------------------|----------------------------------------------------|
| Cutting range                                                 | e.g. 4 x 240 mm <sup>2</sup> NAVY, max. 60 mm dia. |
| Length                                                        | 720 mm                                             |
| Weight                                                        | 4.5 kg                                             |
| Item                                                          | Part No.                                           |
| Hand-operated cutting tool for Cu and Al cables to 60 mm dia. | <b>K1031</b>                                       |



## K 104/1 Hand-operated cutting tool for Al and Cu cables up to 100 mm dia.

- ▶ For earth, plastic and rubber cables
- ▶ Very wide cutting range up to 100 mm dia.

### Characteristics

- Two-hand operation
- Effort-saving 2-stage ratchet system
- Not suitable for cutting steel or steel wire

| Technical data                                                 |                                         |
|----------------------------------------------------------------|-----------------------------------------|
| Cutting range                                                  | e.g. 4 x 400 mm² NAYY, max. 100 mm dia. |
| Length                                                         | 870 mm                                  |
| Weight                                                         | 5.7 kg                                  |
| Item                                                           | Part No.                                |
| Hand-operated cutting tool for Cu and Al cables to 100 mm dia. | <b>K1041</b>                            |



**Cu**  
**Al**

## K 130 Hand-operated cutting tool for Al and Cu cables up to 30 mm dia.

- ▶ High performance because of specially designed flat cutting blades
- ▶ Also for fine stranded conductors

### Characteristics

- Two-hand operation
- Large cutting range
- Not suitable for cutting steel or steel wire
- Roughened handles for safe working

| Technical data                                                |                                     |
|---------------------------------------------------------------|-------------------------------------|
| Cutting range                                                 | e.g. 4 x 35 mm² NY, max. 30 mm dia. |
| Length                                                        | 570 mm                              |
| Weight                                                        | 1.7 kg                              |
| Item                                                          | Part No.                            |
| Hand-operated cutting tool for Cu and Al cables to 30 mm dia. | <b>K130</b>                         |



**Cu**  
**Al**

## K 230 Hand-operated cutting tool for Al and Cu cables up to 30 mm dia.



1000V  
IEC 60900

Cu  
Al

- ▶ High performance because of specially designed flat cutting blades
- ▶ 1000 V fully insulated to IEC 60900
- ▶ Also for fine stranded conductors

### Characteristics

- Two-hand operation
- Not suitable for cutting steel or steel wire

| Technical data                                                |                                                  |
|---------------------------------------------------------------|--------------------------------------------------|
| Cutting range                                                 | max. 30 mm dia., e.g. 4 x 35 mm <sup>2</sup> NYY |
| Length                                                        | 570 mm                                           |
| Weight                                                        | 2.1 kg                                           |
| Item                                                          | Part No.                                         |
| Hand-operated cutting tool for Cu and Al cables to 30 mm dia. | <b>K230</b>                                      |

## K 150 Hand-operated cutting tool for Al and Cu cables up to 50 mm dia.



Cu  
Al

- ▶ High performance because of specially designed flat cutting blades
- ▶ Also for fine stranded conductors
- ▶ Roughened handles for safe working

### Characteristics

- Two-hand operation
- Large cutting range
- Not suitable for cutting steel or steel wire

| Technical data                                                |                                                   |
|---------------------------------------------------------------|---------------------------------------------------|
| Cutting range                                                 | max. 50 mm dia., e.g. 4 x 120 mm <sup>2</sup> NYY |
| Length                                                        | 710 mm                                            |
| Weight                                                        | 3 kg                                              |
| Item                                                          | Part No.                                          |
| Hand-operated cutting tool for Cu and Al cables to 50 mm dia. | <b>K150</b>                                       |

## K 250 Hand-operated cutting tool for Al and Cu cables up to 50 mm dia.

- ▶ High performance because of specially designed flat cutting blades
- ▶ 1000 V fully insulated to IEC 60900
- ▶ Also for fine stranded conductors e.g. VDE 0295 Class 5

### Characteristics

- Two-hand operation
- Large cutting range
- Not suitable for cutting steel or steel wire

| Technical data                                                |                                      |
|---------------------------------------------------------------|--------------------------------------|
| Cutting range                                                 | e.g. 4 x 120 mm² NY, max. 50 mm dia. |
| Length                                                        | 710 mm                               |
| Weight                                                        | 3.7 kg                               |
| Item                                                          | Part No.                             |
| Hand-operated cutting tool for Cu and Al cables to 50 mm dia. | <b>K250</b>                          |



1000V  
IEC 60900

**Cu**  
**Al**

## K 101/1 Hand-operated cutting tool for Al and Cu cables up to 26 mm dia.

- ▶ Cutting head exchangeable at site
- ▶ Also for fine stranded conductors

### Characteristics

- Two-hand operation
- Excellent leverage
- Not suitable for cutting steel or steel wire
- Roughened handles for safe working

| Technical data                                                |                                                  |
|---------------------------------------------------------------|--------------------------------------------------|
| Cutting range                                                 | e.g. 4 x 25 mm <sup>2</sup> NYY, max. 26 mm dia. |
| Length                                                        | 570 mm                                           |
| Weight                                                        | 1.8 kg                                           |
| Item                                                          | Part No.                                         |
| Hand-operated cutting tool for Cu and Al cables to 26 mm dia. | <b>K1011</b>                                     |
| Accessories                                                   |                                                  |
| Replacement cutting head                                      | K1011E                                           |
|                                                               | Page                                             |



**Cu**  
**Al**



**K1011E**

**K 105/1 Hand-operated cutting tool for Al and Cu cables up to 26 mm dia., with telescopic handles**



Cu  
Al



K1011E

- ▶ Tool with extendable telescopic handles
- ▶ Excellent leverage
- ▶ Also for fine stranded conductors e.g. VDE 0295 Class 5

**Characteristics**

- Two-hand operation
- Cutting head exchangeable at site
- Roughened handles for safe working
- Not suitable for cutting steel or steel wire

| Technical data                                                                                |                                      |
|-----------------------------------------------------------------------------------------------|--------------------------------------|
| Cutting range                                                                                 | e.g. 4 x 25 mm² NYY, max. 26 mm dia. |
| Length                                                                                        | Stepless 350-520 mm                  |
| Weight                                                                                        | 1.4 kg                               |
| Item                                                                                          | Part No.                             |
| Hand-operated cutting tool for Al and Cu cables to 26 mm dia., length 350 - 520 mm continuous | <b>K1051</b>                         |

| Accessories              | Part No. | Page |
|--------------------------|----------|------|
| Replacement cutting head | K1011E   |      |
| Steel carrying case      | SK120L   | 215  |

**K 201/1 Hand-operated cutting tool for Al and Cu cables up to 26 mm dia., length 570mm**



1000V  
IEC 60900

Cu  
Al



K1011E

- ▶ 1000 V fully insulated to IEC 60900
- ▶ Excellent leverage
- ▶ Also for fine stranded conductors e.g. VDE 0295 Class 5

**Characteristics**

- Two-hand operation
- Cutting head exchangeable at site
- Not suitable for cutting steel or steel wire

| Technical data                                                               |                                      |
|------------------------------------------------------------------------------|--------------------------------------|
| Cutting range                                                                | max. 26 mm dia., e.g. 4 x 95 mm² NYY |
| Length                                                                       | 570 mm                               |
| Weight                                                                       | 2 kg                                 |
| Item                                                                         | Part No.                             |
| Hand-operated cutting tool for Al and Cu cables to 26 mm dia., length 570 mm | <b>K2011</b>                         |

| Accessories              | Part No. | Page |
|--------------------------|----------|------|
| Replacement cutting head | K1011E   |      |

**K 101/2 Hand-operated cutting tool for Cu and Al cables up to 38 mm dia.**

- ▶ Cutting head exchangeable at site
- ▶ Also for fine stranded conductors e.g. VDE 0295 Class 5
- ▶ Excellent leverage
- ▶ Extended lever handles

**Characteristics**

- Two-hand operation
- Large cutting range
- Not suitable for cutting steel or steel wire
- Roughened handles for safe working

| Technical data |                 |
|----------------|-----------------|
| Cutting range  | max. 38 mm dia. |
| Length         | 930 mm          |
| Weight         | 4.2 kg          |

| Item                                                          | Part No.     |
|---------------------------------------------------------------|--------------|
| Hand-operated cutting tool for Cu and Al cables to 38 mm dia. | <b>K1012</b> |

| Accessories              | Part No. | Page |
|--------------------------|----------|------|
| Replacement cutting head | K1012E   |      |



**Cu**  
**Al**



**K1012E**



# The world's first electro-mechanical crimping tool with PowerSense technology



## 1. Manual pre-clamping

Operating the lever closes the crimping jaws without any exertion on the part of the user and fixes the connecting material. In this "pre-clamped" state it is still possible to adjust the position and the alignment.



## 2. Motorized crimping

Further actuation or "depression of" the lever starts the crimping process - fully automatically using the power of the integrated motor.



## ... and done

The retraction to the starting position is also fully automatic. During the entire crimping cycle the process can be interrupted by actuating the lever in the opposite direction.



## Versatile

for convenient crimping of cable connections, cable end-sleeves and cable lugs



## Innovative

with the unique, intuitive operating concept and PowerSense technology



## Optimum view

thanks to LED illumination of the crimping jaws and working area



## Durable

thanks to the powerful lithium-ion battery with charge status display

## The new Klauke micro combines the benefits of manual crimping pliers with the convenience of battery powered hydraulic crimping tools

- ▶ High speed (crimping time < 1.5 sec.)
- ▶ Very low weight (< 1 kg)
- ▶ Very easy handling thanks to PowerSense technology
- ▶ Electronic control with blocking function and motor stall protection
- ▶ Ergonomic two-component housing in Klauke "In-line Design"
- ▶ Powerful drive technology for effortless operations
- ▶ 10.8V Lithium-ion battery with charge level indicator
- ▶ Excellent crimping results with minimum effort
- ▶ Interchangeable Klauke 50-series crimping dies (for all common applications up to 50mm<sup>2</sup>)
- ▶ Long service life (service intervals of 35,000 crimping cycles)
- ▶ Superlative value-for-money



## Klauke® *micro*

**Fast, light, efficient.**  
**Klauke micro – the way you crimp today.**

Until now, you could choose from three types of Klauke crimping tools for crimping in a cross-sectional range to 50 mm<sup>2</sup>: mechanical crimping pliers, pneumatic and hydraulic crimping tools. The various tool concepts offer their own particular benefits, depending on location and application requirement.

The tool program is now being expanded by a new form of crimping – as easy and fast as mechanical crimping pliers, as powerful and durable as a hydraulically-powered crimping tool.

**Klauke micro – the world's first electromechanical crimping tool with PowerSense technology.**  
**Manual pre-clamping. Motorized crimping.**



### **More performance, more efficiency – and takes up less space**

The new Klauke micro is ideally suited for applications where connecting material has to be crimped quickly and in a high volume but also wherever a compact and mobile tool is required, e.g. for switch cabinet construction and numerous other installation applications in trade and industry.



### EK 50 ML Electromechanical crimping tool 0.14 - 50 mm²



- ▶ The Klauke micro with intuitive PowerSense function combines the advantages of manual crimping tools with the convenience of battery-powered hydraulic crimping tools
- ▶ Excellent crimping results for minimum effort

#### Characteristics

- For interchangeable dies, series 50
- One-lever operation for controlling all tool functions
- Electronic control with lock function monitors complete closing of the dies
- Automatic retraction when crimping is complete
- Manual retraction in case of need thanks to opposed lever actuation
- Motor stall protection in case of faulty operation
- Ergonomic 2-component housing in Klauke "In-line design"
- Mounting lugs for use with balancer or as fall protection when used outdoors
- Very low weight and high speed for maximum efficiency
- Powerful drive technology for effortless operations
- Li-Ion battery with charge status display
- LED light for illuminating crimping point and work area
- Multifunction LED for maintenance display and data transfer via optional interface and USB adapter
- Project-relevant recording with Klauke i-press software package

| Technical data       |                                                         |
|----------------------|---------------------------------------------------------|
| Crimping force       | max. 15 kN                                              |
| Crimping range       | 0.14 - 50 mm²                                           |
| Crimping cycle       | < 1,5 s (depending on connecting material)              |
| Number of crimps     | approx. 300 at 10 mm² Cu DIN 46234 / per battery charge |
| Battery voltage      | 10.8 V                                                  |
| Battery capacity     | 1.5 Ah, Li-Ion                                          |
| Charging time        | approx. 40 min.                                         |
| Weight incl. battery | 0.96 kg                                                 |
| Ambient temperature  | -10°C to +40 °C                                         |

| Item                                          | Part No. |      |
|-----------------------------------------------|----------|------|
| Electromechanical crimping tool 0.14 - 50 mm² | EK50ML   |      |
| Scope of supply                               | Part No. | Page |
| Battery 10,8 V / 1,5 Ah, Li-Ion (16,2 Wh)     | RAML1    |      |
| Charger for 10,8 V Li-Ion Akkus, 230V         | LGML1    |      |
| Crimping die for instl. connector 0.5 - 6 mm² | IS5071   |      |
| Plastic case 450 x 370 x 105 mm               | KKEK50ML |      |

| Accessories | Part No. | Page |
|-------------|----------|------|
| USB adapter | PGA1     | 408  |

| Variants                                                                                              | Part No. | Page |
|-------------------------------------------------------------------------------------------------------|----------|------|
| Electromechanical crimping tool 0.14 - 50 mm² with RAML1 battery, without charger, crimping die, case | EK50ML-L |      |



**Available dies of Series 50 for**

| Suitable for                                                                           | Connection material                                                               | Crimping range mm² | Crimp profile                                                                     | Page |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|------|
| <b>Copper tubular cable lugs and connectors</b>                                        |                                                                                   |                    |                                                                                   |      |
| Tubular cable lugs and connectors, standard type                                       |  | 0,75 - 10          |  | 414  |
| Tubular cable lugs and connectors for solid conductors                                 |  | 1,5 - 10           |  | 414  |
| <b>Terminals, connectors and pin terminals acc. to DIN, copper</b>                     |                                                                                   |                    |                                                                                   |      |
| Solderless terminals (DIN 46234), connectors (DIN 46341) and pin terminals (DIN 46230) |  | 0,5 - 10           |  | 414  |
| <b>Cable end-sleeves</b>                                                               |                                                                                   |                    |                                                                                   |      |
| Cable end-sleeves                                                                      |  | 0,14 - 50          |  | 414  |
| <b>Cable connections, insulated and non-insulated</b>                                  |                                                                                   |                    |                                                                                   |      |
| Insulated cable connections, double crimping                                           |  | 0,1 - 6            |  | 415  |
| Insulated cable connections, single crimping                                           |  | 0,5 - 16           |  | 415  |
| Non-insulated receptacles                                                              |  | 0,25 - 6           |  | 415  |
| BNC connectors for coax cables RG 58,59,60 and 71                                      |                                                                                   |                    |  | 415  |
| Turned pin connectors and receptacles                                                  |                                                                                   | 0,1 - 4            |  | 415  |

Please observe the restrictions in the technical index when crimping connectors!

## Special drives for even greater speed.

### Electric and pneumatic crimping tools.

In addition to various hydraulic tools, the Klauke range also includes electromechanical and pneumatic tools. The tools are compatible with **Klauke<sup>pro</sup>** series heads and are therefore extremely versatile.

The high crimping speed of the KPM15 pneumatic crimping tool makes it suitable for the standard production of individual contacts and also for use in control cabinets.

The optional foot switch allows stationary applications as a bench-mounted tool.



- Electric bench crimping tool compatible with **Klauke<sup>pro</sup>** series heads and 50-series dies.
- Pneumatic crimping tool compatible with **Klauke<sup>pro</sup>** series heads.
- Especially suitable for cable harness assembly.



**TEKP1 Stationary basic tool - Klauke Pro-Series**

- ▶ Compatible with all crimping heads of the Klauke Pro-Series
- ▶ Suitable for continuous operation
- ▶ Easy change of crimping head without tools

**Characteristics**

- Transportable worktop crimping device
- Safety foot switch
- Two-stage system with tooling and crimping function
- With adapter TEKP1A50 compatible to all crimping dies of series 50

| Technical data |                                          |
|----------------|------------------------------------------|
| Crimping cycle | approx. 1 s (depending on cross-section) |
| Dimension      | approx. 280 x 230 x 410 mm               |
| Mains voltage  | 220 - 240 V                              |
| Weight         | 13.0 kg                                  |

| Item                                                        | Part No.     |
|-------------------------------------------------------------|--------------|
| Stationary basic tool including foot switch and mains cable | <b>TEKP1</b> |

| Accessories                            | Part No. | Page |
|----------------------------------------|----------|------|
| Adapter for crimping dies of Series 50 | TEKP1A50 |      |



|                                                                                     | Suitable for                                                             | Crimping range mm <sup>2</sup> | Crimp profile                                                                       | Part No. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------|----------|
| <b>Crimping heads for cable end-sleeves</b>                                         |                                                                          |                                |                                                                                     |          |
|    | Cable end-sleeves, trapezoid crimping                                    | 0.14 - 6                       |    | KP312    |
|    | Cable end-sleeves, square pressing                                       | 0.14 - 10                      |    | KP303    |
|    | Cable end-sleeves, square pressing                                       | 10 - 16                        |    | KP304    |
|    | Cable end-sleeves, round pressing                                        | 0.14 - 2.5                     |    | KP350    |
|    | Cable end-sleeves, round pressing for narrow chamber sizes               | 1.5 - 6                        |    | KP351    |
|    | Cable end-sleeves, round pressing for narrow chamber sizes               | 10 - 16                        |    | KP352    |
|   | Cable end-sleeves, DIN 46228, part 2, roll-crimping                      | 0.5 - 2.5                      |   | KP66     |
| <b>Crimping heads for insulated cable connections</b>                               |                                                                          |                                |                                                                                     |          |
|  | Insulated cable connections (yellow and red)                             | 0.1 - 1                        |  | KP80     |
|  | Insulated cable connections (red and blue)                               | 0.5 - 2.5                      |  | KP81     |
|  | Insulated cable connections (red, yellow, blue)                          | 0.5 - 6                        |  | KP82     |
|  | Insulated cable connections (yellow)                                     | 4 - 6                          |  | KP83     |
| <b>Crimping heads for tubular cable lugs and terminals</b>                          |                                                                          |                                |                                                                                     |          |
|  | Tubular cable lugs and solderless terminals                              | 0.5 - 6                        |  | KP232    |
|  | Tubular cable lugs and solderless terminals                              | 4 - 10                         |  | KP242    |
| <b>Crimping heads for photovoltaic</b>                                              |                                                                          |                                |                                                                                     |          |
|  | Connector for photovoltaics 3 mm dia.                                    | 2.5 - 4                        |  | KP90MC31 |
| <b>Crimping heads for receptacles</b>                                               |                                                                          |                                |                                                                                     |          |
|  | Part No. 3720. Receptacles 6.3 x 0.8 mm with lateral conductor connector | 0.5 - 1                        |  | KP631    |
|  | Part No. 3725, receptacles 6.3 x 0.8 mm with lateral conductor connector | 0.5 - 1.5                      |  | KP64     |
|  | Part No. 3735, receptacles 6.3 x 0.8 mm with lateral conductor connector | 1.5 - 2.5                      |  | KP632    |
|  | For receptacles 2.8 mm tab width                                         | 0.1 - 1                        |  | KP67     |
|  | For receptacles 4.8 mm tab width                                         | 0.5 - 2.5                      |  | KP65     |
|  | For receptacles 6.3 mm tab width                                         | 0.5 - 2.5                      |  | KP68     |

## KPM 15 Pneumatic basic tool - Klauke Pro Series



- ▶ Compatible with all crimping heads of the Klauke Pro-Series (with Klauke KPM 15 PRO adapter)
- ▶ Easy change of crimping head without tools

## Characteristics

- Crimping head rotates 360°
- Integrated, disengageable ratchet
- Optional worktop stand, including foot switch

| Technical data                 |                                     |
|--------------------------------|-------------------------------------|
| Crimping cycle                 | max. 1 s, depending on set pressure |
| Ambient temperature            | -20°C to +40 °C                     |
| Permissible pressure range     | 6-8 bar                             |
| Air consumption/cycle at 6 bar | 0.32 l                              |
| Diameter                       | 65 mm                               |
| Length                         | 280 mm                              |
| Weight                         | 1.5 kg                              |

| Item                                          | Part No.     |
|-----------------------------------------------|--------------|
| Pneumatic basic tool of the Klauke Pro-Series | <b>KPM15</b> |

| Accessories                                           | Part No. | Page |
|-------------------------------------------------------|----------|------|
| Adapter for crimping heads from the Klauke Pro-Series | KPM15PRO | 282  |
| Worktop stand, including foot switch                  | KPM15TH  | 282  |

## KPM 15 TH Worktop stand including foot switch



- ▶ Adjustable worktop with ball-point mounting system

## Characteristics

- For mounting the pneumatic basic tool KPM 15

| Item                                 | Part No.       |
|--------------------------------------|----------------|
| Worktop stand, including foot switch | <b>KPM15TH</b> |

## KPM 15 PRO Adapter for crimping heads - Klauke Pro-Series



## Characteristics

- Compatible with all crimping heads of the Klauke Pro-Series

| Item                                                  | Part No.        |
|-------------------------------------------------------|-----------------|
| Adapter for crimping heads from the Klauke Pro-Series | <b>KPM15PRO</b> |

| Suitable for                                                                                                                                                 | Crimping range mm <sup>2</sup> | Crimp profile                                                                       | Part No. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------|----------|
| <b>Crimping heads for cable end-sleeves</b>                                                                                                                  |                                |                                                                                     |          |
|  Cable end-sleeves, trapezoid crimping                                      | 0.14 - 6                       |    | KP312    |
|  Cable end-sleeves, square pressing                                         | 0.14 - 10                      |    | KP303    |
|  Cable end-sleeves, square pressing                                         | 10 - 16                        |    | KP304    |
|  Cable end-sleeves, round pressing                                          | 0.14 - 2.5                     |    | KP350    |
|  Cable end-sleeves, round pressing for narrow chamber sizes                 | 1.5 - 6                        |    | KP351    |
|  Cable end-sleeves, round pressing for narrow chamber sizes                 | 10 - 16                        |    | KP352    |
|  Cable end sleeves, DIN 46228, part 2, roll-crimping                        | 0.5 - 2.5                      |    | KP66     |
| <b>Crimping heads for insulated cable connections</b>                                                                                                        |                                |                                                                                     |          |
|  Insulated cable connections (yellow and red)                               | 0.1 - 1                        |    | KP80     |
|  Insulated cable connections (red and blue)                                 | 0.5 - 2.5                      |    | KP81     |
|  Insulated cable connections (red, yellow, blue)                            | 0.5 - 6                        |    | KP82     |
|  Insulated cable connections (yellow)                                       | 4 - 6                          |    | KP83     |
| <b>Crimping heads for tubular cable lugs and terminals</b>                                                                                                   |                                |                                                                                     |          |
|  Tubular cable lugs and solderless terminals                                | 0.5 - 6                        |    | KP232    |
|  Tubular cable lugs and solderless terminals                                | 4 - 10                         |    | KP242    |
| <b>Crimping heads for photovoltaic</b>                                                                                                                       |                                |                                                                                     |          |
|  Connector for photovoltaics 3 mm dia.                                      | 2.5 - 4                        |    | KP90MC31 |
| <b>Crimping heads for receptacles</b>                                                                                                                        |                                |                                                                                     |          |
|  Part No. 3720. Receptacles 6.3 x 0.8 mm with lateral conductor connector  | 0.5 - 1                        |   | KP631    |
|  Part No. 3725, receptacles 6.3 x 0.8 mm with lateral conductor connector | 0.5 - 1.5                      |  | KP64     |
|  Part No. 3735, receptacles 6.3 x 0.8 mm with lateral conductor connector | 1.5 - 2.5                      |  | KP632    |
|  For receptacles 2.8 mm tab width                                         | 0.1 - 1                        |  | KP67     |
|  For receptacles 4.8 mm tab width                                         | 0.5 - 2.5                      |  | KP65     |
|  For receptacles 6.3 mm tab width                                         | 0.5 - 2.5                      |  | KP68     |

## Increased force for fast **crimping.**

### Hand-operated hydraulic crimping tools.

Klauke hand-operated hydraulic tools are the most convenient and safest types to generate precise and high operating forces by hand. The ergonomic design and lightweight aluminum handles permit frequent fatigue proof operations.

All tools feature a two-stage hydraulic system with fast feed and power stroke upon reaching counter pressure. Once the crimping operation is complete, the crimping jaws open automatically and retract to the original position - another plus for safety and comfort.

#### ■ *Hand-operated hydraulic crimping tools:* **compact, innovative and safe.**

- ▶ 2-stage hydraulics with fast feed and power stroke during operation, and **automatic retraction** on completion of the crimp.
- ▶ Ergonomic design and lightweight.
- ▶ **Rotating heads.**



- **Ergonomic design and lightweight.**
- **Automatic retraction on completion of the crimping operation.**
- **Crimping tools from 55 kN to 120 kN crimping force.**
- **Nominal cross sections up to 400 mm².**

#### **Benefits:**

- ▶ Poor crimps are avoided, more safety and shorter intervals between crimping operations thanks to the automatic retraction function.
- ▶ Design and weight facilitate effortless operations.
- ▶ **Safe to work in confined space conditions thanks to the rotating heads.**
- ▶ Faster crimping with less force with the innovative 2-stage hydraulic function.

## ■ Optimised handling *with 6-ton crimping tools.*



- ▶ Aluminum pump lever and housing result in low weight.
- ▶ Compact design.
- ▶ Designed for nominal cross sections up to 300 mm².
- ▶ For Klauke 18 and 22 dies series.

### Benefits:

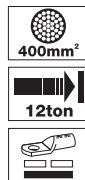
- ▶ **Extremely easy to handle**, even with frequent operations in tight areas - installing underground cable joints or processing switch gears.
- ▶ Versatile applications with the broad range in Klauke's DIN-compliant 18 and 22 series.

## ■ 12 tons for **increased productivity.**

- ▶ Very large crimping area up to 400 mm².
- ▶ For wide crimps with dies from the Klauke 13 series.

### Benefits:

- ▶ **Considerably higher productivity and time saved thanks to wide crimps.**
- ▶ Typical applications include power technology and cable assembly.
- ▶ *More on Page 292.*



## ■ *Quad-point indent crimping* - **centring guaranteed.**



- ▶ Ideal for crimping tubular cable lugs on fine and superfine stranded conductors with nominal cross sections up to 300 mm².
- ▶ No dies required.
- ▶ The tools with quad-point indent crimping feature a patented Klauke centring system.
- ▶ Tools with open and flip-top crimping head.

### Benefits:

- ▶ Safe, convenient processing of standard fine and superfine stranded conductors.
- ▶ Quad-point indent crimping tools **with no die change** are suitable for various cable types and sizes for numerous cable lugs and connectors.
- ▶ Optimised user safety and avoidance of poor crimps thanks to centring of conductors and connecting material.

HK 60/18 Hand-operated hydraulic crimping tool 6 - 185 mm<sup>2</sup>

- ▶ For dies acc. to DIN 48083, page 1
- ▶ Crimping dies are connected by spring - cannot get lost
- ▶ Lightweight for effortless operations

## Characteristics

- For interchangeable dies, series 18, narrow crimping
- Closed crimping head, flip top style, rotatable
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data                                                  |                       |           |
|-----------------------------------------------------------------|-----------------------|-----------|
| Crimping force                                                  | 60 kN                 |           |
| Stroke                                                          | 14 mm                 |           |
| Crimping range                                                  | 6-185 mm <sup>2</sup> |           |
| Length                                                          | 470 mm                |           |
| Weight                                                          | 3.0 kg                |           |
| Ambient temperature                                             | -20°C to +40 °C       |           |
| Item                                                            | Part No.              |           |
| Hand-operated hydraulic crimping tool 6 - 185 mm <sup>2</sup>   | <b>HK6018</b>         |           |
| Scope of supply                                                 |                       | Page      |
| Steel carrying case for HK 60/18 with space for 8 crimping dies |                       | MK6018    |
| Accessories                                                     |                       | Page      |
| Digital meter for force and pressure measurement                |                       | TC1U 406  |
| Measuring adapter, series 18                                    |                       | MA18 406  |
| Force sensor, 70 kN                                             |                       | TF70L 406 |



**Available dies for Series 18 for HK 60/18**

|                                                                   |    |                |    |     |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|-----|
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    | 430 |
| Aluminum/copper compression cable lugs and connectors             |                                                                                     |                |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors             |    | 10 - 185       |    | 430 |
| Clamps                                                            |                                                                                     |                |                                                                                     |     |
| Clamps, C-type                                                    |    | 4 - 50         |    | 430 |
| Cable end-sleeves                                                 |                                                                                     |                |                                                                                     |     |
| Cable end-sleeves                                                 |   | 10 - 95        |   | 431 |
| Twin cable end-sleeves                                            |  | 2 x 4 - 2 x 16 |  | 431 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors      |  | 10 - 95        |  | 431 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors |  | 2 x 4 - 2 x 16 |  | 432 |
| Cutting die                                                       |                                                                                     |                |                                                                                     |     |
| Cutting range                                                     |                                                                                     | 18 mm dia.     |                                                                                     | 432 |

Please observe the restrictions in the technical index when crimping connectors!

### HK 60/22 Hand-operated hydraulic crimping tool 6 - 300 mm<sup>2</sup>



- ▶ Large crimping range up to 300 mm<sup>2</sup>
- ▶ Slim crimping head - ideal when space is critical

#### Characteristics

- For interchangeable dies, series 22, narrow crimping
- Closed crimping head, flip top style, rotatable
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

#### Order info

- Also available for "W" crimping dies (UL certified), part number appendix "W"

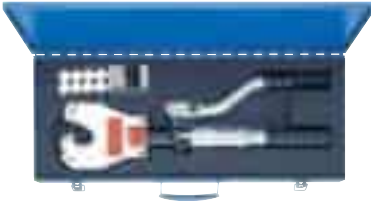
| Technical data                                                                          |                         |      |
|-----------------------------------------------------------------------------------------|-------------------------|------|
| Crimping force                                                                          | 60 kN                   |      |
| Stroke                                                                                  | 17 mm                   |      |
| Crimping range                                                                          | 6 - 300 mm <sup>2</sup> |      |
| Length                                                                                  | 460 mm                  |      |
| Weight                                                                                  | 3.3 kg                  |      |
| Ambient temperature                                                                     | -20°C to +40 °C         |      |
| Item                                                                                    | Part No.                |      |
| Hand-operated hydraulic crimping tool 6 - 300 mm <sup>2</sup>                           | <b>HK6022</b>           |      |
| Scope of supply                                                                         | Part No.                | Page |
| Steel carrying case for HK 60/22 or HK 60/22 W with space for 17 pairs of crimping dies | MK6022                  |      |
| Accessories                                                                             | Part No.                | Page |
| Digital meter for force and pressure measurement                                        | TC1U                    | 406  |
| Measuring adapter, series 22                                                            | MA22                    | 406  |
| Force sensor, 70 kN                                                                     | TF70L                   | 406  |
| Variants                                                                                | Part No.                | Page |
| HK 60/22 with crimping die set R 22 from 16 - 240 mm <sup>2</sup>                       | HK6022SETR              |      |
| HK 60/22 with crimping die set D 22 from 16 - 240 mm <sup>2</sup>                       | HK6022SETD              |      |

**Available dies for Series 22 for HK 60/22**

|                                                                                                                                     |    |                         |    | 433 |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type,<br>tubular cable lugs for switchgear connections                              |    | 6 - 300                 |    | 434 |
| Insulated tubular cable lugs and connectors, insulated pin<br>terminals                                                             |    | 10 - 150                |    | 434 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                      |    | 10 - 70                 |    | 435 |
| Tubular cable lugs and connectors for solid conductors                                                                              |    | 1.5 - 16                |    | 435 |
| Tubular cable lugs and connectors, Ni, stainless steel                                                                              |                                                                                     |                         |                                                                                     |     |
| Stainless steel tubular cable lugs and connectors                                                                                   |    | 0.5 - 16                |    | 435 |
| Nickel tubular cable lugs and connectors                                                                                            |    | 10 - 50                 |    | 435 |
| Compression cable lugs and connectors acc. to DIN - Cu                                                                              |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors<br>(DIN 46267, part 1) Cu                                                         |    | 6 - 300                 |    | 436 |
| Double compression cable lugs                                                                                                       |    | 2 x 50 - 2 x 70         |    | 436 |
| Terminals, connectors and pin terminals acc. to DIN - Cu                                                                            |                                                                                     |                         |                                                                                     |     |
| Solderless terminals (DIN 46234) connectors (DIN 46230) Cu,<br>and pin terminals (DIN 46341) Cu                                     |    | 10 - 70                 |    | 437 |
| Insulated solderless terminals                                                                                                      |    | 10 - 70                 |    | 437 |
| Compression cable lugs and connectors - Al/Cu                                                                                       |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors - Al/Cu                                                                                       |    | 10 - 300                |    | 438 |
| Sleeves for compacted conductors and sector shaped conductors, Cu                                                                   |                                                                                     |                         |                                                                                     |     |
| Pre-rounding dies for Al and Cu sector shaped conductors                                                                            |    | 10 sm - 300 se / 240 sm |    | 437 |
| Compression cable lugs and connectors acc. to DIN - Al                                                                              |                                                                                     |                         |                                                                                     |     |
| Aluminum compression cable lugs and connectors acc. to DIN                                                                          |   | 10 - 300                |   | 438 |
| Compression joints for full tension connections of Aldrey cables<br>acc. to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm² |  | 25 - 185                |  | 438 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, aluminum crimping                         |  | 25 / 4 - 120 / 20       |  | 439 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, steel crimping                            |  | 25 / 4 - 120 / 20       |  | 439 |
| Clamps                                                                                                                              |                                                                                     |                         |                                                                                     |     |
| Clamps, C-type                                                                                                                      |  | 4 - 50                  |  | 439 |
| Clamps, H-type                                                                                                                      |  | 70                      |  | 439 |
| Cable end-sleeves                                                                                                                   |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                   |  | 10 - 240                |  | 440 |
| Twin cable end-sleeves                                                                                                              |  | 2 x 4 - 2 x 16          |  | 440 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                        |  | 10 - 240                |  | 440 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors                                                                   |  | 2 x 4 - 2 x 16          |  | 441 |

Please observe the restrictions in the technical index when crimping connectors!

HK 60 VP Hand-operated hydraulic crimping tool 10 - 240 mm<sup>2</sup>



- ▶ Suitable for crimping tubular cable lugs and connectors "standard type" and fine and superfine stranded conductors to 240 mm<sup>2</sup>
- ▶ The patented centring system guarantees every time optimum crimping results

Characteristics

- Quad-point indent crimping feature with patented centring system, no dies required
- Open crimping head, rotatable
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data      |                          |
|---------------------|--------------------------|
| Crimping force      | 55 kN                    |
| Crimping range      | 10 - 240 mm <sup>2</sup> |
| Length              | 525 mm                   |
| Weight              | 4.1 kg                   |
| Ambient temperature | -20°C to +40 °C          |

| Item                                                           | Part No.      |
|----------------------------------------------------------------|---------------|
| Hand-operated hydraulic crimping tool 10 - 240 mm <sup>2</sup> | <b>HK60VP</b> |
| Scope of supply                                                |               |
| Steel carrying case for HK 60 VP or HK 60 VP/FT                | MK60VP        |
| Gauge and 10 test cylinder                                     | TS10B         |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter VP                             | MAVP     | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |
| Gauge and 10 test cylinder                       | TS10B    |      |

| Suitable for                                                                       | Connection material | Crimping range mm <sup>2</sup> | Crimp profile |
|------------------------------------------------------------------------------------|---------------------|--------------------------------|---------------|
| Tubular cable lugs standard type and tubular cable lugs for switchgear connections |                     | 10 - 240                       |               |
| Connectors, Standard type                                                          |                     | 10 - 120                       |               |
| Tubular cable lugs for fine stranded conductors                                    |                     | 10 - 240                       |               |
| Connector for fine stranded conductors                                             |                     | 10 - 95                        |               |

## HK 60 VP/FT Hand-operated hydraulic crimping tool 16 - 300 mm<sup>2</sup>

- ▶ Suitable for crimping tubular cable lugs and connectors "standard type" and fine and superfine stranded conductors to 300 mm<sup>2</sup>
- ▶ The patented centring system guarantees every time optimum crimping results
- ▶ Closed crimping head - ideal for utility lines construction

### Characteristics

- Quad-point indent crimping feature with patented centring system, no dies required
- Closed crimping head with bolt interlock, rotatable, flip top style
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data      |                          |
|---------------------|--------------------------|
| Crimping force      | 55 kN                    |
| Crimping range      | 16 - 300 mm <sup>2</sup> |
| Length              | 535 mm                   |
| Weight              | 4.1 kg                   |
| Ambient temperature | -20°C to +40 °C          |

|                                                    |          |      |  |
|----------------------------------------------------|----------|------|--|
| Item                                               | Part No. |      |  |
| Hand-operated hydraulic crimping tool 16 - 300 mm² | HK60VPFT |      |  |
| Scope of supply                                    | Part No. | Page |  |
| Steel carrying case for HK 60 VP or HK 60 VP/FT    | MK60VP   |      |  |
| Gauge and 10 test cylinder                         | TS10B    |      |  |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter VP                             | MAVP     | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |
| Gauge and 10 test cylinder                       | TS10B    |      |

| Suitable for                                                                                    | Connection material                                                                 | Crimping range mm <sup>2</sup> | Crimp profile                                                                       |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------|
| Tubular cable lugs and connectors, standard type, tubular cable lugs for switchgear connections |  | 16 - 300                       |  |
| Tubular cable lugs and connectors for fine stranded conductors                                  |  | 16 - 300                       |  |



HK 120/30 Hand-operated hydraulic crimping tool 16 - 400 mm<sup>2</sup>

- ▶ Very large crimping range to 400 mm<sup>2</sup>
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools

## Characteristics

- For interchangeable dies, series 13, wide crimping
- Open C-crimping head, rotatable
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data                                                             |                          |      |
|----------------------------------------------------------------------------|--------------------------|------|
| Crimping force                                                             | 120 kN                   |      |
| Stroke                                                                     | 30 mm                    |      |
| Crimping range                                                             | 16 - 400 mm <sup>2</sup> |      |
| Length                                                                     | 510 mm                   |      |
| Weight                                                                     | 5.4 kg                   |      |
| Ambient temperature                                                        | -20°C to +40 °C          |      |
| Item                                                                       | Part No.                 |      |
| Hand-operated hydraulic crimping tool 10 - 400 mm <sup>2</sup>             | <b>HK12030</b>           |      |
| Scope of supply                                                            | Part No.                 | Page |
| Steel carrying case for HK 120/42 with space for 15 pairs of crimping dies | MK12042                  |      |
| Accessories                                                                | Part No.                 | Page |
| Digital meter for force and pressure measurement                           | TC1U                     | 406  |
| Measuring adapter, series 13                                               | MA120                    | 406  |
| Force sensor, 130 kN                                                       | TF130L                   | 406  |

**Available dies for Series 13 for HK 120/30**

|                                                                                                                                     |    |                         |    | 442 |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type,<br>tubular cable lugs for switchgear connections                              |    | 16 - 400                |    | 443 |
| Butt connectors, standard type                                                                                                      |    | 16 - 185                |    | 443 |
| Insulated tubular cable lugs and compression joints, standard<br>type                                                               |    | 10 - 150                |    | 443 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                      |    | 16 - 150                |    | 444 |
| <b>Compression cable lugs and connectors acc. to DIN - Cu</b>                                                                       |                                                                                     |                         |                                                                                     |     |
| Copper compression cable lugs (DIN 46235) and connectors                                                                            |    | 16 - 300                |    | 444 |
| Compression joints DIN 46267, part 1                                                                                                |    | 16 - 150                |    | 444 |
| Double compression cable lugs                                                                                                       |    | 2 x 50 - 2 x 95         |    | 444 |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                                                                     |                                                                                     |                         |                                                                                     |     |
| Solderless terminals (DIN 46234) connectors (DIN 46230)<br>and pin terminals acc. to DIN                                            |    | 16 - 150                |    | 445 |
| Insulated solderless terminals                                                                                                      |    | 10 - 95                 |    | 445 |
| <b>Sleeves for compacted conductors and sector shaped conductors, Cu</b>                                                            |                                                                                     |                         |                                                                                     |     |
| Pre-rounding dies for Al and Cu sector shaped<br>conductors                                                                         |    | 10 sm - 300 se / 300 sm |    | 445 |
| <b>Aluminum compression cable lugs and connectors acc. to DIN</b>                                                                   |                                                                                     |                         |                                                                                     |     |
| Aluminum compression cable lugs and connectors                                                                                      |    | 10 - 240                |    | 446 |
| Aluminum connectors                                                                                                                 |    | 10 - 120                |    | 446 |
| Compression joints for full tension connections of Aldrey cables acc.<br>to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm² |    | 25 - 185                |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, aluminum crimping                         |  | 25/4 - 120/20           |  | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, steel crimping                            |  | 25/4 - 120/20           |  | 447 |
| <b>Aluminum/copper compression cable lugs and connectors</b>                                                                        |                                                                                     |                         |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                                               |  | 10 - 240                |  | 446 |
| <b>Clamps</b>                                                                                                                       |                                                                                     |                         |                                                                                     |     |
| Clamps, C-type                                                                                                                      |  | 10 - 70                 |  | 447 |
| Clamps, H-type                                                                                                                      |  | 70 - 120                |  | 447 |
| <b>Cable end-sleeves</b>                                                                                                            |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                   |  | 25 - 240                |  | 448 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                        |  | 25 - 240                |  | 448 |

Please observe the restrictions in the technical index when crimping connectors!



HK 120/42 Hand-operated hydraulic crimping tool 16 - 400 mm<sup>2</sup>



- ▶ Very large crimping range to 400 mm<sup>2</sup>
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools
- ▶ C-head with large 42 mm opening width

Characteristics

- For interchangeable dies, series 13, wide crimping
- Open C-crimping head, rotatable
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data                                                             |                          |         |
|----------------------------------------------------------------------------|--------------------------|---------|
| Crimping force                                                             | 120 kN                   |         |
| Stroke                                                                     | 42 mm                    |         |
| Crimping range                                                             | 16 - 400 mm <sup>2</sup> |         |
| Length                                                                     | 560 mm                   |         |
| Weight                                                                     | 5.9 kg                   |         |
| Ambient temperature                                                        | -20°C to +40 °C          |         |
| Item                                                                       | Part No.                 |         |
| Hand-operated hydraulic crimping tool 16 - 400 mm <sup>2</sup>             | HK12042                  |         |
| Scope of supply                                                            |                          | Page    |
| Steel carrying case for HK 120/42 with space for 15 pairs of crimping dies |                          | MK12042 |
| Accessories                                                                |                          |         |
|                                                                            | Part No.                 | Page    |
| Digital meter for force and pressure measurement                           | TC1U                     | 406     |
| Measuring adapter, series 13                                               | MA120                    | 406     |
| Force sensor, 130 kN                                                       | TF130L                   | 406     |



**Available dies for Series 13 for HK 120/42**

|                                                                                                          |    |               |    |     |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|-----|
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, aluminum crimping |    | 25/4 - 120/20 |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, steel crimping    |    | 25/4 - 120/20 |    | 447 |
| <b>Aluminum/copper compression cable lugs and connectors</b>                                             |                                                                                     |               |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                    |   | 10 - 240      |   | 446 |
| <b>Clamps</b>                                                                                            |                                                                                     |               |                                                                                     |     |
| Clamps, C-type                                                                                           |  | 10 - 70       |  | 447 |
| Clamps, H-type                                                                                           |  | 70 - 120      |  | 447 |
| <b>Cable end-sleeves</b>                                                                                 |                                                                                     |               |                                                                                     |     |
| Cable end-sleeves                                                                                        |  | 25 - 240      |  | 448 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                             |  | 25 - 240      |  | 448 |

Please observe the restrictions in the technical index when crimping connectors!

HK 120 U Hand-operated hydraulic crimping tool 16 - 400 mm<sup>2</sup>

- ▶ H-head for deep groove crimping
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools

## Characteristics

- For interchangeable dies, series 13, wide crimping
- Closed H-crimping head, rotatable
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data                                                               |                          |      |
|------------------------------------------------------------------------------|--------------------------|------|
| Crimping force                                                               | 120 kN                   |      |
| Stroke                                                                       | 20 mm                    |      |
| Crimping range                                                               | 16 - 400 mm <sup>2</sup> |      |
| Length                                                                       | 540 mm                   |      |
| Weight                                                                       | 5.2 kg                   |      |
| Ambient temperature                                                          | -20°C to +40 °C          |      |
| Item                                                                         | Part No.                 |      |
| Hand-operated hydraulic crimping tool 16 - 400 mm <sup>2</sup>               | <b>HK120U</b>            |      |
| Scope of supply                                                              | Part No.                 | Page |
| Steel carrying case for HK 120 U<br>with space for 11 pairs of crimping dies | MK120U                   |      |
| Accessories                                                                  | Part No.                 | Page |
| Digital meter for force and pressure measurement                             | TC1U                     | 406  |
| Measuring adapter, series 13                                                 | MA120                    | 406  |
| Force sensor, 130 kN                                                         | TF130L                   | 406  |

**Available dies for Series 13 for HK 120 U**

|                                                                                                                                     |    |                         |    | 442 |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type,<br>tubular cable lugs for switchgear connections                              |    | 16 - 400                |    | 443 |
| Insulated cable lugs and compression joints, standard type                                                                          |    | 10 - 150                |    | 443 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                      |    | 16 - 150                |    | 444 |
| Compression cable lugs and connectors acc. to DIN - Cu                                                                              |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors<br>(DIN 46267, part 1) Cu                                                         |    | 16 - 300                |    | 444 |
| Double compression cable lugs                                                                                                       |    | 2 x 50 - 2 x 95         |    | 444 |
| Terminals, connectors and pin terminals acc. to DIN - Cu                                                                            |                                                                                     |                         |                                                                                     |     |
| Solderless terminals (DIN 46234) connectors and pin terminals<br>(DIN 46230) acc. to DIN, solderless connectors (DIN 46341) Cu      |    | 16 - 150                |    | 445 |
| Insulated solderless terminals                                                                                                      |    | 10 - 95                 |    | 445 |
| Sleeves for compacted conductors and sector shaped conductors, Cu                                                                   |                                                                                     |                         |                                                                                     |     |
| Pre-rounding dies for Al and Cu sector shaped conductors                                                                            |    | 10 sm - 300 se / 300 sm |    | 445 |
| Aluminum compression cable lugs and connectors acc. to DIN                                                                          |                                                                                     |                         |                                                                                     |     |
| Aluminum compression cable lugs and connectors acc. to DIN                                                                          |    | 10 - 240                |    | 446 |
| Compression joints for full tension connections of Aldrey cables acc.<br>to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm² |    | 25 - 185                |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, aluminum crimping                         |    | 25/4 - 120/20           |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, steel crimping                            |    | 25/4 - 120/20           |    | 447 |
| Aluminum/copper compression cable lugs and connectors                                                                               |                                                                                     |                         |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                                               |   | 10 - 240                |   | 446 |
| Clamps                                                                                                                              |                                                                                     |                         |                                                                                     |     |
| Clamps, C-type                                                                                                                      |  | 10 - 70                 |  | 447 |
| Clamps, H-type                                                                                                                      |  | 70 - 120                |  | 447 |
| Cable end-sleeves                                                                                                                   |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                   |  | 25 - 240                |  | 448 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                        |  | 25 - 240                |  | 448 |

Please observe the restrictions in the technical index when crimping connectors!

# Klauke®

## High cutting performance, less force.

### Hand-operated hydraulic cutting tools:

Hand-operated Klauke cutting tools process flexible, multi-stranded, armoured and solid Cu and Al cables, as well as Al/St ropes quickly, conveniently and safely. The ergonomic design and low weight of these tools mean the user needs less effort and staying power.

The 2-stage hydraulics combine a fast feed, power stroke upon reaching counter pressure and automatic retraction function. When the cutting operation is complete, the cutting blades open and move to their original position.

- Ergonomic design and lightweight.
- Automatic retraction on completion of the cutting operation.
- Cutting tools to 85 mm dia.
- Type-dependent cutting force to 120 kN.



Two-stage hydraulic system  
and ergonomic design for  
enhanced efficiency.

## ■ Hand-operated hydraulic cutting tools: **compact, innovative and safe.**

- ▶ 2-stage hydraulics with fast feed and power stroke during operation and **automatic retraction** when the crimp is complete or the cable has been cut.
- ▶ Ergonomic design and lightweight.
- ▶ Rotating heads.

### Benefits:

- ▶ More safety and shorter intervals between crimping operations thanks to the automatic retraction function.
- ▶ Design and weight facilitate effortless operations.
- ▶ Safe to work under difficult spatial conditions thanks to the **rotating heads**.
- ▶ Faster cutting with less force with the innovative 2-stage hydraulic function.



## ■ Fast and safe cutting of **Al/St ropes: HSG 45 and HSG 55**



- ▶ Optimised cutting performance.
- ▶ Suitable for cables up to 45 mm dia. and/or 55 mm dia.
- ▶ **For armoured Cu and Al cables and for Al/St ropes.**
- ▶ Extremely sturdy cutting heads.

### Benefits:

- ▶ One tool for diverse applications.
- ▶ This cutting head is set apart by its high stability even under extreme load.
- ▶ The tools are suitable as an universal cutting tool for practically every cable up to 55 mm dia.

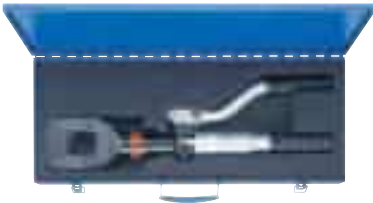
## ■ All hand-operated hydraulic cutting tools at a glance.

| Tool    | Design    |             | Cutting range mm dia. | Cutting force kN | Application          |                |                |              | Features                                                         |
|---------|-----------|-------------|-----------------------|------------------|----------------------|----------------|----------------|--------------|------------------------------------------------------------------|
|         | Open head | Closed head |                       |                  | Cu, Al <sup>1)</sup> | Al / St (ACSR) | Cu / Al, solid | Steel, solid |                                                                  |
| HSG45   |           | ✓           | 45                    | 60               | ✓                    | ✓              | ✓              | ✓            | Suitable for all standard cables to 45 mm dia. - steel armoured. |
| HSG50   |           | ✓           | 48                    | 60               | ✓                    |                |                |              | Compact and lightweight cutting tool.                            |
| HSG55   |           | ✓           | 55                    | 120              | ✓                    | ✓              | ✓              | ✓            | With 120 kN cutting force for ACSR ropes to 55 mm dia.           |
| HSG85/2 |           | ✓           | 85                    | 60               | ✓                    |                |                |              | Extremely wide cutting range.                                    |

<sup>1)</sup> This column also includes Cu / Al multi-stranded and Cu / Al with sheet metal and wire armouring.



HSG 45 Hand-operated hydraulic cutting tool 45 mm dia.



ESG45EF

ESG45ES1

- ▶ Cuts armoured copper and aluminum cables and Al/St cables (ACSR)
- ▶ Also suitable for round material made of Al, Cu and Steel
- ▶ Extremely sturdy design

Characteristics

- Closed cutting head with bolt interlock, rotatable, flip top style
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when cut is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data                                  |                 |      |
|-------------------------------------------------|-----------------|------|
| Cutting range                                   | max. 45 mm dia. |      |
| Cutting force                                   | 60 kN           |      |
| Length                                          | 560 mm          |      |
| Weight                                          | 4.9 kg          |      |
| Ambient temperature                             | -20°C to +40 °C |      |
| Item                                            | Part No.        |      |
| Hand-operated hydraulic cutting tool 45 mm dia. | <b>HSG45</b>    |      |
| Scope of supply                                 | Part No.        | Page |
| Steel carrying case for HSG 45 or HSG 50        | MK50            |      |
|                                                 |                 |      |
| Accessories                                     | Part No.        | Page |
| Outer fixed blade                               | ESG45EF         |      |
| Inner moving blade                              | ESG45ES1        |      |

**HSG 50 Hand-operated hydraulic cutting tool 48 mm dia.**

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Lightweight for effortless operations

**Characteristics**

- Closed cutting head, flip top style, rotatable
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when cut is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

**Technical data**

|                     |                 |
|---------------------|-----------------|
| Cutting range       | max. 48 mm dia. |
| Cutting force       | 60 kN           |
| Length              | 540 mm          |
| Weight              | 3.5 kg          |
| Ambient temperature | -20°C to +40 °C |

| Item                                            | Part No. |      |
|-------------------------------------------------|----------|------|
| Hand-operated hydraulic cutting tool 48 mm dia. | HSG50    |      |
| Scope of supply                                 | Part No. | Page |
| Steel carrying case for HSG 45 or HSG 50        | MK50     |      |

| Accessories        | Part No. | Page |
|--------------------|----------|------|
| Inner moving blade | ESG50ES  |      |
| Outer fixed blade  | ESG50EF1 |      |


**ESG50EF1**

**ESG50ES**


HSG 55 Hand-operated hydraulic cutting tool 55 mm dia.



ESG55EF



ESG55ES

- ▶ Cuts armoured copper and aluminum cables and Al/St cables (ACSR)
- ▶ Also suitable for round material made of Al, Cu and Steel
- ▶ 120 kN cutting force for maximum output

Characteristics

- Closed cutting head with bolt interlock, rotatable, flip top style
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when cut is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data                                  |                 |              |      |
|-------------------------------------------------|-----------------|--------------|------|
| Cutting range                                   | max. 55 mm dia. |              |      |
| Cutting force                                   | 120 kN          |              |      |
| Length                                          | approx. 605 mm  |              |      |
| Weight                                          | 7.3 kg          |              |      |
| Ambient temperature                             | -20°C to +40 °C |              |      |
| Item                                            |                 | Part No.     |      |
| Hand-operated hydraulic cutting tool 55 mm dia. |                 | <b>HSG55</b> |      |
| Scope of supply                                 |                 | Part No.     | Page |
| Steel carrying case for HSG 55                  |                 | MKHSG55      |      |
| Accessories                                     |                 | Part No.     | Page |
| Inner moving blade                              |                 | ESG55ES      |      |
| Outer fixed blade                               |                 | ESG55EF      |      |



## HSG 85/2 Hand-operated hydraulic cutting tool 85 mm dia.

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Large cutting range
- ▶ High user safety through cutting head with bolt interlock

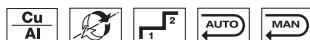
### Characteristics

- Closed cutting head with bolt interlock, rotatable, flip top style
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when cut is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data      |                 |
|---------------------|-----------------|
| Cutting range       | max. 85 mm dia. |
| Cutting force       | 60 kN           |
| Length              | approx. 677 mm  |
| Weight              | 5.9 kg          |
| Ambient temperature | -20°C to +40 °C |

| Item                                            | Part No. |      |
|-------------------------------------------------|----------|------|
| Hand-operated hydraulic cutting tool 85 mm dia. | HSG852   |      |
| Scope of supply                                 | Part No. | Page |
| Steel carrying case for HSG 85                  | MK852    |      |

| Accessories        | Part No. | Page |
|--------------------|----------|------|
| Outer fixed blade  | ESG85EF1 |      |
| Inner moving blade | ESG85ES1 |      |



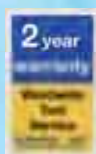
ESG85EF1



ESG85ES1



## *More intelligence. More performance. And more ergonomic.*



### Generation Safety Plus.

Battery powered hydraulic crimping and cutting tools are the most convenient solution for crimping and cutting applications. The required force is generated at the touch of a button. The tools require only one-hand operation.

The tools in the Ultra and Ultra+ series feature a two-stage hydraulic system that automatically switches to power stroke after a fast feed. With all Klauke tools, the automatic retract function starts automatically after successful crimping or cutting, and can be stopped again by pressing the switch (MRS).

The automatic retract stop function (ARS) is especially convenient, for quickly making multiple crimps for full tension connections, for instance.

- Thanks to the new 2-component housing, the tools sit even better in the hand - pressure points and tool slippage are practically impossible.



**2K**

- **The latest tool generation with Intelligent Pressing System IPS.**
- **Convenient one-button operating concept.**
- **High-performance 18 Volt Li-ion batteries with extremely short charging time.**



The new generation of our battery powered hydraulic tools features an integrated pressure sensor determining the pressure reached during each crimping operation. This **Intelligent Pressing System** - IPS for short - indicates deviations immediately by optical and acoustic signals. Making your work with Klauke tools even safer.



The hydraulic oil in our tools is considered to be environmentally-friendly and quickly biodegradable.

## ■ At a glance: Battery powered hydraulic tools made by Klauke.

With the 3 series of the Safety Plus generation and the established Klauke® mini, Klauke's product range is the most extensive on the market!

### Klauke®mini



- ▶ NiMH batteries
- ▶ Low weight
- ▶ Fast crimping cycles
- ▶ Automatic retraction

### Klauke®ultra



- ▶ Intelligent (IPS)
- ▶ With crimping tools: Automatic retract stop (ARS)
- ▶ For cutting tools with manual retract stop (MRS)
- ▶ 2-stage hydraulics

### Klauke®mini+



- ▶ 18 V - Li-ion technology
- ▶ Intelligent Pressing System (IPS)
- ▶ Large crimping and cutting range with low weight

### Klauke®ultra+



- ▶ For crimping tools that make up to 60% fewer crimps thanks to wide crimping
- ▶ Ergonomic design with 2-component handle area and optimum centre of gravity for effortless operations

## ■ High-performance: 18 Volt Li-ion technology.

- ▶ Powerful 18 V Li-ion batteries with high capacity.
- ▶ Extremely **short charging time** with innovative charging technology.
- ▶ Batteries have very low self-discharging effect.
- ▶ Powerful motors for maximum performance.

### Benefits:

- ▶ The high energy density of the Li-ion batteries allows more operations per charge than with conventional batteries.
- ▶ The extremely short charging time of 15 min (RAL1) or 22 min (RAL2) minimise waiting time.
- ▶ The low self-discharge means practically continuous tool availability.
- ▶ The powerful motors permit even faster operations - a benefit that should not be underestimated.
- ▶ All Mini tools have a sound pressure level of 70.6 dB(A), all Safety Plus generation tools are less than 70 dB(A), measured at a distance of 1 m. The vibrations on the tools much lower than 2.5m/s<sup>2</sup>.



**18V**  
Li-ion

## ■ Spot on: see more with work area illumination.

- ▶ Integrated high-performance LED for work area illumination.
- ▶ Optimised, balanced tool housing.

### Benefits:

- ▶ The integrated high-power LED provides optimum illumination in all working areas and ensures additional safety and comfort.
- ▶ The balanced tool housing makes handling much easier - effortless work is guaranteed.



LED

## At the touch of a button: Full force ahead!

### Battery powered hydraulic crimping tools.

Battery powered Klauke crimping tools effortlessly make safe electrical connections. And thanks to their powerful 18 V Li-ion batteries and ergonomic product design, long periods of operation do not present a problem.

Klauke offers the right battery powered solution for the most diverse fields of application. For example, the Klauke® ultra+ is able to crimp conductors with cross-sections to 400 mm² at 120 kN. The Klauke mini+ is especially slim, and excels even in tight spaces.



- Intelligent Pressing System (IPS).
- Automatic retract stop (ARS).
- Crimping tools from 10 kN to 120 kN crimping force.
- Nominal cross sections up to 400 mm².



#### Interface to the PC



**i-press®**

The separate USB adapter PGA1 enables the data of all crimping operations to be readout for quality control via the optical interface and output as a PDF document on the laptop or PC.

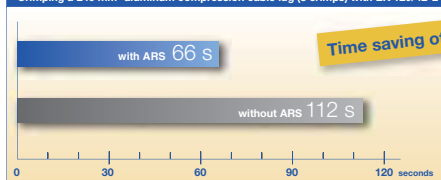
### Save time and energy – with the retract stop function.

- ▶ The retract stop function stops the automatic retraction on completion of a crimping operation - fully-automatic (ARS) for all crimping tools with 60 kN and 120 kN crimping force.

#### Benefits:

- ▶ For multiple applications, the ARS function allows the crimping tools to open automatically as far as needed for the next crimping operation to be started - with no time lost.

Crimping a 240 mm² aluminum compression cable lug (8 crimps) with EK 120/42-L



## ■ Mini with added value: *Klauke mini+, the new generation.*



- ▶ All benefits of the established Klauke® mini design - now available as 4, 5 or 6-ton tool.
- ▶ Wide crimping range to 300 mm<sup>2</sup> (EKM 60/22-L).
- ▶ Additional technical features:  
integrated pressure measurement, 2-component housing, work area illumination, 18 V Li-ion technology, 18 V mains adapter NG 2/230 (accessories).

### Benefits:

- ▶ The Klauke® mini+ combines a host of established benefits with the technical features of the new Safety Plus generation - making work even in the tightest spaces even more efficient and, thanks to **Intelligent Pressing System (IPS)**, safer too.
- ▶ At 300 mm<sup>2</sup>, the Klauke® mini+ has the widest crimping range for rod-shaped crimping tools, thereby guaranteeing optimised productivity.



## ■ KLAUKE® ultra - *ultra safe, ultra efficient.*



- ▶ 6-ton tools in the Klauke® ultra series for 22-series dies and for dieless quad-point indent crimping with nominal cross-sections of up to 300 mm<sup>2</sup>.
- ▶ All tools with Intelligent Pressing System (IPS).
- ▶ 4-point indent crimping with **Klauke's patented centring system** and automatic retract stop (ARS) - the ideal solution for crimping tubular cable lugs on fine and superfine stranded conductors.



▶ More from Page 324.

### Benefits:

- ▶ The 6-ton tools are comparatively lightweight and hence easy to handle.
- ▶ The guide system guarantees highest user safety since conductor and connecting material remain centred during crimping operation and bad crimps are practically excluded.
- ▶ ARS saves you time and energy as the piston stroke is reduced to a minimum during subsequent crimping operations.



## ■ KLAUKE® ultra+: *the Power-Plus packages.*

- ▶ 12-ton tools in the Klauke® ultra+ series for 13-series dies, for deep groove crimps and dieless indent crimps.
- ▶ **Wide crimping** with dies from the Klauke 13-series.
- ▶ With IPS, ARS, more powerful motors and balanced housing for more intelligence, more power and more comfort.

### Benefits:

- ▶ The wide crimping profiles of the 13-series dies require up to 60% fewer crimps than the narrow crimping profiles of 6-ton tools.
- ▶ The new features and characteristics make the use of our crimping tools much simpler and, thanks to IPS, safer too.



EK 15/50 Battery powered crimping tool 0.14 - 50 mm<sup>2</sup>

- ▶ Steel head for extreme long life time
- ▶ Optimum crimping due to parallel guided crimping dies

## Characteristics

- For interchangeable dies, series 50
- Open crimping head, rotatable
- One-button operating concept for controlling all tooling functions
- Ergonomic design for convenient one-hand operation
- Lightweight for effortless operations
- Powerful NiMH battery technology
- Fast crimping cycles for efficient operations
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



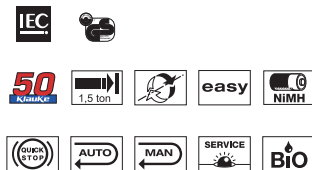
| Technical data         |                                              |
|------------------------|----------------------------------------------|
| Crimping force         | 13 kN                                        |
| Stroke / opening width | 9 mm                                         |
| Crimping range         | 0.75 - 10 mm <sup>2</sup>                    |
| Crimping cycle         | approx. 2 s                                  |
| Number of crimps       | approx. 220 at 10 mm <sup>2</sup> Cu         |
| Battery voltage        | 9.6 V                                        |
| Battery capacity       | 2.0 Ah, NiMH                                 |
| Charging time          | With fast charger 15 min., otherwise 40 min. |
| Weight incl. battery   | 1.6 kg                                       |
| Ambient temperature    | -20°C to +40 °C                              |

| Item                                                  | Part No. |      |
|-------------------------------------------------------|----------|------|
| Battery powered hydraulic crimping tool 0.14 - 16 mm² | EK1550   |      |
| Scope of supply                                       | Part No. | Page |
| Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh)                | RAM2     | 397  |
| Charger for NiCd and NiMH batteries                   | LG4F     | 399  |
| Plastic case 450 x 370 x 105 mm                       | KK35B2   |      |

| Accessories                                                  | Part No. | Page |
|--------------------------------------------------------------|----------|------|
| Battery 9.6 V / 3.0 Ah, NiMH (28.8 Wh)                       | RAM3     | 397  |
| USB adapter                                                  | PGA1     | 408  |
| Digital meter for force and pressure measurement             | TC1U     | 406  |
| Measuring adapter, series 50                                 | MA50     | 406  |
| Force sensor, 70 kN                                          | TF70L    | 406  |
| Quick charger for NiCd and NiMH batteries, 230 V mains power | LG5      | 399  |

**Available dies for Series 50 for EK 15/50**

| Suitable for                                                                          | Connection material                                                               | Crimping range mm <sup>2</sup> | Crimp profile                                                                     | Page |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------|------|
| <b>Tubular cable lugs and connectors, Cu</b>                                          |                                                                                   |                                |                                                                                   |      |
| Tubular cable lugs and connectors, Cu, standard type                                  |  | 0.75 - 10                      |  | 414  |
| Tubular cable lugs and connectors for solid conductors, Cu                            |  | 1.5 - 10                       |  | 414  |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                       |                                                                                   |                                |                                                                                   |      |
| Solderless terminals (DIN 46234) and pin terminals (DIN 46230) connectors (DIN 46341) |  | 0.5 - 10                       |  | 414  |
| Insulated solderless terminals, insulated pin terminals                               |  | 0.1 - 16                       |  | 415  |
| <b>Cable end-sleeves</b>                                                              |                                                                                   |                                |                                                                                   |      |
| Cable end-sleeves                                                                     |  | 0.14 - 50                      |  | 414  |
| <b>Cable connections, insulated and non-insulated</b>                                 |                                                                                   |                                |                                                                                   |      |
| Insulated cable connections, double crimping                                          |  | 0.1 - 6                        |  | 415  |
| Insulated cable connections, single crimping                                          |  | 0.5 - 16                       |  | 415  |
| Non insulated receptacles                                                             |  | 0.25 - 6                       |  | 415  |
| for pin and shielded receptacles, BNC connectors for coax cables RG 58,59,60 and 71   |                                                                                   |                                |  | 415  |
| Turned pin connectors, pin receptacles                                                |                                                                                   | 0.1 - 4                        |  | 415  |
| Please observe the restrictions in the technical index when crimping connectors!      |                                                                                   |                                |                                                                                   |      |

EK 15/50 G Battery powered crimping tool 0.14 - 50 mm<sup>2</sup>

► Slim crimping head - ideal when space is critical

#### Characteristics

- For interchangeable dies, series 50
- Open crimping head, rotatable
- One-button operating concept for controlling all tooling functions
- Ergonomic design for convenient one-hand operation
- Lightweight for effortless operations
- Powerful NiMH battery technology
- Fast crimping cycles for efficient operations
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data         |                                              |
|------------------------|----------------------------------------------|
| Crimping force         | 13 kN                                        |
| Stroke / opening width | 9 mm                                         |
| Crimping range         | 0.14 - 50 mm <sup>2</sup>                    |
| Crimping cycle         | approx. 2 s                                  |
| Number of crimps       | approx. 220 at 10 mm <sup>2</sup> Cu         |
| Battery voltage        | 9.6 V                                        |
| Battery capacity       | 2.0 Ah, NiMH                                 |
| Charging time          | With fast charger 15 min., otherwise 40 min. |
| Weight incl. battery   | 1.6 kg                                       |
| Ambient temperature    | -20°C to +40 °C                              |

| Item                                                  | Part No. |      |
|-------------------------------------------------------|----------|------|
| Battery powered hydraulic crimping tool 0.14 - 16 mm² | EK1550G  |      |
| Scope of supply                                       | Part No. | Page |
| Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh)                | RAM2     | 397  |
| Charger for NiCd and NiMH batteries                   | LG4F     | 399  |
| Plastic case 450 x 370 x 105 mm                       | KK35B2   |      |

| Accessories                                                  | Part No. | Page |
|--------------------------------------------------------------|----------|------|
| Battery 9.6 V / 3.0 Ah, NiMH (28.8 Wh)                       | RAM3     | 397  |
| USB adapter                                                  | PGA1     | 408  |
| Digital meter for force and pressure measurement             | TC1U     | 406  |
| Measuring adapter, series 50                                 | MA50     | 406  |
| Force sensor, 70 kN                                          | TF70L    | 406  |
| Quick charger for NiCd and NiMH batteries, 230 V mains power | LG5      | 399  |



**Available dies for Series 50 for EK 15/50 G**

| Suitable for                                                                                    | Connection material                                                               | Crimping range mm² | Crimp profile                                                                     | Page |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|------|
| Tubular cable lugs and connectors, Cu                                                           |                                                                                   |                    |                                                                                   |      |
| Tubular cable lugs and connectors, Cu, standard type                                            |  | 0.75 - 10          |  | 414  |
| Tubular cable lugs and connectors for solid conductors, Cu                                      |  | 1.5 - 10           |  | 414  |
| Terminals, connectors and pin terminals acc. to DIN - Cu                                        |                                                                                   |                    |                                                                                   |      |
| Solderless terminals (DIN 46234) and pin terminals (DIN 46230)<br>Cu, connectors (DIN 46341) Cu |  | 0.5 - 10           |  | 414  |
| Insulated solderless terminals, insulated pin terminals                                         |  | 0.1 - 16           |  | 415  |
| Cable end-sleeves                                                                               |                                                                                   |                    |                                                                                   |      |
| Cable end-sleeves                                                                               |  | 0.14 - 50          |  | 414  |
| Cable connections, insulated and non-insulated                                                  |                                                                                   |                    |                                                                                   |      |
| Insulated cable connections, double crimping                                                    |  | 0.1 - 6            |  | 415  |
| Insulated cable connections, single crimping                                                    |  | 0.5 - 16           |  | 415  |
| Non insulated receptacles                                                                       |  | 0.25 - 6           |  | 415  |
| for pin and BNC connectors for coax cables<br>RG 58, 59, 62 and 71                              |                                                                                   |                    |  | 415  |
| Turned pin connectors, pin receptacles                                                          |                                                                                   | 0.1 - 4            |  | 415  |
| Please observe the restrictions in the technical index when crimping connectors!                |                                                                                   |                    |                                                                                   |      |

EKP 1 Battery powered crimping tool 0.14 - 16 mm<sup>2</sup>

- ▶ Basic tool, Klauke Pro-Series
- ▶ Easy change of crimping heads without tools

## Characteristics

- Compatible with all crimping heads of the Klauke Pro-Series
- Crimping heads rotatable
- One-button operating concept for controlling all tooling functions
- Ergonomic design for convenient one-hand operation
- Lightweight for effortless operations
- Powerful NiMH battery technology
- Fast crimping cycles for efficient operations
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data                                                    |                                              |      |
|-------------------------------------------------------------------|----------------------------------------------|------|
| Crimping force                                                    | 10 kN                                        |      |
| Stroke / opening width                                            | 9 mm                                         |      |
| Crimping range                                                    | 0.5 - 10 mm <sup>2</sup>                     |      |
| Crimping cycle                                                    | approx. 2 s                                  |      |
| Number of crimps                                                  | approx. 220 at 10 mm <sup>2</sup> Cu         |      |
| Battery voltage                                                   | 9.6 V                                        |      |
| Battery capacity                                                  | 2.0 Ah, NiMH                                 |      |
| Charging time                                                     | With fast charger 15 min., otherwise 40 min. |      |
| Weight incl. battery                                              | 1.3 kg                                       |      |
| Ambient temperature                                               | -20°C to +40 °C                              |      |
| Item                                                              | Part No.                                     |      |
| Battery powered hydraulic crimping tool 0.14 - 16 mm <sup>2</sup> | <b>EKP1</b>                                  |      |
| Scope of supply                                                   | Part No.                                     | Page |
| Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh)                            | RAM2                                         | 397  |
| Charger for NiCd and NiMH batteries                               | LG4F                                         | 399  |
| Plastic case 450 x 370 x 105 mm                                   | KKEKP1B                                      |      |
| Accessories                                                       | Part No.                                     | Page |
| Quick charger for NiCd and NiMH batteries, 230 V mains power      | LG5                                          | 399  |
| Battery 9.6 V / 3.0 Ah, NiMH (28.8 Wh)                            | RAM3                                         | 397  |
| USB adapter                                                       | PGA1                                         | 408  |

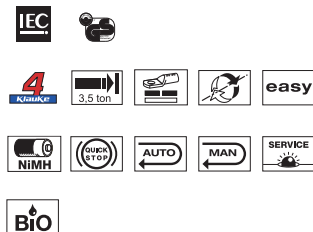
| Suitable for                                                                                                                                                 | Crimping range mm <sup>2</sup> | Crimp profile                                                                       | Part No. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------|----------|
| <b>Crimping heads for cable end-sleeves</b>                                                                                                                  |                                |                                                                                     |          |
|  Cable end-sleeves, trapezoid crimping                                      | 0.14 - 6                       |    | KP312    |
|  Cable end-sleeves, square crimping                                         | 0.14 - 10                      |    | KP303    |
|  Cable end-sleeves, square crimping                                         | 10 - 16                        |    | KP304    |
|  Cable end-sleeves, round crimping                                          | 0.14 - 2.5                     |    | KP350    |
|  Cable end-sleeves, round crimping for narrow chamber sizes                 | 1.5 - 6                        |    | KP351    |
|  Cable end-sleeves, round crimping for narrow chamber sizes                 | 10 - 16                        |    | KP352    |
|  Cable end-sleeves DIN 46228, part 2, roll-crimping                         | 0.5 - 2.5                      |    | KP66     |
| <b>Crimping heads for insulated cable connections</b>                                                                                                        |                                |                                                                                     |          |
|  Insulated cable connections (yellow and red)                               | 0.1 - 1                        |    | KP80     |
|  Insulated cable connections (red and blue)                                 | 0.5 - 2.5                      |    | KP81     |
|  Insulated cable connections (red, yellow, blue)                            | 0.5 - 6                        |    | KP82     |
|  Insulated cable connections (yellow)                                       | 4 - 6                          |    | KP83     |
| <b>Crimping heads for tubular cable lugs and terminals</b>                                                                                                   |                                |                                                                                     |          |
|  Tubular cable lugs and solderless terminals                                | 0.5 - 6                        |    | KP232    |
|  Tubular cable lugs and solderless terminals                                | 4 - 10                         |    | KP242    |
| <b>Crimping heads for photovoltaic</b>                                                                                                                       |                                |                                                                                     |          |
|  Connector for photovoltaics 3 mm dia.                                      | 2.5 - 4                        |    | KP90MC31 |
| <b>Crimping heads for receptacles</b>                                                                                                                        |                                |                                                                                     |          |
|  Part No. 3720. Receptacles 6.3 x 0.8 mm with lateral conductor connector   | 0.5 - 1                        |    | KP631    |
|  Part No. 3725, receptacles 6.3 x 0.8 mm with lateral conductor connector  | 0.5 - 1.5                      |   | KP64     |
|  Part No. 3735, receptacles 6.3 x 0.8 mm with lateral conductor connector | 1.5 - 2.5                      |  | KP632    |
|  For receptacles 2.8 mm tab width                                         | 0.1 - 1                        |  | KP67     |
|  For receptacles 4.8 mm tab width                                         | 0.5 - 2.5                      |  | KP65     |
|  For receptacles 6.3 mm tab width                                         | 0.5 - 2.5                      |  | KP68     |

EK 35/4 Battery powered crimping tool 6 - 150 mm<sup>2</sup>

- ▶ Large cross section range up to 150 mm<sup>2</sup>
- ▶ Slim crimping head - ideal when space is critical

## Characteristics

- For interchangeable dies, series 4, narrow crimping
- Closed crimping head, flip top style, rotatable
- One-button operating concept for controlling all tooling functions
- Ergonomic design for convenient one-hand operation
- Lightweight for effortless operations
- Powerful NiMH battery technology
- Fast crimping cycles for efficient operations
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data         |                                              |
|------------------------|----------------------------------------------|
| Crimping force         | 35 kN                                        |
| Stroke / opening width | 9 mm                                         |
| Crimping range         | 6 - 150 mm <sup>2</sup>                      |
| Crimping cycle         | 3 s to 4 s (depending on cross-section)      |
| Number of crimps       | approx. 140 at 120 mm <sup>2</sup> Cu        |
| Battery voltage        | 9.6 V                                        |
| Battery capacity       | 2.0 Ah, NiMH                                 |
| Charging time          | With fast charger 15 min., otherwise 40 min. |
| Weight incl. battery   | 1.7 kg                                       |
| Ambient temperature    | -20°C to +40 °C                              |

| Item                                                | Part No. |      |  |
|-----------------------------------------------------|----------|------|--|
| Battery powered hydraulic crimping tool 6 - 150 mm² | EK354    |      |  |
| Scope of supply                                     | Part No. | Page |  |
| Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh)              | RAM2     | 397  |  |
| Charger for NiCd and NiMH batteries                 | LG4F     | 399  |  |
| Plastic case 450 x 370 x 105 mm                     | KK35B2   |      |  |

| Accessories                                                  | Part No. | Page |
|--------------------------------------------------------------|----------|------|
| Digital meter for force and pressure measurement             | TC1U     | 406  |
| Battery 9.6 V / 3.0 Ah, NiMH (28.8 Wh)                       | RAM3     | 397  |
| USB adapter                                                  | PGA1     | 408  |
| Measuring adapter, series 4                                  | MA4      | 406  |
| Force sensor, 70 kN                                          | TF70L    | 406  |
| Quick charger for NiCd and NiMH batteries, 230 V mains power | LG5      | 399  |

| Variants                                                        | Part No.   | Page |
|-----------------------------------------------------------------|------------|------|
| EK 35/4 with crimping die set HR 4 from 6 - 150 mm <sup>2</sup> | EK354SETHR |      |
| EK 35/4 with crimping die set HD 4 from 6 - 120 mm <sup>2</sup> | EK354SETHD |      |

**Available dies for Series 4 for EK 35/4**

|                                                                                                 |    |                         |    | 416 |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, standard type, tubular cable lugs for switchgear connections |    | 6 - 150                 |    | 417 |
| Insulated tubular cable lugs and compression joints, standard type, insulated pin terminals     |    | 10 - 70                 |    | 417 |
| Tubular cable lugs and connectors for fine stranded conductors                                  |    | 10 - 35                 |    | 418 |
| Tubular cable lugs and compression joints for solid conductors                                  |    | 1.5 - 16                |    | 418 |
| Tubular cable lugs and connectors, Ni, stainless steel                                          |                                                                                     |                         |                                                                                     |     |
| Tubular cable lugs and connectors, stainless steel                                              |    | 0.5 - 16                |    | 418 |
| Tubular cable lugs and connectors, Ni                                                           |    | 0.5 - 16                |    | 418 |
| Copper compression cable lugs and connectors acc. to DIN                                        |                                                                                     |                         |                                                                                     |     |
| Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu                 |    | 6 - 120                 |    | 418 |
| Terminals, connectors and pin terminals acc. to DIN - Cu                                        |                                                                                     |                         |                                                                                     |     |
| Solderless terminals (DIN 46234) and pin terminals (DIN 46230) Cu, connectors (DIN 46341)       |    | 10 - 35                 |    | 419 |
| Insulated solderless terminals and pin terminals                                                |    | 10 - 16                 |    | 419 |
| Sleeves for compacted conductors and sector shaped conductors, Cu                               |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped conductors                               |    | 10 sm - 150 se / 120 sm |    | 419 |
| Aluminum Compression cable lugs and connectors acc. to DIN                                      |                                                                                     |                         |                                                                                     |     |
| Aluminum Compression cable lugs and connectors acc. to DIN                                      |    | 10 - 70                 |    | 420 |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182           |    | 25 - 50                 |    | 420 |
| Compression cable lugs and connectors - Al/Cu                                                   |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors - Al/Cu                                                   |   | 10 - 70                 |   | 420 |
| Clamps                                                                                          |                                                                                     |                         |                                                                                     |     |
| Clamps, C-type                                                                                  |  | 4 - 35                  |  | 420 |
| Cable end-sleeves                                                                               |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                               |  | 10 - 50                 |  | 420 |
| Twin cable end-sleeves                                                                          |  | 2 x 4 - 2 x 16          |  | 421 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                    |  | 10 - 50                 |  | 421 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors                               |  | 2 x 4 - 2 x 16          |  | 421 |

Please observe the restrictions in the technical index when crimping connectors!

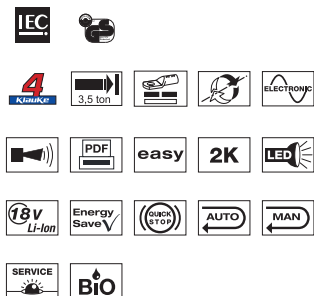
### EK 35/4-L Battery powered crimping tool 6 - 150 mm<sup>2</sup>



- ▶ Large cross section range up to 150 mm<sup>2</sup>
- ▶ Slim crimping head - ideal when space is critical
- ▶ High-performance 18V Lithium-ion battery with high capacity and extremely short charging time
- ▶ Equally efficient and safe working due to the benefits of Generation Safety Plus

#### Characteristics

- For interchangeable dies, series 4, narrow crimping
- Closed crimping head, flip top style, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings for comfortable and safe one-hand operation
- Lightweight for effortless operations
- LED for workplace illumination
- High-performance motors for fast crimping cycles and efficient operations
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data       |                                         |
|----------------------|-----------------------------------------|
| Crimping force       | 35 kN                                   |
| Stroke               | 9 mm                                    |
| Crimping range       | 6 - 150 mm <sup>2</sup>                 |
| Crimping cycle       | 3 s to 4 s (depending on cross-section) |
| Number of crimps     | approx. 140 at 120 mm <sup>2</sup> Cu   |
| Battery voltage      | 18 V                                    |
| Battery capacity     | 1.3 Ah, Li-Ion                          |
| Charging time        | 15 min.                                 |
| Weight incl. battery | 2.5 kg                                  |
| Ambient temperature  | -10°C to +40 °C                         |

| Item                                                | Part No. |      |
|-----------------------------------------------------|----------|------|
| Battery powered hydraulic crimping tool 6 - 150 mm² | EK354L   |      |
| Scope of supply                                     | Part No. | Page |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)             | RAL1     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V       | LGL1     | 400  |
| Plastic case                                        | KK50L    |      |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)            | RAL2     | 398  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter, series 4                      | MA4      | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |

| Variants                                                                              | Part No.    | Page |
|---------------------------------------------------------------------------------------|-------------|------|
| L-BOXX with battery powered hydraulic crimping tool EK354L, 0.5 - 150 mm <sup>2</sup> | LB0XXEK354L |      |

**Available dies for Series 4 for EK 35/4-L**

|                                                                                                     |    |                         |    | 416 |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type, tubular cable lugs for switchgear connections |    | 6 - 150                 |    | 417 |
| Insulated tubular cable lugs and compression joints, standard type, insulated pin terminals         |    | 10 - 70                 |    | 417 |
| Tubular cable lugs and connectors for fine stranded conductors                                      |    | 10 - 35                 |    | 418 |
| Tubular cable lugs and compression joints for solid conductors                                      |    | 1.5 - 16                |    | 418 |
| Tubular cable lugs and connectors, Ni, stainless steel                                              |                                                                                     |                         |                                                                                     |     |
| Tubular cable lugs and connectors, stainless steel                                                  |    | 0.5 - 16                |    | 418 |
| Tubular cable lugs and connectors, Ni                                                               |    | 0.5 - 16                |    | 418 |
| Copper compression cable lugs and connectors acc. to DIN                                            |                                                                                     |                         |                                                                                     |     |
| Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu                     |    | 6 - 120                 |    | 418 |
| Terminals, connectors and pin terminals acc. to DIN - Cu                                            |                                                                                     |                         |                                                                                     |     |
| Solderless terminals (DIN 46234) and pin terminals (DIN 46230) Cu, connectors (DIN 46341) Cu        |    | 10 - 35                 |    | 419 |
| Insulated solderless terminals and pin terminals                                                    |    | 10 - 16                 |    | 419 |
| Sleeves for compacted conductors and sector shaped conductors, Cu                                   |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped conductors                                   |    | 10 sm - 150 se / 120 sm |    | 419 |
| Aluminum compression cable lugs and connectors acc. to DIN                                          |                                                                                     |                         |                                                                                     |     |
| Aluminum compression cable lugs and connectors acc. to DIN                                          |    | 10 - 70                 |    | 420 |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182               |    | 25 - 50                 |    | 420 |
| Aluminum/copper compression cable lugs and connectors                                               |                                                                                     |                         |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                               |   | 10 - 70                 |   | 420 |
| Clamps                                                                                              |                                                                                     |                         |                                                                                     |     |
| Clamps, C-type                                                                                      |  | 4 - 35                  |  | 420 |
| Cable end-sleeves                                                                                   |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                   |  | 10 - 50                 |  | 420 |
| Twin cable end-sleeves                                                                              |  | 2 x 4 - 2 x 16          |  | 421 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                        |  | 10 - 50                 |  | 421 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors                                   |  | 2 x 4 - 2 x 16          |  | 421 |

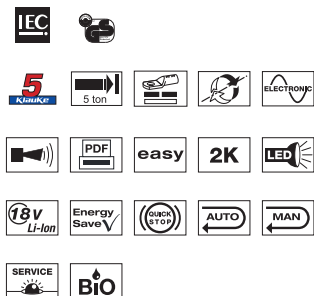
Please observe the restrictions in the technical index when crimping connectors!

EK 50/5-L Battery powered crimping tool 6 - 240 mm<sup>2</sup>

- ▶ High-performance crimping tool of the Klauke mini+ series - very large crimp range up to 240 mm<sup>2</sup> (tubular cable lugs only)
- ▶ Increased safety, performance and comfort through "Intelligent Pressing System" (IPS)
- ▶ Up to 95 mm<sup>2</sup> just one die for processing of 2 cross sections - only for tubular and compression cable lugs and connectors

## Characteristics

- For interchangeable dies, series 5, narrow crimping
- Closed crimping head, flip top style, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Lightweight for effortless operations
- LED for workplace illumination
- High-performance 18V Li-Ion battery with high capacity
- High-performance motors for fast crimping cycles and efficient operations
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data         |                                           |
|------------------------|-------------------------------------------|
| Crimping force         | 50 kN                                     |
| Stroke / opening width | 12 mm                                     |
| Crimping range         | 6 - 240 mm <sup>2</sup>                   |
| Crimping cycle         | 4 s to 5 s (depending on cross-section)   |
| Number of crimps       | approx. 300 at 150 mm <sup>2</sup> Cu DIN |
| Battery voltage        | 18 V                                      |
| Battery capacity       | 1.3 Ah, Li-Ion                            |
| Charging time          | 480 x 500 x 360 min.                      |
| Weight incl. battery   | 2.4 kg                                    |
| Ambient temperature    | -10°C to +40 °C                           |

| Item                                                | Part No. |      |
|-----------------------------------------------------|----------|------|
| Battery powered hydraulic crimping tool 6 - 240 mm² | EK505L   |      |
| Scope of supply                                     | Part No. | Page |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)             | RAL1     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V       | LGL1     | 400  |
| Plastic case                                        | KK50L    |      |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)            | RAL2     | 398  |
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter, series 5                      | MA5      | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |

| Variants                                                                            | Part No.    | Page |
|-------------------------------------------------------------------------------------|-------------|------|
| EK 50/5-L with crimping die set HR 5 from 6 - 240 mm <sup>2</sup>                   | EK505LSETHR |      |
| EK 50/5-L with crimping die set HD 5 from 6 - 185 mm <sup>2</sup>                   | EK505LSETHD |      |
| L-BOXX with battery powered hydraulic crimping tool EK505L, 6 - 240 mm <sup>2</sup> | LBOXXEK505L |      |



**Available dies for Series 5 for EK 50/5-L**

|                                                                                       |    |                         |    | 422 |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type                                  |    | 6 - 240                 |    | 422 |
| Insulated tubular cable lugs and connectors, insulated pin terminals                  |    | 10 - 95                 |    | 423 |
| Tubular cable lugs and connectors for fine stranded conductors                        |    | 10 - 50                 |    | 423 |
| Compression cable lugs and connectors acc. to DIN - Cu                                |                                                                                     |                         |                                                                                     |     |
| Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu       |    | 6 - 185                 |    | 423 |
| Terminals, connectors and pin terminals acc. to DIN - Cu                              |                                                                                     |                         |                                                                                     |     |
| Solderless terminals (DIN 46234) and pin terminals (DIN 46230)                        |    | 10 - 50                 |    | 424 |
| Sleeves for compacted conductors and sector shaped conductors, Cu                     |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped conductors                     |    | 10 sm - 300 se / 240 sm |    | 424 |
| Aluminum compression cable lugs and connectors acc. to DIN                            |                                                                                     |                         |                                                                                     |     |
| Aluminum compression cable lugs and connectors acc. to DIN                            |    | 10 - 150                |    | 425 |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182 |    | 25 - 95                 |    | 425 |
| Clamps                                                                                |                                                                                     |                         |                                                                                     |     |
| Clamps, C-type                                                                        |    | 16 - 35                 |    | 425 |
| Cable end-sleeves                                                                     |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                     |    | 10 - 95                 |    | 425 |
| Twin cable end-sleeves                                                                |    | 2 x 4 - 2 x 16          |    | 426 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                          |   | 10 - 95                 |   | 426 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors                     |  | 2 x 4 - 2 x 16          |  | 426 |

Please observe the restrictions in the technical index when crimping connectors!

EK 50/18-L Battery powered crimping tool 6 - 185 mm<sup>2</sup>

- ▶ For dies acc. to DIN 48083, page 1
- ▶ Increased safety, performance and comfort through "Intelligent Pressing System" (IPS)
- ▶ With automatic retract stop (ARS) for fast crimping cycles

## Characteristics

- For interchangeable dies, series 18, narrow crimping
- Open C-crimping head, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Lightweight for effortless operations
- LED for workplace illumination
- High-performance 18V Li-ion battery with high capacity
- High-performance motors for fast crimping cycles and efficient operations
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data         |                                           |
|------------------------|-------------------------------------------|
| Crimping force         | 50 kN                                     |
| Stroke / opening width | 17 mm                                     |
| Crimping range         | 6 - 185 mm <sup>2</sup>                   |
| Crimping cycle         | 5 s to 6 s (depending on cross-section)   |
| Number of crimps       | approx. 160 at 150 mm <sup>2</sup> Cu DIN |
| Battery voltage        | 18 V                                      |
| Battery capacity       | 1.3 Ah, Li-Ion                            |
| Charging time          | 15 min.                                   |
| Weight incl. battery   | 2.8 kg                                    |
| Ambient temperature    | -10°C to +40 °C                           |

| Item                                                            | Part No. |      |
|-----------------------------------------------------------------|----------|------|
| Battery powered hydraulic crimping tool 6 - 185 mm <sup>2</sup> | EK5018L  |      |
| Scope of supply                                                 | Part No. | Page |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)                         | RAL1     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V                   | LGL1     | 400  |
| Plastic case                                                    | KK50L    |      |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)            | RAL2     | 398  |
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter, series 18                     | MA18     | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |

**Available dies for Series 18 for EK 50/18-L**

|                                                                   |    |                |    |     |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|-----|
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    |     |
|                                                                   |    |                |    | 430 |
| Aluminum/copper compression cable lugs and connectors             |                                                                                     |                |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors             |    | 10 - 185       |    | 430 |
| Clamps                                                            |                                                                                     |                |                                                                                     |     |
| Clamps, C-type                                                    |    | 4 - 50         |    | 430 |
| Cable end-sleeves                                                 |                                                                                     |                |                                                                                     |     |
| Cable end-sleeves                                                 |   | 10 - 95        |   | 431 |
| Twin cable end-sleeves                                            |  | 2 x 4 - 2 x 16 |  | 431 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors      |  | 10 - 95        |  | 431 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors |  | 2 x 4 - 2 x 16 |  | 432 |
| Cutting die                                                       |                                                                                     |                |                                                                                     |     |
| Cutting range 18 mm                                               |                                                                                     | 18 mm dia.     |                                                                                     | 432 |

Please observe the restrictions in the technical index when crimping connectors!



### EKM 60/22-L Battery powered crimping tool 6 - 300 mm²



- ▶ Large crimping range up to 300 mm²
- ▶ Slim crimping head - ideal when space is critical
- ▶ Automatic retract stop (ARS) for positioning control in case of multiple crimpings

#### Characteristics

- For interchangeable dies, series 22, narrow crimping
- Closed crimping head, flip top style, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings for comfortable and safe one-hand operation
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18V Lithium-ion battery with high capacity and extremely short charging time
- High-performance motors for maximum operating speed
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data       |                                                   |
|----------------------|---------------------------------------------------|
| Crimping force       | 60 kN                                             |
| Stroke               | 17.5 mm                                           |
| Crimping range       | 6 - 300 mm²                                       |
| Crimping cycle       | 2 s (for ARS) to 5 s (depending on cross-section) |
| Number of crimps     | approx. 150 - 200 at 150 mm² Cu DIN               |
| Battery voltage      | 18 V                                              |
| Battery capacity     | 1.3 Ah, Li-Ion                                    |
| Charging time        | 15 min.                                           |
| Weight incl. battery | 3.0 kg                                            |
| Ambient temperature  | -10°C to +40 °C                                   |

| Item                                                | Part No. |      |
|-----------------------------------------------------|----------|------|
| Battery powered hydraulic crimping tool 6 - 300 mm² | EKM6022L |      |
| Scope of supply                                     | Part No. | Page |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)             | RAL1     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V       | LGL1     | 400  |
| Plastic case                                        | KK50L    |      |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)            | RAL2     | 398  |
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter, series 22                     | MA22     | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |

| Variants                                                                  | Part No.      | Page |
|---------------------------------------------------------------------------|---------------|------|
| L-BOXX with battery powered hydraulic crimping tool EKM6022L, 6 - 300 mm² | LBOXXEKM6022L |      |

**Available dies for Series 22 for EKM 60/22-L**

|                                                                                                                                  |    |                         |    | 433 |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type, tubular cable lugs for switchgear connections                              |    | 6 - 300                 |    | 434 |
| Insulated tubular cable lugs and connectors, insulated pin terminals                                                             |    | 10 - 150                |    | 434 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                   |    | 10 - 70                 |    | 435 |
| Tubular cable lugs and connectors for solid conductors                                                                           |    | 1.5 - 16                |    | 435 |
| <b>Tubular cable lugs and connectors, Ni, stainless steel</b>                                                                    |                                                                                     |                         |                                                                                     |     |
| Tubular cable lugs and connectors, stainless steel                                                                               |    | 0.5 - 16                |    | 435 |
| Tubular cable lugs and connectors, Ni                                                                                            |    | 10 - 50                 |    | 435 |
| <b>Compression cable lugs and connectors acc. to DIN - Cu</b>                                                                    |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu                                                         |    | 6 - 300                 |    | 436 |
| Double compression cable lugs                                                                                                    |    | 2 x 50 - 2 x 70         |    | 436 |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                                                                  |                                                                                     |                         |                                                                                     |     |
| Terminals (DIN 46234) and pin terminals (DIN 46230) Cu, solderless connectors (DIN 46341) Cu                                     |    | 10 - 70                 |    | 437 |
| Insulated terminals and pin terminals                                                                                            |    | 10 - 70                 |    | 437 |
| <b>Sleeves for compacted conductors and sector shaped conductors, Cu</b>                                                         |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped conductors                                                                |    | 10 sm - 300 se / 240 sm |    | 437 |
| <b>Aluminum compression cable lugs and connectors acc. to DIN</b>                                                                |                                                                                     |                         |                                                                                     |     |
| Aluminum compression cable lugs and connectors acc. to DIN                                                                       |    | 10 - 300                |    | 438 |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm² |   | 25 - 185                |   | 438 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, aluminum crimping                         |  | 25/4 - 120/20           |  | 439 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, steel crimping                            |  | 25/4 - 120/20           |  | 439 |
| <b>Aluminum/copper compression cable lugs and connectors</b>                                                                     |                                                                                     |                         |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                                            |  | 10 - 300                |  | 438 |
| <b>Clamps</b>                                                                                                                    |                                                                                     |                         |                                                                                     |     |
| Clamps, C-type                                                                                                                   |  | 4 - 50                  |  | 439 |
| Clamps, H-type                                                                                                                   |  | 70                      |  | 439 |
| <b>Cable end-sleeves</b>                                                                                                         |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                |  | 10 - 240                |  | 440 |
| Twin cable end-sleeves                                                                                                           |  | 2 x 4 - 2 x 16          |  | 440 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                     |  | 10 - 240                |  | 440 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors                                                                |  | 2 x 4 - 2 x 16          |  | 441 |

Please observe the restrictions in the technical index when crimping connectors!

EK 60/22-L Battery powered crimping tool 6 - 300 mm<sup>2</sup>

- ▶ Superior performance by special strong motor, 2-stage hydraulic system and 18V / 3.0 Ah Li-Ion battery
- ▶ Large crimping range up to 300 mm<sup>2</sup>
- ▶ Slim crimping head - ideal when space is critical

## Characteristics

- For interchangeable dies, series 22, narrow crimping
- Closed crimping head, flip top style, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery with high capacity
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data         |                                           |
|------------------------|-------------------------------------------|
| Crimping force         | 60 kN                                     |
| Stroke / opening width | 17 mm                                     |
| Crimping range         | 6 - 300 mm <sup>2</sup>                   |
| Crimping cycle         | 3 s to 5 s (depending on cross-section)   |
| Number of crimps       | approx. 300 at 150 mm <sup>2</sup> Cu DIN |
| Battery voltage        | 18 V                                      |
| Battery capacity       | 3.0 Ah, Li-Ion                            |
| Charging time          | 22 min.                                   |
| Weight incl. battery   | 4.2 kg                                    |
| Ambient temperature    | -12°C to +40 °C                           |

| Item                                                | Part No. |      |  |
|-----------------------------------------------------|----------|------|--|
| Battery powered hydraulic crimping tool 6 - 300 mm² | EK6022L  |      |  |
| Scope of supply                                     | Part No. | Page |  |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)               | RAL2     | 398  |  |
| Quick-charger for 18V Li-Ion batteries, 230 V       | LGL1     | 400  |  |
| Plastic case                                        | KK120L   |      |  |

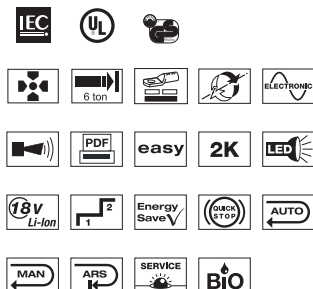
| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter, series 22                     | MA22     | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |

| Variants                                                            | Part No.    | Page |
|---------------------------------------------------------------------|-------------|------|
| EK 60/22-L with crimping die set R 22 from 16 - 240 mm <sup>2</sup> | EK6022LSETR |      |
| EK 60/22-L with crimping die set D 22 from 16 - 240 mm <sup>2</sup> | EK6022LSETD |      |

**Available dies for Series 22 for EK 60/22-L**

|                                                                                                                                     |    |                        |    | 433 |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type,<br>tubular cable lugs for switchgear connections                              |    | 6 - 300                |    | 434 |
| Insulated tubular cable lugs and connectors,<br>insulated pin terminals                                                             |    | 10 - 150               |    | 434 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                      |    | 10 - 70                |    | 435 |
| Tubular cable lugs and connectors for solid conductors                                                                              |    | 1.5 - 16               |    | 435 |
| <b>Tubular cable lugs and connectors, Ni, stainless steel</b>                                                                       |                                                                                     |                        |                                                                                     |     |
| Tubular cable lugs and connectors, stainless steel                                                                                  |    | 0.5 - 16               |    | 435 |
| Tubular cable lugs and connectors, Ni                                                                                               |    | 10 - 50                |    | 435 |
| <b>Compression cable lugs and connectors acc. to DIN - Cu</b>                                                                       |                                                                                     |                        |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors<br>(DIN 46267, part 1) Cu                                                         |    | 6 - 300                |    | 436 |
| Double crimping compression cable lugs                                                                                              |    | 2 x 50 - 2 x 70        |    | 436 |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                                                                     |                                                                                     |                        |                                                                                     |     |
| Terminals (DIN 46234) and pin terminals (DIN 46230) Cu,<br>solderless connectors (DIN 46341) Cu                                     |    | 10 - 70                |    | 437 |
| Insulated terminals and pin terminals                                                                                               |    | 10 - 70                |    | 437 |
| <b>Sleeves for compacted conductors and sector shaped conductors, Cu</b>                                                            |                                                                                     |                        |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped<br>conductors                                                                |    | 10 sm - 300 se / 240sm |    | 437 |
| <b>Aluminum compression cable lugs and connectors acc. to DIN</b>                                                                   |                                                                                     |                        |                                                                                     |     |
| Aluminum compression cable lugs and connectors acc. to DIN                                                                          |    | 10 - 300               |    | 438 |
| Compression joints for full tension connections of Aldrey cables acc.<br>to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm² |   | 25 - 185               |   | 438 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, aluminum crimping                         |  | 25/4 - 120/20          |  | 439 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, steel crimping                            |  | 25/4 - 120/20          |  | 439 |
| <b>Aluminum/copper compression cable lugs and connectors</b>                                                                        |                                                                                     |                        |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                                               |  | 10 - 300               |  | 438 |
| <b>Clamps</b>                                                                                                                       |                                                                                     |                        |                                                                                     |     |
| Clamps, C-type                                                                                                                      |  | 4 - 50                 |  | 439 |
| Clamps, H-type                                                                                                                      |  | 70                     |  | 439 |
| <b>Cable end-sleeves</b>                                                                                                            |                                                                                     |                        |                                                                                     |     |
| Cable end-sleeves                                                                                                                   |  | 10 - 240               |  | 440 |
| Twin cable end-sleeves                                                                                                              |  | 2 x 4 - 2 x 16         |  | 440 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                        |  | 10 - 240               |  | 440 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors                                                                   |  | 2 x 4 - 2 x 16         |  | 441 |

Please observe the restrictions in the technical index when crimping connectors!

EK 60 VP-L Battery powered crimping tool 10 - 240 mm<sup>2</sup>

| Suitable for                                                                       | Connection material | Crimping range mm <sup>2</sup> | Crimp profile |
|------------------------------------------------------------------------------------|---------------------|--------------------------------|---------------|
| Tubular cable lugs standard type and tubular cable lugs for switchgear connections |                     | 10 - 240                       |               |
| Connectors, Standard type                                                          |                     | 10 - 120                       |               |
| Tubular cable lugs for fine stranded conductors                                    |                     | 10 - 240                       |               |
| Connector for fine stranded conductors                                             |                     | 10 - 95                        |               |

- ▶ The patented centring system guarantees every time optimum crimping results
- ▶ With automatic retract stop (ARS) for fast crimping cycles
- ▶ Suitable for crimping tubular cable lugs and connectors "standard type" and fine and superfine stranded conductors to 240 mm<sup>2</sup>

## Characteristics

- Quad-point indent crimping feature with patented centring system, no dies required
- Open crimping head, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery with high capacity
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                                         |
|----------------------|-----------------------------------------|
| Crimping force       | 55 kN                                   |
| Crimping range       | 10 - 240 mm <sup>2</sup>                |
| Crimping cycle       | 3 s to 6 s (depending on cross-section) |
| Number of crimps     | approx. 300 at 150 mm <sup>2</sup> Cu   |
| Battery voltage      | 18 V                                    |
| Battery capacity     | 3.0 Ah, Li-Ion                          |
| Charging time        | 22 min.                                 |
| Weight incl. battery | 4.8 kg                                  |
| Ambient temperature  | -12°C to +40 °C                         |

| Item                                                             | Part No. |
|------------------------------------------------------------------|----------|
| Battery powered hydraulic crimping tool 10 - 240 mm <sup>2</sup> | EK60VPL  |
| Scope of supply                                                  |          |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                            | RAL2 316 |
| Quick-charger for 18V Li-Ion batteries, 230 V                    | LGL1 400 |
| Plastic case                                                     | KK120L   |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter VP                             | MAVP     | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |
| Gauge and 10 test cylinder                       | TS10B    |      |

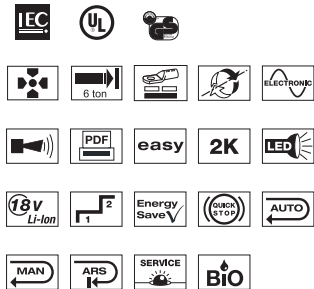


## EK 60 VP/FT-L Battery powered crimping tool 16 - 300 mm<sup>2</sup>

- ▶ The patented centring system guarantees every time optimum crimping results
- ▶ Closed crimping head - ideal for utility lines construction
- ▶ With automatic retract stop (ARS) for fast crimping cycles
- ▶ Suitable for crimping tubular cable lugs and connectors "standard type" and fine and superfine stranded conductors to 300 mm<sup>2</sup>

### Characteristics

- Quad-point indent crimping feature with patented centring system, no dies required
- Closed crimping head with bolt interlock, rotatable, flip top style
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery with high capacity
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data       |                                         |
|----------------------|-----------------------------------------|
| Crimping force       | 55 kN                                   |
| Crimping range       | 16 - 300 mm <sup>2</sup>                |
| Crimping cycle       | 3 s to 6 s (depending on cross-section) |
| Number of crimps     | approx. 300 at 150 mm <sup>2</sup> Cu   |
| Battery voltage      | 18 V                                    |
| Battery capacity     | 3.0 Ah, Li-Ion                          |
| Charging time        | 22 min.                                 |
| Weight incl. battery | 4.9 kg                                  |
| Ambient temperature  | -12°C to +40 °C                         |

| Item                                                             | Part No.  |      |
|------------------------------------------------------------------|-----------|------|
| Battery powered hydraulic crimping tool 16 - 300 mm <sup>2</sup> | EK60VPFTL |      |
| Scope of supply                                                  | Part No.  | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                            | RAL2      | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V                    | LGL1      | 400  |
| Plastic case                                                     | KK120L    |      |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter VP                             | MAVP     | 406  |
| Force sensor, 70 kN                              | TF70L    | 406  |
| Gauge and 10 test cylinder                       | TS10B    |      |



| Suitable for                                                                                    | Connection material | Crimping range mm <sup>2</sup> | Crimp profile |
|-------------------------------------------------------------------------------------------------|---------------------|--------------------------------|---------------|
| Tubular cable lugs and connectors, standard type, tubular cable lugs for switchgear connections |                     | 16 - 300                       |               |
| Tubular cable lugs and connectors for fine stranded conductors                                  |                     | 16 - 300                       |               |

## EKM 60 ID-L Battery powered crimping tool 10 - 240 mm²



- ▶ Extra large crimping area due to innovative 2-stage telescopic cylinders (patent pending)
- ▶ Indent crimping - no die changing required
- ▶ Specially developed for fine stranded conductors to VDE 0295 Class 5
- ▶ Compact dimensions with an extraordinary low weight

## Characteristics

- With innovative 2-stage telescopic cylinder
- Indent crimping - no dies required
- Closed crimping head, flip top style, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18V Li-Ion battery with high capacity
- High-performance motors for maximum operating speed
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Manual retract stop with "teach-in" (MRS+) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Suitable for                                                                                                                              | Connection material | Crimping range mm² | Crimp profile |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------|---------------|
| Tubular cable lugs standard type and tubular cable lugs for switchgear connections                                                        |                     | 16 - 240           |               |
| Tubular cable lugs and connectors for fine stranded conductors                                                                            |                     | 10 - 240           |               |
| Terminals (DIN 46234), connectors (DIN 46341) and pin terminals (DIN 46230) - Cu                                                          |                     | 10 - 240           |               |
| Aluminum compression cable lugs and connectors acc. to DIN                                                                                |                     | 50 - 240           |               |
| Aluminum compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm² |                     | 50 - 185           |               |
| Aluminum compression joints acc. to DIN 48085, part 2 for Al cables acc. to DIN EN 50182                                                  |                     | 50 - 240           |               |
| Aluminum/copper compression cable lugs and connectors                                                                                     |                     | 50 - 240           |               |

| Technical data         |                                                                        |
|------------------------|------------------------------------------------------------------------|
| Crimping force         | 30 - 60 kN                                                             |
| Stroke / opening width | 35.5 mm                                                                |
| Crimping range         | R-Line: Cu 16 - 240 mm² / Al 50 - 240 mm²<br>Q and F-Line: Cu 10 - 240 |
| Crimping cycle         | 2 s (for ARS) to 7 s (depending on cross-section)                      |
| Number of crimps       | approx. 100 - 300                                                      |
| Battery voltage        | 18 V                                                                   |
| Battery capacity       | 1.3 Ah, Li-Ion                                                         |
| Charging time          | 15 min.                                                                |
| Weight incl. battery   | 2.5 kg                                                                 |
| Ambient temperature    | -10°C to +40 °C                                                        |

| Item                                                 | Part No.    |      |
|------------------------------------------------------|-------------|------|
| Battery powered hydraulic crimping tool 10 - 240 mm² | EKM60IDL    |      |
| Scope of supply                                      | Part No.    | Page |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)              | RAL1        | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V        | LGL1        | 400  |
| L-BOXX with front handle (W/D/H: 442 x 357 x 151 mm) | LBOXX136LFG |      |

| Accessories                           | Part No. | Page |
|---------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage  | NG2230   | 399  |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh) | RAL2     | 398  |
| USB adapter                           | PGA1     | 408  |

**EK 120 ID-L Battery powered crimping tool 35 - 500 mm<sup>2</sup>**

- ▶ Indent crimping for superfine stranded conductors up to 500 mm<sup>2</sup>
- ▶ No dies required, multi purpose application

**Characteristics**

- Indent crimping - no dies required
- Closed crimping head, flip top style, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB-Adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18V Li-ion battery with high capacity
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data         |                                           |
|------------------------|-------------------------------------------|
| Crimping force         | 108 kN                                    |
| Stroke / opening width | 52 mm                                     |
| Crimping range         | 35 - 500 mm <sup>2</sup>                  |
| Crimping cycle         | 10 s to 11 s (depending on cross section) |
| Number of crimps       | approx. 115 at 150 mm <sup>2</sup> Cu DIN |
| Battery voltage        | 18 V                                      |
| Battery capacity       | 3.0 Ah, Li-Ion                            |
| Charging time          | 22 min.                                   |
| Weight incl. battery   | 6.8 kg                                    |
| Ambient temperature    | -12°C to +40 °C                           |

| Item                                          | Part No. |      |
|-----------------------------------------------|----------|------|
| Akkuhydraulisches Presswerkzeug 35 - 500 mm²  | EK120IDL |      |
| Scope of supply                               | Part No. | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)         | RAL2     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V | LGL1     | 400  |
| Plastic case                                  | KK120L   |      |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Force sensor, 130 kN                             | TF130L   | 406  |



EK 120/30-L Battery powered crimping tool 16 - 400 mm<sup>2</sup>

- ▶ Exceptionally easy handling of a 12 ton tool thanks to optimised weight distribution
- ▶ Very large crimping range to 400 mm<sup>2</sup>
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools

## Characteristics

- For interchangeable dies, series 13, wide crimping
- Open C-crimping head, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery with high capacity
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data         |                                           |
|------------------------|-------------------------------------------|
| Crimping force         | 120 kN                                    |
| Stroke / opening width | 30 mm                                     |
| Crimping range         | 16 - 400 mm <sup>2</sup>                  |
| Crimping cycle         | 7 s to 8 s (depending on cross-section)   |
| Number of crimps       | approx. 115 at 150 mm <sup>2</sup> Cu DIN |
| Battery voltage        | 18 V                                      |
| Battery capacity       | 3.0 Ah, Li-Ion                            |
| Charging time          | 22 min.                                   |
| Weight incl. battery   | 6.6 kg                                    |
| Ambient temperature    | -12°C to +40 °C                           |

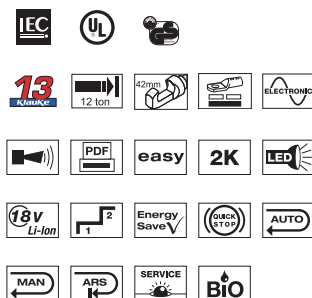
| Item                                                             | Part No. |      |
|------------------------------------------------------------------|----------|------|
| Battery powered hydraulic crimping tool 16 - 400 mm <sup>2</sup> | EK12030L |      |
| Scope of supply                                                  | Part No. | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                            | RAL2     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V                    | LGL1     | 400  |
| Plastic case                                                     | KK120L   |      |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter, series 13                     | MA120    | 406  |
| Force sensor, 130 kN                             | TF130L   | 406  |

**Available dies for Series 13 for EK 120/30-L**

|                                                                                                          |    |               |    |     |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|-----|
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, aluminum crimping |  | 24/4 - 120/20 |  | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, steel crimping    |  | 25/4 - 120/20 |  | 447 |
| <b>Aluminum/copper compression cable lugs and connectors</b>                                             |                                                                                     |               |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                    |  | 10 - 240      |  | 446 |
| <b>Clamps</b>                                                                                            |                                                                                     |               |                                                                                     |     |
| Clamps, C-type                                                                                           |  | 10 - 70       |  | 447 |
| Clamps, H-type                                                                                           |  | 70 - 120      |  | 447 |
| <b>Cable end-sleeves</b>                                                                                 |                                                                                     |               |                                                                                     |     |
| Cable end-sleeves                                                                                        |  | 25 - 240      |  | 448 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                             |  | 25 - 240      |  | 448 |

Please observe the restrictions in the technical index when crimping connectors!

EK 120/42-L Battery powered crimping tool 16 - 400 mm<sup>2</sup>

- ▶ C-Head with 42 mm opening width and very wide crimping range to 400 mm<sup>2</sup>
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools
- ▶ Easy handling by optimum weight distribution

## Characteristics

- For interchangeable dies, series 13, wide crimping
- Open C-crimping head, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-ion battery with high capacity
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data         |                                           |
|------------------------|-------------------------------------------|
| Crimping force         | 120 kN                                    |
| Stroke / opening width | 42 mm                                     |
| Crimping range         | 16 - 400 mm <sup>2</sup>                  |
| Crimping cycle         | 8 s to 9 s (depending on cross-section)   |
| Number of crimps       | approx. 115 at 150 mm <sup>2</sup> Cu DIN |
| Battery voltage        | 18 V                                      |
| Battery capacity       | 3.0 Ah, Li-Ion                            |
| Charging time          | 22 min.                                   |
| Weight incl. battery   | 6.8 kg                                    |
| Ambient temperature    | -12°C to +40 °C                           |

| Item                                                 | Part No. |      |  |
|------------------------------------------------------|----------|------|--|
| Battery powered hydraulic crimping tool 16 - 400 mm² | EK12042L |      |  |
| Scope of supply                                      | Part No. | Page |  |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                | RAL2     | 398  |  |
| Quick-charger for 18V Li-Ion batteries, 230 V        | LGL1     | 400  |  |
| Plastic case                                         | KK120L   |      |  |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter, series 13                     | MA120    | 406  |
| Force sensor, 130 kN                             | TF130L   | 406  |

**Available dies for Series 13 for EK 120/42-L**

|                                                                                                                                                 |    |                         |    | 442 |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type,<br>tubular cable lugs for switchgear connections                                          |    | 16 - 400                |    | 443 |
| Insulated tubular cable lugs and connectors,<br>insulated pin terminals                                                                         |    | 10 - 150                |    | 443 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                                  |    | 16 - 150                |    | 444 |
| <b>Compression cable lugs and connectors acc. to DIN - Cu</b>                                                                                   |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors<br>(DIN 46267, part 1) Cu                                                                     |    | 16 - 300                |    | 444 |
| Double compression cable lugs                                                                                                                   |    | 2 x 50 - 2 x 95         |    | 444 |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                                                                                 |                                                                                     |                         |                                                                                     |     |
| Terminals (DIN 46234) and pin terminals (DIN 46230) Cu,<br>solderless connectors (DIN 46341) Cu                                                 |    | 16 - 150                |    | 445 |
| Insulated terminals and pin terminals                                                                                                           |    | 10 - 95                 |    | 445 |
| <b>Sleeves for compacted conductors and sector shaped conductors, Cu</b>                                                                        |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped<br>conductors                                                                            |    | 10 sm - 300 se / 300 sm |    | 445 |
| <b>Aluminum compression cable lugs and connectors acc. to DIN</b>                                                                               |                                                                                     |                         |                                                                                     |     |
| Aluminum compression cable lugs and connectors acc. to DIN                                                                                      |    | 10 - 240                |    | 446 |
| Compression joints for full tension connections of Aldrey cables acc.<br>to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm <sup>2</sup> |    | 25 - 185                |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, aluminum crimping                                     |    | 25/4 - 120/20           |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, steel crimping                                        |    | 25/4 - 120/20           |    | 447 |
| <b>Aluminum/copper compression cable lugs and connectors</b>                                                                                    |                                                                                     |                         |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                                                           |   | 10 - 240                |   | 446 |
| <b>Clamps</b>                                                                                                                                   |                                                                                     |                         |                                                                                     |     |
| Clamps, C-type                                                                                                                                  |  | 10 - 70                 |  | 447 |
| Clamps, H-type                                                                                                                                  |  | 70 - 120                |  | 447 |
| <b>Cable end-sleeves</b>                                                                                                                        |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                               |  | 25 - 240                |  | 448 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                                    |  | 25 - 240                |  | 448 |

Please observe the restrictions in the technical index when crimping connectors!



EK 120 U-L Battery powered crimping tool 16 - 400 mm<sup>2</sup>

- ▶ H-head for deep groove crimping
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools

## Characteristics

- For interchangeable dies, series 13, wide crimping
- Closed H-crimping head, rotatable
- Electronic control and monitoring of crimping operation
- Integrated pressure measurement with visual and audible signals in case of failure
- Evaluation function using optical interface and USB adapter
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings for comfortable and safe one-hand operation
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18V Lithium-ion battery with high capacity and extremely short charging time
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful crimping process
- Quick motor stop for high user safety
- Automatic retraction when crimping is complete
- Manual retract in case of need
- Automatic retract stop (ARS) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data         |                                           |
|------------------------|-------------------------------------------|
| Crimping force         | 120 kN                                    |
| Stroke / opening width | 20 mm                                     |
| Crimping range         | 16 - 400 mm <sup>2</sup>                  |
| Crimping cycle         | 7 s to 8 s (depending on cross-section)   |
| Number of crimps       | approx. 115 at 150 mm <sup>2</sup> Cu DIN |
| Battery voltage        | 18 V                                      |
| Battery capacity       | 3.0 Ah, Li-Ion                            |
| Charging time          | 22 min.                                   |
| Weight incl. battery   | 6.0 kg                                    |
| Ambient temperature    | -12°C to +40 °C                           |

| Item                                                             | Part No. |      |
|------------------------------------------------------------------|----------|------|
| Battery powered hydraulic crimping tool 16 - 400 mm <sup>2</sup> | EK120UL  |      |
| Scope of supply                                                  | Part No. | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                            | RAL2     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V                    | LGL1     | 400  |
| Plastic case                                                     | KK120L   |      |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage             | NG2230   | 399  |
| USB adapter                                      | PGA1     | 408  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Measuring adapter, series 13                     | MA120    | 406  |
| Force sensor, 130 kN                             | TF130L   | 406  |



**Available dies for Series 13 for EK 120 U-L**

|                                                                                                                                  |    |                         |    | 442 |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type, tubular cable lugs for switchgear connections                              |    | 16 - 400                |    | 443 |
| Insulated tubular cable lugs and compression joints                                                                              |    | 10 - 150                |    | 443 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                   |    | 16 - 150                |    | 444 |
| <b>Compression cable lugs and connectors acc. to DIN - Cu</b>                                                                    |                                                                                     |                         |                                                                                     |     |
| Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu                                                  |    | 16 - 300                |    | 444 |
| Double compression cable lugs                                                                                                    |    | 2 x 50 - 2 x 95         |    | 444 |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                                                                  |                                                                                     |                         |                                                                                     |     |
| Terminals (DIN 46234) and pin terminals (DIN 46230) Cu, solderless connectors (DIN 46341) Cu                                     |    | 16 - 150                |    | 445 |
| Insulated terminals and pin terminals                                                                                            |    | 10 - 95                 |    | 445 |
| <b>Sleeves for compacted conductors and sector shaped conductors, Cu</b>                                                         |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped conductors, 3 and 4 core sector shaped conductors                         |    | 10 sm - 300 se / 300 sm |    | 445 |
| <b>Compression cable lugs and connectors acc. to DIN - Al</b>                                                                    |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors acc. to DIN - Al                                                                           |    | 10 - 240                |    | 446 |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm² |    | 25 - 185                |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, aluminum crimping                         |    | 25/4 - 120/20           |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, steel crimping                            |    | 25/4 - 120/20           |    | 447 |
| <b>Compression cable lugs and connectors - Al/Cu</b>                                                                             |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors - Al/Cu                                                                                    |   | 10 - 240                |   | 446 |
| <b>Clamps and screw connectors</b>                                                                                               |                                                                                     |                         |                                                                                     |     |
| C-clamps                                                                                                                         |  | 10 - 70                 |  | 447 |
| H-clamps                                                                                                                         |  | 70 - 120                |  | 447 |
| <b>Cable end-sleeves</b>                                                                                                         |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                |  | 25 - 240                |  | 448 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                     |  | 25 - 240                |  | 448 |

Please observe the restrictions in the technical index when crimping connectors!



## Battery powered hydraulic cutting tools.

Klauke cutting tools combine 2 essential forces: the force of the innovative battery powered systems and the force of the cutting heads - in a compact lightweight design. Cables with or without armouring up to 105 mm diameter, as well as Al/St ropes, are cut quickly, accurately and effortlessly at the touch of a button. The astonishingly low weight of the tools and cutting heads helps the user and permits prolonged periods of operation at full performance.

High cutting performance is not everything. The Klauke® mini+ reliably cuts cables at the touch of a button, even in tight spaces such as control cabinets.



- Manual retract stop - MRS.
- Cutting tools with 15 kN to 120 kN cutting force.
- Cutting tools to 105 mm dia., also for armoured cables.
- Incredibly lightweight for the performance class.

## ■ Powerful tools for cables up to 105 mm dia.

- ▶ **High cutting capacities up to 105 mm dia.**
- ▶ Remarkably lightweight for tools in this performance and size class.

### Benefits:

- ▶ Despite their relatively low weight, the high stability of the cutting heads mean they perform well even under extreme load.



## ■ Small design, huge performance: Klauke® mini and Klauke® mini+

- ▶ Ergonomic design for convenient one-hand operation.
- ▶ Lightweight, from 1.3 kg including battery.



### Benefits:

- ▶ The Klauke® mini+ combines a host of established benefits with the technical features of the new Safety Plus generation - making work even in the tightest spaces even more efficient and safer.
- ▶ The design and low weight permit use even in tight areas, for example in control cabinets.

## ■ Improved cutting using the right tools.

| System        | Tool    | Design    |             | Cutting range mm dia. | Cutting force kN <sup>2)</sup> | Application           |                |                |              | Features                                                                  |
|---------------|---------|-----------|-------------|-----------------------|--------------------------------|-----------------------|----------------|----------------|--------------|---------------------------------------------------------------------------|
|               |         | Open head | Closed head |                       |                                | Cu / Al <sup>1)</sup> | Al / St (ACSR) | Cu / Al, solid | Steel, solid |                                                                           |
| Klauke mini   | EBS8    | ✓         |             | 8                     | 15                             |                       |                |                | ✓            | For cutting wire basket tray and steel bolts.                             |
|               | EBS12   | ✓         |             | 12                    | 35                             |                       |                |                | ✓            |                                                                           |
|               | ES20    | ✓         |             | 20                    | 23                             | ✓                     | ✓              |                |              | Suitable for Al/St ropes.                                                 |
|               | ES32    | ✓         |             | 32                    | 15                             | ✓                     |                |                |              | For Al and Cu cables to 32 mm dia.                                        |
|               | ES32F   | ✓         |             | 32                    | 15                             | ✓                     |                |                |              | Ideal solution for superfine stranded conductors.                         |
| Klauke mini+  | EBS8L   | ✓         |             | 8                     | 15                             |                       |                |                | ✓            | For cutting wire basket tray and steel bolts.                             |
|               | EBS12L  | ✓         |             | 12                    | 35                             |                       |                |                | ✓            |                                                                           |
|               | ES20L   | ✓         |             | 20                    | 23                             | ✓                     | ✓              |                |              | Suitable for Al/St ropes.                                                 |
|               | ESG25L  |           |             | 25                    | 60                             | ✓                     | ✓              | ✓              | ✓            | The "universal cutter" to 25 mm dia.                                      |
|               | ES32L   | ✓         |             | 32                    | 15                             | ✓                     |                |                |              | For Al and Cu cables to 32 mm dia.                                        |
|               | ES32FL  | ✓         |             | 32                    | 15                             | ✓                     |                |                |              | Ideal solution for superfine stranded conductors.                         |
| Klauke mini   | ESG45L  |           | ✓           | 45                    | 60                             | ✓                     | ✓              | ✓              | ✓            | Especially for Al/St ropes to 45 mm dia.                                  |
|               | ESG50L  |           | ✓           | 48                    | 60                             | ✓                     |                |                |              | Compact and lightweight cutting tool.                                     |
|               | ES65L   | ✓         |             | 65                    | 40                             | ✓                     |                |                |              | Ideal for cutting earth cables to 65 mm dia.                              |
| Klauke mini+2 | ESG55L  |           | ✓           | 55                    | 120                            | ✓                     | ✓              | ✓              | ✓            | With 120 kN cutting force for all cables and Al/St ropes up to 55 mm dia. |
|               | ESG85L  |           | ✓           | 85                    | 60                             | ✓                     |                |                |              | For cutting copper and aluminum cables to 85 mm dia.                      |
|               | ES85L   | ✓         |             | 85                    | 30                             | ✓                     |                |                |              | For cutting telecommunication and earth cables to 85 mm dia.              |
|               | ESG105L |           | ✓           | 105                   | 120                            | ✓                     |                | ✓              |              | Very wide cutting range to 105 mm dia. - also for armoured cables.        |
|               | ES105L  | ✓         |             | 105                   | 74                             | ✓                     |                |                |              | Also for fine stranded cables to 105 mm dia.                              |

<sup>1)</sup> This column also includes Cu / Al multi-stranded and Cu / Al with sheet metal and wire armouring.

<sup>2)</sup> The exact cutting capacity depends on the type of cable or rope.

## EBS 8 / EBS 12 Battery powered bolt cutting tool 8 mm dia. / 12 mm dia.



- ▶ For cutting cable channels, bolts and steel wire, medium-hard (e.g. ST 37)
- ▶ Slim cutting head - ideal when space is critical

## Characteristics

- Open cutting head, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic design for convenient one-hand operation
- Lightweight for effortless operations
- Powerful NiMH battery technology
- Quick motor stop for high user safety
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Automatic retraction when cut is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data       |                                                         |
|----------------------|---------------------------------------------------------|
| Cutting range        | EBS8: max. 8 mm dia., EBS12: max. 12 mm dia.            |
| Cutting force        | EBS8: 15 kN, EBS12: 45 kN                               |
| Cutting time         | EBS8: 2 s, EBS12: 4 s (depending on material thickness) |
| Number of cuts       | approx. 300 for bolts 5 mm dia.                         |
| Battery voltage      | 9.6 V                                                   |
| Battery capacity     | 2.0 Ah, NiMH                                            |
| Charging time        | With fast charger 15 min., otherwise 40 min.            |
| Weight incl. battery | EBS8: 1.3 kg, EBS12: 1.9 kg                             |
| Ambient temperature  | -20°C to +40 °C                                         |

| Item                                                   | Part No.     |      |
|--------------------------------------------------------|--------------|------|
| Battery powered hydraulic bolt cutting tool 8 mm dia.  | <b>EBS8</b>  |      |
| Battery powered hydraulic bolt cutting tool 12 mm dia. | <b>EBS12</b> |      |
| Scope of supply                                        | Part No.     | Page |
| Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh)                 | RAM2         | 397  |
| Charger for NiCd and NiMH batteries                    | LG4F         | 399  |
| Plastic case 450 x 370 x 105 mm                        | KK35B2       |      |

| Accessories                                                  | Part No. | Page |
|--------------------------------------------------------------|----------|------|
| Quick charger for NiCd and NiMH batteries, 230 V mains power | LG5      | 399  |
| USB adapter                                                  | PGA1     | 408  |

**EBS 8-L / EBS 12-L Battery powered bolt cutting tool 8 mm dia. / 12 mm dia.**

- ▶ For cutting cable channels, bolts and medium-hard steel wire (e.g. mild steel)
- ▶ Slim cutting head - ideal when space is critical
- ▶ Powerful 18V Lithium-Ion batteries

**Characteristics**

- Open cutting head, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings for comfortable and safe one-hand operation
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18 V Lithium-ions batteries with high capacity and extremely short charging time
- High-performance motors for maximum operating speed
- Energy saving function by stopping motor after successful cutting operation
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Multifunction LED for maintenance control and charging display of the battery
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                                                                              |
|----------------------|------------------------------------------------------------------------------|
| Cutting range        | EBS8L: max. 8 mm dia., EBS12L: max. 12 mm dia.                               |
| Cutting force        | EBS8L: 15 kN, EBS12L: approx. 45 kN                                          |
| Cutting time         | EBS8L: approx. 1 s, EBS12L: approx. 2 s<br>(depending on material thickness) |
| Number of cuts       | approx. 300 for bolts 5 mm dia.                                              |
| Battery voltage      | 18 V                                                                         |
| Battery capacity     | 1.3 Ah, Li-Ion                                                               |
| Charging time        | 15 min.                                                                      |
| Weight incl. battery | EBS8L: 1.55 kg, EBS12L: approx. 2 kg                                         |
| Ambient temperature  | -10°C to +40 °C                                                              |

| Item                                                   | Part No.      |
|--------------------------------------------------------|---------------|
| Battery powered hydraulic bolt cutting tool 8 mm dia.  | <b>EBS8L</b>  |
| Battery powered hydraulic bolt cutting tool 12 mm dia. | <b>EBS12L</b> |

| Scope of supply                               | Part No. | Page |
|-----------------------------------------------|----------|------|
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)       | RAL1     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V | LGL1     | 400  |
| Plastic case                                  | KK50L    |      |

| Accessories                           | Part No. | Page |
|---------------------------------------|----------|------|
| USB adapter                           | PGA1     | 408  |
| 18 V mains adapter for 240 V Voltage  | NG2230   | 399  |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh) | RAL2     | 398  |



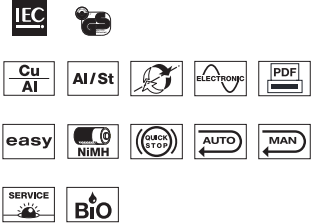
ES 20 Battery powered cutting tool 20 mm dia.



- ▶ For cutting Al/St conductors (ACSR) to DIN EN 50182, solid Al/Cu cables to VDE 0295, Class 1 and laminated copper bus bars
- ▶ Extremely robust design and lightweight

Characteristics

- Open cutting head, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic design for convenient one-hand operation
- Lightweight for effortless operations
- Powerful NiMH battery technology
- Quick motor stop for high user safety
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Automatic retraction when cut is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable



ES20E

| Technical data      |                                                          |
|---------------------|----------------------------------------------------------|
| Cutting range       | Multi-stranded max. 20 mm dia. (depending on cable type) |
| Cutting time        | 4 s to 6 s (depending on material thickness)             |
| Number of cuts      | approx. 180 for ACSR cable 120/20                        |
| Battery voltage     | 9.6 V                                                    |
| Battery capacity    | 2.0 Ah, NiMH                                             |
| Charging time       | With fast charger 15 min., otherwise 40 min.             |
| Ambient temperature | -20°C to +40 °C                                          |

| Item                                              | Part No. |      |
|---------------------------------------------------|----------|------|
| Battery powered hydraulic cutting tool 20 mm dia. | ES20     |      |
| Scope of supply                                   |          | Page |
| Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh)            | RAM2     | 397  |
| Charger for NiCd and NiMH batteries               | LG4F     | 399  |
| Plastic case 450 x 370 x 105 mm                   | KK35B2   |      |

| Accessories                                                  | Part No. | Page |
|--------------------------------------------------------------|----------|------|
| Replacement blade set for ES20                               | ES20E    |      |
| Quick charger for NiCd and NiMH batteries, 230 V mains power | LG5      | 399  |
| USB adapter                                                  | PGA1     | 408  |

**ES 20-L Battery powered cutting tool 20 mm dia.**

- ▶ For cutting Al/St conductors (ACSR) to DIN EN 50182, solid Al/Cu cables to VDE 0295, Class 1 and laminated copper bus bars
- ▶ Extremely robust design and lightweight
- ▶ Slim cutting head - ideal when space is critical
- ▶ High-performance 18 V Li-Ion battery

**Characteristics**

- Open cutting head, rotatable
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings for comfortable and safe one-hand operation
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18 V Lithium-ion battery with high capacity and extremely short charging time
- High-performance motors for maximum operating speed
- Energy saving function by stopping motor after successful cutting operation
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                                      |
|----------------------|--------------------------------------|
| Cutting range        | max. 20 mm dia.                      |
| Cutting force        | 23 kN                                |
| Cutting time         | 2 s to 4 s (depending on cable type) |
| Number of cuts       | approx. 160 cuts (ACSR cable 120/20) |
| Battery voltage      | 18 V                                 |
| Battery capacity     | 1.3 Ah, Li-Ion                       |
| Charging time        | 15 min.                              |
| Weight incl. battery | 2.13 kg                              |
| Ambient temperature  | -10°C to +40 °C                      |

| Item                                              | Part No.     |          |
|---------------------------------------------------|--------------|----------|
| Battery powered hydraulic cutting tool 32 mm dia. | <b>ES20L</b> |          |
| Scope of supply                                   |              | Page     |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)           |              | RAL1 398 |
| Quick-charger for 18V Li-Ion batteries, 230 V     |              | LGL1 400 |
| Plastic case                                      |              | KK50L    |

| Accessories                           | Part No. | Page |
|---------------------------------------|----------|------|
| Replacement blade set for ES20        | ES20E    |      |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh) | RAL2     | 398  |
| 18 V mains adapter for 240 V Voltage  | NG2230   | 399  |
| USB adapter                           | PGA1     | 408  |


**ES20E**

## ESG 25-L Battery powered cutting tool 25 mm dia.



ESG25EF



ESG25ES

- ▶ For cutting Al/St cables (ACSR), round materials (Cu, Al, St) as well as armoured cables, solid structural steel and fine stranded copper cables
- ▶ High-performance cutting characteristics for highly-flexible conductors and wire cables
- ▶ Extremely robust design and lightweight

## Characteristics

- Closed cutting head, flip top style, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18 V Li-Ion battery
- Quick motor stop for high user safety
- High-performance motors for maximum operating speed
- Energy saving function by stopping motor after successful cutting operation
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                       |
|----------------------|-----------------------|
| Cutting range        | max. 25 mm dia.       |
| Cutting force        | 60 kN                 |
| Cutting time         | Depending on material |
| Number of cuts       | Depending on material |
| Battery voltage      | 18 V                  |
| Battery capacity     | 1.3 Ah, Li-Ion        |
| Charging time        | 650 x 180 x 150 min.  |
| Weight incl. battery | 2.1 kg                |
| Ambient temperature  | -10°C to +40 °C       |

| Item                                              | Part No. |      |
|---------------------------------------------------|----------|------|
| Battery powered hydraulic cutting tool 25 mm dia. | ESG25L   |      |
| Scope of supply                                   | Part No. | Page |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)           | RAL1     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V     | LGL1     | 400  |
| Plastic case                                      | KK50L    |      |

| Accessories                           | Part No. | Page |
|---------------------------------------|----------|------|
| Outer fixed blade                     | ESG25EF  |      |
| Inner moving blade                    | ESG25ES  |      |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh) | RAL2     | 398  |
| 18 V mains adapter for 240 V Voltage  | NG2230   | 399  |
| USB adapter                           | PGA1     | 408  |



**ES 32 / ES 32 F Battery powered cutting tool 32 mm dia.**

- ▶ Cuts multi-stranded copper and aluminum cables (ES 32)
- ▶ Cuts fine and superfine stranded copper cables (ES 32 F)
- ▶ Slim cutting head - ideal when space is critical

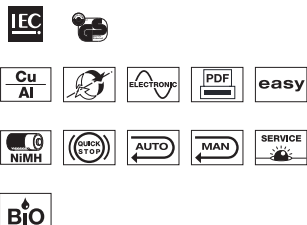
**Characteristics**

- Open cutting head, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic design for convenient one-hand operation
- Lightweight for effortless operations
- Automatic retraction when cut is complete
- Powerful NiMH battery technology
- Quick motor stop for high user safety
- Manual retract in case of need
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                                                    |
|----------------------|----------------------------------------------------|
| Cutting range        | max. 32 mm dia.                                    |
| Cutting force        | 15 kN                                              |
| Cutting time         | 8 s to 10 s (depending on material thickness)      |
| Number of cuts       | approx. 90 cuts at H07V-K; 1 x 240 mm <sup>2</sup> |
| Battery voltage      | 9.6 V                                              |
| Battery capacity     | 2.0 Ah, NiMH                                       |
| Charging time        | With fast charger 15 min., otherwise 40 min.       |
| Weight incl. battery | 1.9 kg                                             |
| Ambient temperature  | -20°C to +40 °C                                    |

| Item                                                                  | Part No.     |      |
|-----------------------------------------------------------------------|--------------|------|
| Battery powered hydraulic cutting tool 32 mm dia.                     | <b>ES32</b>  |      |
| Battery powered hydraulic cutting tool 32 mm dia., superfine stranded | <b>ES32F</b> |      |
| Scope of supply                                                       | Part No.     | Page |
| Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh)                                | RAM2         | 397  |
| Charger for NiCd and NiMH batteries                                   | LG4F         | 399  |
| Plastic case 450 x 370 x 105 mm                                       | KK35B2       |      |

| Accessories                                                  | Part No. | Page |
|--------------------------------------------------------------|----------|------|
| Replacement blade set for ES 32 and ES 32-L                  | ES32E    |      |
| Replacement blade set for ES 32 F and ES 32 F-L              | ES32FE   |      |
| Quick charger for NiCd and NiMH batteries, 230 V mains power | LG5      | 399  |
| USB adapter                                                  | PGA1     | 408  |



### ES 32-L / ES 32 F-L Battery powered cutting tool 32 mm dia.



ES32E



ES32FE



- ▶ Cuts multi-stranded copper and aluminum cables (ES 32-L)
- ▶ Cuts fine and superfine stranded copper cables (ES 32 F-L)
- ▶ Slim cutting head - ideal when space is critical

#### Characteristics

- Open cutting head, rotatable
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-ion battery with high capacity
- High-performance motors for maximum operating speed
- Automatic retraction when cut is complete
- Energy saving function by stopping motor after successful cutting operation
- Quick motor stop for high user safety
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                                                                                                          |
|----------------------|----------------------------------------------------------------------------------------------------------|
| Cutting range        | max. 32 mm dia.                                                                                          |
| Cutting force        | 15 kN                                                                                                    |
| Cutting time         | 2 s to 4 s (depending on cable type)                                                                     |
| Number of cuts       | approx. 150 cuts at H07V-R; 1 x 240 mm <sup>2</sup> , approx. 60 cuts for H07V-K 1 x 240 mm <sup>2</sup> |
| Battery voltage      | 18 V                                                                                                     |
| Battery capacity     | 1.3 Ah, Li-Ion                                                                                           |
| Charging time        | 15 min.                                                                                                  |
| Weight incl. battery | 2.0 kg                                                                                                   |
| Ambient temperature  | -10°C to +40 °C                                                                                          |

| Item                                                                  | Part No.      |
|-----------------------------------------------------------------------|---------------|
| Battery powered hydraulic cutting tool 32 mm dia.                     | <b>ES32L</b>  |
| Battery powered hydraulic cutting tool 32 mm dia., superfine stranded | <b>ES32FL</b> |
| Scope of supply                                                       |               |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)                               | RAL1 398      |
| Quick-charger for 18V Li-Ion batteries, 230 V                         | LGL1 400      |
| Plastic case                                                          | KK50L         |

| Accessories                                     | Part No. | Page |
|-------------------------------------------------|----------|------|
| Replacement blade set for ES 32 and ES 32-L     | ES32E    | 343  |
| Replacement blade set for ES 32 F and ES 32 F-L | ES32FE   | 343  |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)           | RAL2     | 398  |
| 18 V mains adapter for 240 V Voltage            | NG2230   | 399  |
| USB adapter                                     | PGA1     | 408  |

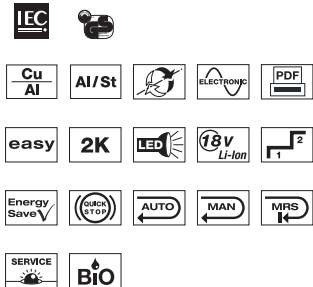
| Variants                         | Part No.   | Page |
|----------------------------------|------------|------|
| L-BOXX with cutting tool ES 32-L | LBOXXES32L |      |

**ESG 45-L Battery powered cutting tool 45 mm dia.**

- ▶ High cutting force cuts armoured copper and aluminum cables and Al/St cables (ACSR)
- ▶ Also suitable for round material made of Al, Cu and Steel
- ▶ Extremely robust design and lightweight

**Characteristics**

- Closed cutting head with bolt interlock, rotatable, flip top style
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery
- Energy saving function by stopping motor after successful cutting operation
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



|                                                   |                                        |      |
|---------------------------------------------------|----------------------------------------|------|
| Technical data                                    |                                        |      |
| Cutting range                                     | max. 45 mm dia.                        |      |
| Cutting force                                     | 60 kN                                  |      |
| Cutting time                                      | 8 s to 18 s (depending on material)    |      |
| Number of cuts                                    | approx. 150 cuts at Al/St cable 570/40 |      |
| Battery voltage                                   | 18 V                                   |      |
| Battery capacity                                  | 3.0 Ah, Li-Ion                         |      |
| Charging time                                     | 22 min.                                |      |
| Weight incl. battery                              | 5.7 kg                                 |      |
| Ambient temperature                               | -12°C to +40 °C                        |      |
| Item                                              | Part No.                               |      |
| Battery powered hydraulic cutting tool 45 mm dia. | ESG45L                                 |      |
| Scope of supply                                   | Part No.                               | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)             | RAL2                                   | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V     | LGL1                                   | 400  |
| Plastic case                                      | KK120L                                 |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| Outer fixed blade                    | ESG45EF  |      |
| Inner moving blade                   | ESG45ES1 |      |
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |



ESG45EF



ESG45ES1

## ESG 50-L Battery powered cutting tool 48 mm dia.



- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Lightweight for effortless operations

## Characteristics

- Closed cutting head, flip top style, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings for comfortable and safe one-hand operation
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18V Lithium-ion battery with high capacity and extremely short charging time
- Energy saving function by stopping motor after successful cutting operation
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



ESG50EF1



ESG50ES

| Technical data       |                                                |
|----------------------|------------------------------------------------|
| Cutting range        | max. 48 mm dia.                                |
| Cutting force        | 60 kN                                          |
| Cutting time         | 8 s to 20 s (depending on material thickness)  |
| Number of cuts       | approx. 140 cuts at 4 x 120 mm <sup>2</sup> NY |
| Battery voltage      | 18 V                                           |
| Battery capacity     | 3.0 Ah, Li-Ion                                 |
| Charging time        | 22 min.                                        |
| Weight incl. battery | 4.7 kg                                         |
| Ambient temperature  | -12°C to +40 °C                                |

| Item                                              | Part No.      |      |
|---------------------------------------------------|---------------|------|
| Battery powered hydraulic cutting tool 48 mm dia. | <b>ESG50L</b> |      |
| Scope of supply                                   | Part No.      | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)             | RAL2          | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V     | LGL1          | 400  |
| Plastic case                                      | KK120L        |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| Outer fixed blade                    | ESG50EF1 |      |
| Inner moving blade                   | ESG50ES  |      |
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |

**ESG 55-L Battery powered cutting tool 55 mm dia.**

- ▶ High cutting force cuts armoured copper and aluminum cables and Al/St cables (ACSR)
- ▶ Also suitable for round material made of Al, Cu and Steel
- ▶ 120 kN cutting force for maximum output
- ▶ Robust design and lightweight

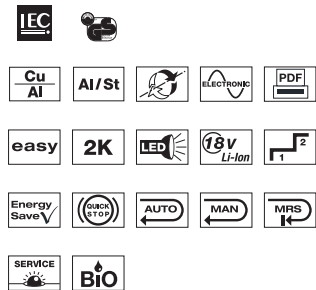
**Characteristics**

- Closed cutting head with bolt interlock, rotatable, flip top style
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- High-performance motors for maximum operating speed
- LED for workplace illumination
- High-performance 18V Li-Ion battery with high capacity
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful cutting operation
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                                                |
|----------------------|------------------------------------------------|
| Cutting range        | max. 55 mm dia.                                |
| Cutting force        | 120 kN                                         |
| Cutting time         | 10 s to 19 s (depending on material thickness) |
| Number of cuts       | Depending on cable type                        |
| Battery voltage      | 18 V                                           |
| Battery capacity     | 3.0 Ah, Li-Ion                                 |
| Charging time        | 22 min.                                        |
| Weight incl. battery | 8.0 kg                                         |
| Ambient temperature  | -12°C to +40 °C                                |

| Item                                              | Part No.      |      |
|---------------------------------------------------|---------------|------|
| Battery powered hydraulic cutting tool 55 mm dia. | <b>ESG55L</b> |      |
| Scope of supply                                   | Part No.      | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)             | RAL2          | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V     | LGL1          | 400  |
| Plastic case                                      | KK120L        |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| Outer fixed blade                    | ESG55EF  |      |
| Inner moving blade                   | ESG55ES  |      |
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |



ESG55EF



ESG55ES

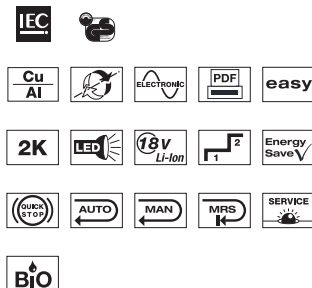
## ES 65-L Battery powered cutting tool 65 mm dia.



- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Also suitable for fine stranded cable
- ▶ Extremely robust design and lightweight
- ▶ Large cutting range

## Characteristics

- Open cutting head, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings for comfortable and safe one-hand operation
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18V Lithium-ion battery with high capacity and extremely short charging time
- Energy saving function by stopping motor after successful cutting operation
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable



ES65E

| Technical data       |                                 |
|----------------------|---------------------------------|
| Cutting range        | max. 65 mm dia.                 |
| Cutting force        | 40 kN                           |
| Cutting time         | Depending on material thickness |
| Number of cuts       | Depending on material thickness |
| Battery voltage      | 18 V                            |
| Battery capacity     | 3.0 Ah, Li-Ion                  |
| Charging time        | 22 min.                         |
| Weight incl. battery | 6.3 kg                          |
| Ambient temperature  | -12°C to +40 °C                 |

| Item                                              | Part No.     |
|---------------------------------------------------|--------------|
| Battery powered hydraulic cutting tool 65 mm dia. | <b>ES65L</b> |
| Scope of supply                                   |              |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)             | RAL2 398     |
| Quick-charger for 18V Li-Ion batteries, 230 V     | LGL1 400     |
| Plastic case                                      | KK120L       |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| Replacement blade                    | ES65E    |      |
| USB adapter                          | PGA1     | 408  |

**ESG 85-L Battery powered cutting tool 85 mm dia.**

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Large cutting area, optimum force transmission due to closed head shape
- ▶ High user safety through cutting head with bolt interlock

**Characteristics**

- Closed cutting head with bolt interlock, rotatable, flip top style
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- 2-stage hydraulic system with fast feed and power stroke
- High-performance 18V Li-Ion battery
- High-performance motors for maximum operating speed
- Energy saving function by stopping motor after successful cutting operation
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                                 |
|----------------------|---------------------------------|
| Cutting range        | max. 85 mm dia.                 |
| Cutting force        | 60 kN                           |
| Cutting time         | Depending on material thickness |
| Number of cuts       | Depending on material thickness |
| Battery voltage      | 18 V                            |
| Battery capacity     | 3.0 Ah, Li-Ion                  |
| Charging time        | 22 min.                         |
| Weight incl. battery | 6.6 kg                          |
| Ambient temperature  | -12°C to +40 °C                 |

| Item                                              | Part No.      |
|---------------------------------------------------|---------------|
| Battery powered hydraulic cutting tool 85 mm dia. | <b>ESG85L</b> |

| Scope of supply                               | Part No. | Page |
|-----------------------------------------------|----------|------|
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)         | RAL2     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V | LGL1     | 400  |
| Plastic case                                  | KK120L   |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| Outer fixed blade                    | ESG85EF1 |      |
| Inner moving blade                   | ESG85ES1 |      |
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |



ESG85EF1



ESG85ES1

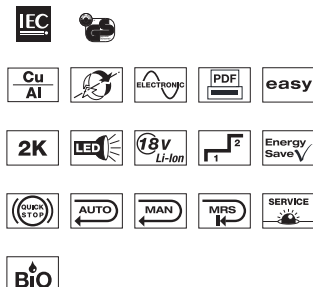
## ES 85-L Battery powered cutting tool 85 mm dia.



- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Large cutting range
- ▶ Suitable for fine stranded cable and telecommunication cable

## Characteristics

- Open cutting head, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings for comfortable and safe one-hand operation
- Balanced centre of gravity for easy handling and effortless operations
- LED for workplace illumination
- High-performance 18V Lithium-ion battery with high capacity and extremely short charging time
- Energy saving function by stopping motor after successful cutting operation
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable
- Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- Suitable for fine stranded cable and telecommunication cable



ES85E

| Technical data       |                                 |
|----------------------|---------------------------------|
| Cutting range        | max. 85 mm dia.                 |
| Cutting force        | 30 kN                           |
| Cutting time         | Depending on material thickness |
| Number of cuts       | Depending on material thickness |
| Battery voltage      | 18 V                            |
| Battery capacity     | 3.0 Ah, Li-Ion                  |
| Charging time        | 22 min.                         |
| Weight incl. battery | 7.0 kg                          |
| Ambient temperature  | -12°C to +40 °C                 |

| Item                                              | Part No. |      |
|---------------------------------------------------|----------|------|
| Battery powered hydraulic cutting tool 85 mm dia. | ES85L    |      |
| Scope of supply                                   | Part No. | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)             | RAL2     | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V     | LGL1     | 400  |
| Plastic case                                      | KK120L   |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| Replacement blade                    | ES85E    |      |
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |



**ESG 105-L Battery powered cutting tool 105 mm dia.**

- ▶ Cuts copper and aluminum cables (for armoured cables)
- ▶ 120 kN cutting force for extremely wide cutting range up to 105 mm dia.
- ▶ Remarkably lightweight for tools in this performance class

**Characteristics**

- Closed cutting head with bolt interlock, rotatable, flip top style
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery with high capacity
- Energy saving function by stopping motor after successful cutting operation
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data       |                         |
|----------------------|-------------------------|
| Cutting range        | max. 105 mm dia.        |
| Cutting force        | 120 kN                  |
| Cutting time         | Depending on cable type |
| Number of cuts       | Depending on cable type |
| Battery voltage      | 18 V                    |
| Battery capacity     | 3.0 Ah, Li-Ion          |
| Charging time        | 22 min.                 |
| Weight incl. battery | 10.3 kg                 |
| Ambient temperature  | -12°C to +40 °C         |

| Item                                               | Part No.       |      |
|----------------------------------------------------|----------------|------|
| Battery powered hydraulic cutting tool 105 mm dia. | <b>ESG105L</b> |      |
| Scope of supply                                    | Part No.       | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)              | RAL2           | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V      | LGL1           | 400  |
| Steel carrying case                                | MK105L         |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| Outer fixed blade                    | ESG105EF |      |
| Inner moving blade                   | ESG105ES |      |
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |


**ESG105EF**

**ESG105ES**

## ES 105-L Battery powered cutting tool 105 mm dia.



ES105E

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type), and fine stranded conductors
- ▶ Extremely large cutting range to 105 mm dia.
- ▶ Remarkably lightweight for tools in this performance class

## Characteristics

- Open cutting head, rotatable
- Electronic control and monitoring of cutting operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- 2-stage hydraulic system with fast feed and power stroke
- High-performance 18V Li-Ion battery
- High-performance motors for maximum operating speed
- Energy saving function by stopping motor after successful cutting operation
- Quick motor stop for high user safety
- Automatic retraction when cut is complete
- Manual retract in case of need
- Manual retract stop (MRS) for efficient operations
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

| Technical data                                     |                         |      |
|----------------------------------------------------|-------------------------|------|
| Cutting range                                      | max. 105 mm dia.        |      |
| Cutting force                                      | 74 kN                   |      |
| Cutting time                                       | Depending on cable type |      |
| Number of cuts                                     | Depending on cable type |      |
| Battery voltage                                    | 18 V                    |      |
| Battery capacity                                   | 3.0 Ah, Li-Ion          |      |
| Charging time                                      | 22 min.                 |      |
| Weight incl. battery                               | 9.4 kg                  |      |
| Ambient temperature                                | -12°C to +40 °C         |      |
| Item                                               | Part No.                |      |
| Battery powered hydraulic cutting tool 105 mm dia. | ES105L                  |      |
| Scope of supply                                    | Part No.                | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)              | RAL2                    | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V      | LGL1                    | 400  |
| Steel carrying case                                | MK105L                  |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| Replacement blade                    | ES105E   |      |
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |

## The all-rounder.

### Klauke® multi universal tools

When it comes to operations that require different applications all at the same time, Klauke® multi universal tools are the answer. They have interchangeable adapters and dies for crimping, cutting or punching. All standard operations can be flexibly accomplished using just one tool, ideal for service and repair teams for example.

The Klauke® multi comes as a hand-operated and battery powered hydraulic tool, as well as a universal head in combination with a Klauke system pump.

#### ■ The all-rounder:

- ▶ One head for crimping, cutting and punching.
- ▶ Crimping adapters for Klauke dies of most Klauke ranges.
- ▶ Various cutting dies for aluminum and copper conductors with and without armouring, as well as rail catenary wires.
- ▶ Special dies for cutting threaded rods and DIN rails.
- ▶ Punching adapter for Greenlee punching tools.
- ▶ Used to punch holes in DIN rails and cut copper rails.

#### Benefits:

- ▶ **All standard operations can be accomplished with just one tool.**

This creates a weight advantage especially for repair and service teams.

- ▶ The 6 ton design is set apart by its low weight and extremely easy handling.
- ▶ Thanks to its design, the 6 ton mini+ version can be used even in tight spaces.
- ▶ The 12 ton tool offers wider crimping ranges and higher punching capacities.
- ▶ Only dies and/or adapters need to be changed for the various applications. A crimping tool can be turned into a cutting or punching tool within seconds.
- ▶ This boosts efficiency especially when it comes to assembly applications.
- ▶ All adapters and dies are compatible with all tools in the Klauke® multi range.



- **One tool - 3 functions.**
- **Interchangeable adapters for crimping, cutting and punching.**
- **Available as hand-operated, battery powered and hydraulic universal heads in combination with a Klauke system pump.**



HK 60 UNV Hand-operated hydraulic universal tool



- ▶ One head for crimping, cutting and punching - one tool for all
- ▶ Ideal for field operations where all common jobs can be carried out with just one tool

Characteristics

- Universal head flip-top style, rotatable
- Adapter for crimping dies of the Klauke Series 5, 18 and 22
- Various cutting dies for aluminum and copper conductors with and without armouring as well as Al/St-Cables (ACSR)
- Dies for cutting threaded rods and DIN rails
- Punching adapter for Greenlee punching tools
- Dies to punch DIN rails
- Light weight due to high quality aluminum housing
- 2-stage hydraulic system with fast feed and power stroke
- Automatic retraction when operation is complete
- Manual retract in case of need
- Environmentally-friendly hydraulic oil, quickly biodegradable



| Technical data                                                     |                                                 |      |
|--------------------------------------------------------------------|-------------------------------------------------|------|
| Crimping force                                                     | 60 kN                                           |      |
| Stroke                                                             | 42 mm                                           |      |
| Crimping range                                                     | 6 - 300 mm <sup>2</sup>                         |      |
| Cutting range                                                      | max. 40 mm dia.                                 |      |
| Punching capacity                                                  | up to 64 mm dia. round, up to 92 x 92 mm square |      |
| Length                                                             | 540 mm                                          |      |
| Weight                                                             | 3.5 kg                                          |      |
| Ambient temperature                                                | -20°C to +40 °C                                 |      |
| Item                                                               | Part No.                                        |      |
| Hand-operated hydraulic universal tool                             | HK60UNV                                         |      |
| Scope of supply                                                    | Part No.                                        | Page |
| Steel carrying case for HK 60 UNV with space for adapters and dies | MK60UNV                                         |      |

Please observe adapters on page 359

## PK 60 UNV Hydraulic universal head

- ▶ One head for crimping, cutting and punching - one tool for all
- ▶ Ideal for field operations where all common jobs can be carried out with just one tool
- ▶ For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping, cutting and punching results

### Characteristics

- Universal head with quick coupling, under no pressure, rotates 360°, flip top style
- Various cutting dies for aluminum and copper conductors with and without armouring as well as Al/St-Cables (ACSR)
- Dies to punch DIN rails
- Adapter for crimping dies of the Klauke Series 5, 18 and 22

| Technical data     |                                                 |
|--------------------|-------------------------------------------------|
| Crimping force     | 60 kN                                           |
| Stroke             | 42 mm                                           |
| Crimping cycle     | 3 s to 5 s (depending on cross-section)         |
| Number of crimps   | approx. 300 at 150 mm² Cu DIN                   |
| Cutting range      | max. 40 mm dia.                                 |
| Number of cuts     | approx. 110 at 4 x 70 mm² NYG                   |
| Punching capacity  | up to 64 mm dia. round, up to 92 x 92 mm square |
| Operating pressure | max. 700 bar                                    |
| Length             | 350 mm                                          |
| Weight             | 2.4 kg                                          |

| Item                     | Part No.       |      |
|--------------------------|----------------|------|
| Hydraulic universal head | <b>PK60UNV</b> |      |
| Scope of supply          | Part No.       | Page |
| Carrying bag             | TT2            | 217  |

Please observe adapters on page 359



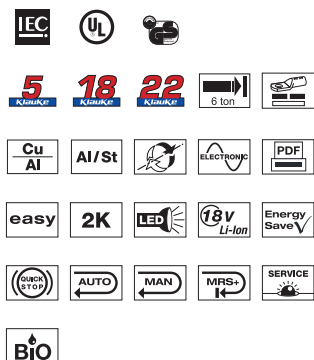
### EKM 60 UNV-L Battery powered universal tool 6 - 300 mm²



- ▶ One head for crimping, cutting and punching - one tool for all
- ▶ Ideal for field operations where all common jobs can be carried out with just one tool
- ▶ Small and slim, perfect for operations in critical areas

#### Characteristics

- Universal head flip-top style, rotatable
- Electronic control and monitoring of operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery
- High-performance motors for maximum operating speed
- Energy saving function by stopping motor after successful operation
- Quick motor stop for high user safety
- Automatic retraction when operation is complete
- Manual retract in case of need
- Manual retract stop with "teach-in" (MRS+) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter



| Technical data      |                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------|
| Crimping force      | 60 kN                                                                                        |
| Stroke              | 27 mm                                                                                        |
| Crimping range      | 6 - 300 mm²                                                                                  |
| Crimping cycle      | 7 s to 9 s (depending on cross-section)                                                      |
| Number of crimps    | approx. 200 at 150 mm² Cu DIN                                                                |
| Cutting range       | max. 25 mm dia.                                                                              |
| Number of cuts      | approx. 165 - 300                                                                            |
| Punching capacity   | approx. 170 for 60 mm round, 3 mm mild steel; approx. 230 for 22.5 mm round, 3 mm mild steel |
| Battery voltage     | 18 V                                                                                         |
| Battery capacity    | 1.3 Ah, Li-Ion                                                                               |
| Charging time       | 15 min.                                                                                      |
| Weight              | 3.0 kg                                                                                       |
| Ambient temperature | -10°C to +40 °C                                                                              |

| Item                                                 | Part No.         |      |
|------------------------------------------------------|------------------|------|
| Battery powered hydraulic universal tool 6 - 300 mm² | <b>EKM60UNVL</b> |      |
| Scope of supply                                      | Part No.         | Page |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)              | RAL1             | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V        | LGL1             | 400  |
| Plastic case                                         | KKMUNVL          |      |
| Adapter for crimping dies of Series 22               | UA22             |      |
| Adapter 15 mm for cutting dies                       | UAM              |      |

| Accessories                           | Part No. | Page |
|---------------------------------------|----------|------|
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh) | RAL2     | 398  |
| 18 V mains adapter for 240 V Voltage  | NG2230   | 399  |
| USB adapter                           | PGA1     | 408  |

| Variants                                                   | Part No.       | Page |
|------------------------------------------------------------|----------------|------|
| L-BOXX with universal crimping tool EKM60UNVL, 6 - 300 mm² | LBOXXEKM60UNVL |      |

Please observe adapters on page 359

## EK 60 UNV-L Battery powered universal tool 6 - 300 mm<sup>2</sup>

- ▶ One head for crimping, cutting and punching - one tool for all
- ▶ Ideal for field operations where all common jobs can be carried out with just one tool
- ▶ Fast working due to 2-stage hydraulics

### Characteristics

- Universal head flip-top style, rotatable
- Electronic control and monitoring of operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful operation
- Quick motor stop for high user safety
- Automatic retraction when operation is complete
- Manual retract in case of need
- Manual retract stop with "teach-in" (MRS+) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable

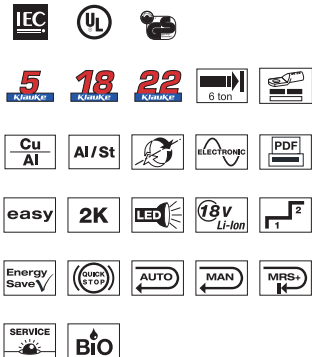
| Technical data      |                                           |
|---------------------|-------------------------------------------|
| Crimping force      | 60 kN                                     |
| Crimping range      | 6 - 300 mm <sup>2</sup>                   |
| Crimping cycle      | 3 s to 5 s (depending on cross-section)   |
| Number of crimps    | approx. 300 at 150 mm <sup>2</sup> Cu DIN |
| Cutting range       | max. 40 mm dia.                           |
| Number of cuts      | approx. 110 at 4 x 70 mm <sup>2</sup> NYF |
| Punching capacity   | up to 64 mm dia. round                    |
| Battery voltage     | 18 V                                      |
| Battery capacity    | 3.0 Ah, Li-Ion                            |
| Charging time       | 22 min.                                   |
| Weight              | 4.6 kg                                    |
| Ambient temperature | -12°C to +40 °C                           |

| Item                                                             | Part No.        |      |
|------------------------------------------------------------------|-----------------|------|
| Battery powered hydraulic universal tool 6 - 300 mm <sup>2</sup> | <b>EK60UNVL</b> |      |
| Scope of supply                                                  | Part No.        | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                            | RAL2            | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V                    | LGL1            | 400  |
| Plastic case                                                     | KK120UNVL       |      |
| Adapter for crimping dies of Series 22                           | UA22            |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |

| Variants                                                                                                                        | Part No.     | Page |
|---------------------------------------------------------------------------------------------------------------------------------|--------------|------|
| EK60UNVL with crimping die set R22, 16 - 240 mm <sup>2</sup> and adapter UA22 and cutting inserts to max. 40 mm Ø (UCACSR/UC40) | EK60UNVLSETR |      |

Please observe adapters on page 359



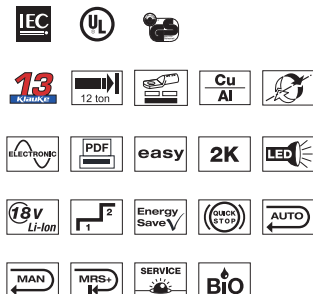
## EK 120 UNV-L Battery powered universal tool 10 - 400 mm²



- ▶ One head for crimping, cutting and punching - one tool for all
- ▶ Ideal for field operations where all common jobs can be carried out with just one tool
- ▶ Fast working due to 2-stage hydraulics
- ▶ Very large crimping range

## Characteristics

- Universal head flip-top style, rotatable
- Electronic control and monitoring of operation
- One-button operating concept for controlling all tooling functions
- Ergonomic 2-component plastic housing with soft linings
- Balanced centre of gravity for easy handling
- LED for workplace illumination
- High-performance 18V Li-Ion battery
- High-performance motors for maximum operating speed
- 2-stage hydraulic system with fast feed and power stroke
- Energy saving function by stopping motor after successful operation
- Quick motor stop for high user safety
- Automatic retraction when operation is complete
- Manual retract in case of need
- Manual retract stop with "teach-in" (MRS+) for positioning control in case of multiple crimpings
- Multi-function LED for maintenance control, charge level indicator of the battery and for data transmission via USB adapter



| Technical data      |                                                    |
|---------------------|----------------------------------------------------|
| Crimping force      | 108 kN                                             |
| Stroke              | 42 mm                                              |
| Crimping range      | 10 - 400 mm²                                       |
| Crimping cycle      | Depending on cable type                            |
| Number of crimps    | approx. 110 at 150 mm² Cu DIN                      |
| Cutting range       | max. 40 mm dia.                                    |
| Number of cuts      | Depending on cable type                            |
| Punching capacity   | up to 144 mm dia. round, up to 138 x 138 mm square |
| Battery voltage     | 18 V                                               |
| Battery capacity    | 3.0 Ah, Li-Ion                                     |
| Charging time       | 22 min.                                            |
| Weight              | 6.3 kg                                             |
| Ambient temperature | -12°C to +40 °C                                    |

| Item                                                  | Part No.         |      |
|-------------------------------------------------------|------------------|------|
| Battery powered hydraulic universal tool 10 - 400 mm² | <b>EK120UNVL</b> |      |
| Scope of supply                                       | Part No.         | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                 | RAL2             | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V         | LGL1             | 400  |
| Adapter for crimping dies                             | UA12T            |      |
| Plastic case                                          | KK120UNVL        |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| USB adapter                          | PGA1     | 408  |

Please observe adapters on page 359



| Item                                                                                |                                                                                   | tools                                      |         |        |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------|---------|--------|
|                                                                                     |                                                                                   | Part No.                                   | 6 ton   | 12 ton |
| Crimping                                                                            |                                                                                   |                                            |         |        |
|    | Adapter for crimping dies series 5                                                | UA5                                        | ■       |        |
|    | Adapter for crimping dies series 13                                               | UA12TKL                                    |         | ■      |
|    | Adapter for crimping dies series 18                                               | UA18                                       | ■       |        |
|    | Adapter for crimping dies series 22                                               | UA22                                       | ■       |        |
| Cutting                                                                             |                                                                                   |                                            |         |        |
|    | Adapter 15 mm for cutting dies                                                    | UAM**                                      | ■       |        |
|    | Cutting die for Al/Cu conductors to max. 40 mm dia.                               | UCACSR*                                    | ■       | ■      |
|    | Cutting die to max. 26 mm dia.                                                    | UC26*                                      | ■       | ■      |
|                                                                                     | Cutting die to max. 40 mm dia.                                                    | UC40*                                      | ■       | ■      |
|    | Cutting die for threaded rods M5 metric                                           | UCM5                                       | ■       | ■      |
|                                                                                     | Cutting die for threaded rods M6 metric                                           | UCM6                                       | ■       | ■      |
|                                                                                     | Cutting die for threaded rods M8 metric                                           | UCM8                                       | ■       | ■      |
|                                                                                     | Cutting die for threaded rods M10 metric                                          | UCM10                                      | ■       | ■      |
|                                                                                     | Cutting die for threaded rods M12 metric                                          | UCM12                                      | ■       | ■      |
|                                                                                     | Cutting die for threaded rods 1/4"                                                | UCUNC14                                    | ■       | ■      |
|                                                                                     | Cutting die for threaded rods 3/8"                                                | UCUNC38                                    | ■       | ■      |
|                                                                                     | Cutting die for threaded rods 1/2"                                                | UCUNC12                                    | ■       | ■      |
|                                                                                     |  | Cutting die for profile conductors 35 x 15 | UCD3515 | ■      |
| Cutting die for profile conductors 32 x 15 x 9                                      |                                                                                   | UCD3215                                    | ■       | ■      |
| Cutting die for profile conductors 35 x 7.5                                         |                                                                                   | UCD3575                                    | ■       | ■      |
|    | Cutting die for profile conductors 2980                                           | UCN2980                                    | ■       | ■      |
|    | Cutting die for laminated Cu bus bars, max. width 37.5 mm                         | UCF                                        | ■       | ■      |
|  | Schneideinsatz zum Fahrdrachtschneiden im Eisenbahnbau 107 mm², Typ AC            | UCAC107                                    | ■       | ■      |
|                                                                                     | Cutting die 85 mm² type BC for catenary wires in railway construction             | UCBC85                                     | ■       | ■      |
|                                                                                     | Cutting die 110 mm² type BC for catenary wires in railway construction            | UCBC110                                    | ■       | ■      |
|                                                                                     | Cutting die 120 mm² type BC for catenary wires in railway construction            | UCBC120                                    | ■       | ■      |
|                                                                                     | Cutting die 150 mm² type BC for catenary wires in railway construction            | UCBC150                                    | ■       | ■      |
| Punching                                                                            |                                                                                   |                                            |         |        |
|  | Punching adapter for holes 64 mm dia., 92 x 92 mm and 46 x 92 mm                  | UA6P                                       | ■       |        |
|                                                                                     | Hole punch adapter to 144 mm dia., 138 x 138 mm and 68 x 138 mm                   | UA12P                                      |         | ■      |
|  | Die for punching DIN rails 35x15; 32x15x9; 35x7.5                                 | UPD6                                       | ■       | ■      |

\* In conjunction with EKM 60 UNV-L the cutting range is max. 25 mm dia

\*\* Can be used only with EKM60UNVL



## *Many heads,* **even more potential.**

### **Crimping and cutting heads for modular systems.**

Klauke crimping and cutting heads can be individually configured with Klauke system pumps for special applications. We offer an extensive range as well as crimping tools for workbench mounting.

Typical applications for workbench-mounted tools include cable harness assembly and assembly preparations.



- Crimping heads with crimping forces of 55 kN to 1000 kN.
- Cutting heads up to 120 mm dia.
- Individually configurable with drive units at 700 bar operating pressure.
- Hydraulic crimping tools for workbench mounting for Klauke 18, 22 and 13 die series.

## ■ The correct crimping head for every application.

| Tool        |                                                                                   | Crimping force | Crimping range             | Series                                                                            | Features                                                                       |
|-------------|-----------------------------------------------------------------------------------|----------------|----------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| PK 18       |  | 60 kN          | 6 - 185 mm <sup>2</sup>    | <b>18</b><br>Klauke                                                               | For standardised crimping dies to DIN 48083, sheet 1.                          |
| PK 22       |  | 60 kN          | 6 - 300 mm <sup>2</sup>    | <b>22</b><br>Klauke                                                               | Slim crimping head - ideal when space is critical.                             |
| PK 60 VP    |  | 55 kN          | 10 - 240 mm <sup>2</sup>   |  | "The patented centring system guarantees every time optimum crimping results". |
| PK 60 VP/FT |  | 55 kN          | 16 - 300 mm <sup>2</sup>   |  | Closed crimping head - ideal for utility lines construction.                   |
| PK 120/42   |  | 120 kN         | 10 - 400 mm <sup>2</sup>   | <b>13</b><br>Klauke                                                               | 42 mm opening width.                                                           |
| PK 120 U    |  | 120 kN         | 10 - 400 mm <sup>2</sup>   | <b>13</b><br>Klauke                                                               | H-head for deep groove crimping.                                               |
| PK 25/2     |  | 250 kN         | 16 - 625 mm <sup>2</sup>   | <b>25</b><br>Klauke                                                               | For standardised crimping dies to DIN 48083, sheet 3.                          |
| PK 45       |  | 450 kN         | 120 - 1000 mm <sup>2</sup> | <b>45</b><br>Klauke                                                               | Sturdy construction.                                                           |
| PK 1000     |  | 1000 kN        | To 1600 mm <sup>2</sup>    | <b>100</b><br>Klauke                                                              | 100 t crimping head in compact design, single-acting.                          |
| THK 18      |  | 60 kN          | 6 - 185 mm <sup>2</sup>    | <b>18</b><br>Klauke                                                               | For workbench mounting, BG-compliant design.                                   |
| THK 22      |  | 60 kN          | 6 - 300 mm <sup>2</sup>    | <b>22</b><br>Klauke                                                               |                                                                                |
| THK 120     |  | 120 kN         | 10 - 400 mm <sup>2</sup>   | <b>13</b><br>Klauke                                                               |                                                                                |

## ■ Improved cutting using the correct cutting heads.

| Tool     | Design                                                                              |             | Cutting range mm dia. | Cutting force kN <sup>2)</sup> | Application           |                |                |              | Features                                                               |
|----------|-------------------------------------------------------------------------------------|-------------|-----------------------|--------------------------------|-----------------------|----------------|----------------|--------------|------------------------------------------------------------------------|
|          | Open head                                                                           | Closed head |                       |                                | Cu / Al <sup>1)</sup> | Al / St (ACSR) | Cu / Al, solid | Steel, solid |                                                                        |
| SDG 45   |   | ✓           | 45                    | 60                             | ✓                     | ✓              | ✓              | ✓            | Especially for Al/St ropes to 45 mm dia. and St, solid.                |
| SDG 50   |  | ✓           | 48                    | 60                             | ✓                     |                |                |              | For multi-stranded Al and Cu cables.                                   |
| SDG 55   |  | ✓           | 55                    | 120                            | ✓                     | ✓              | ✓              | ✓            | With 120 kN cutting force for all cables and Al/St ropes to 55 mm dia. |
| SDK 65   |  | ✓           | 65                    | 42                             | ✓                     |                |                |              | Ideal for cutting earth cables to 65 mm dia.                           |
| SDG 85/2 |  | ✓           | 85                    | 60                             | ✓                     |                |                |              | For cutting copper and aluminum cables to 85 mm dia.                   |
| SDK 85   |  | ✓           | 85                    | 30                             | ✓                     |                |                |              | For cutting telecommunication and earth cables to 85 mm dia.           |
| SDG 105  |  | ✓           | 105                   | 120                            | ✓                     |                | ✓              |              | Very wide cutting range to 105 mm dia. - also for armoured cables.     |
| SDK 105  |  | ✓           | 105                   | 74                             | ✓                     |                |                |              | Also for fine stranded cables to 105 mm dia.                           |
| SDK 120  |  | ✓           | 120                   | 55                             | ✓                     |                |                |              | Extremely large cutting range to 120 mm dia.                           |

<sup>1)</sup> This column also includes Cu / Al multi-stranded and Cu / Al with sheet metal and wire armouring.

<sup>2)</sup> The exact cutting capacity depends on the type of cable or rope.

### PK 18 Hydraulic crimping head 6 - 185 mm<sup>2</sup>



- ▶ For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results
- ▶ Crimping dies are connected by spring - cannot get lost

#### Characteristics

- For interchangeable dies, series 18, narrow crimping
- Open crimping head with quick coupling, under no pressure, rotates 360°
- For dies acc. to DIN 48083, page 1

| Technical data                                  |                         |         |
|-------------------------------------------------|-------------------------|---------|
| Crimping force                                  | 60 kN                   |         |
| Stroke / opening width                          | 17 mm                   |         |
| Crimping range                                  | 6 - 185 mm <sup>2</sup> |         |
| Operating pressure                              | max. 700 bar            |         |
| Weight                                          | 3.2 kg                  |         |
| Item                                            | Part No.                |         |
| Hydraulic crimping head 6 - 185 mm <sup>2</sup> | PK18                    |         |
| Scope of supply                                 |                         | Page    |
| Carrying bag                                    |                         | TT2 217 |



**18**  
Klauke



### THK 18 Hydraulic crimping tool for workbench mounting 6 - 185 mm<sup>2</sup>



- ▶ BG-compliant version
- ▶ For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

#### Characteristics

- For interchangeable dies, series 18, narrow crimping
- Quick coupling
- For dies acc. to DIN 48083, page 1
- For workbench mounting

| Technical data                                                          |                               |  |
|-------------------------------------------------------------------------|-------------------------------|--|
| Crimping force                                                          | 60 kN                         |  |
| Crimping range                                                          | 6 - 185 mm <sup>2</sup>       |  |
| Operating pressure                                                      | max. 700 bar                  |  |
| Weight                                                                  | 8.2 kg                        |  |
| Dimensions                                                              | H x W x D: 220 x 160 x 120 mm |  |
| Item                                                                    | Part No.                      |  |
| Hydraulic crimping tool for work bench mounting 6 - 185 mm <sup>2</sup> | THK18                         |  |

**18**  
Klauke



**Available dies for Series 18 for PK 18 and THK 18**

|                                                                                  |    |                |    |     |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|-----|
|                                                                                  |    |                |    |     |
|                                                                                  |    |                |    |     |
|                                                                                  |    |                |    |     |
|                                                                                  |    |                |    |     |
|                                                                                  |    |                |    |     |
|                                                                                  |    |                |    |     |
|                                                                                  |    |                |    |     |
|                                                                                  |    |                |    |     |
|                                                                                  |    |                |    | 430 |
| Compression cable lugs and connectors - Al/Cu                                    |                                                                                     |                |                                                                                     |     |
| Compression cable lugs and connectors - Al/Cu                                    |                                                                                     |                |                                                                                     |     |
|                                                                                  |    | 10 - 185       |    | 430 |
| Clamps and screw connectors                                                      |                                                                                     |                |                                                                                     |     |
| C-clamps                                                                         |                                                                                     |                |                                                                                     |     |
|                                                                                  |    | 4 - 50         |    | 430 |
| Cable end-sleeves                                                                |                                                                                     |                |                                                                                     |     |
| Cable end-sleeves                                                                |                                                                                     |                |                                                                                     |     |
|                                                                                  |    | 10 - 95        |    | 431 |
| 427                                                                              |  | 2 x 4 - 2 x 16 |  | 431 |
| 427                                                                              |  | 10 - 95        |  | 431 |
| 428                                                                              |  | 2 x 4 - 2 x 16 |  | 432 |
| Cutting die                                                                      |                                                                                     |                |                                                                                     |     |
| Cutting range                                                                    |                                                                                     |                |                                                                                     |     |
|                                                                                  |                                                                                     | 18 mm dia.     |                                                                                     | 432 |
| Please observe the restrictions in the technical index when crimping connectors! |                                                                                     |                |                                                                                     |     |

### PK 22 Hydraulic crimping head 6 - 300 mm<sup>2</sup>



**22**  
Klauke



- ▶ Large crimping range up to 300 mm<sup>2</sup>
- ▶ Slim crimping head - ideal when space is critical

#### Characteristics

- For interchangeable dies, series 22, narrow crimping
- Closed crimping head with quick coupling, flip top style, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

#### Order info

- Also available for "W" crimping dies (UL certified), part number appendix "W"

| Technical data                                  |                         |      |
|-------------------------------------------------|-------------------------|------|
| Crimping force                                  | 60 kN                   |      |
| Stroke / opening width                          | 17 mm                   |      |
| Crimping range                                  | 6 - 300 mm <sup>2</sup> |      |
| Operating pressure                              | max. 700 bar            |      |
| Weight                                          | 3.0 kg                  |      |
| Item                                            | Part No.                |      |
| Hydraulic crimping head 6 - 300 mm <sup>2</sup> | <b>PK22</b>             |      |
| Scope of supply                                 | Part No.                | Page |
| Carrying bag                                    | TT2                     | 217  |

### THK 22 Hydraulisches Presswerkzeug zur Tischmontage 6 - 300 mm<sup>2</sup>



**22**  
Klauke



- ▶ Large crimping range up to 300 mm<sup>2</sup>
- ▶ For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

#### Characteristics

- For interchangeable dies, series 22, narrow crimping
- Quick coupling
- For workbench mounting
- BG-compliant version

| Technical data                                                          |                               |  |
|-------------------------------------------------------------------------|-------------------------------|--|
| Crimping force                                                          | 60 kN                         |  |
| Crimping range                                                          | 6 - 300 mm <sup>2</sup>       |  |
| Operating pressure                                                      | max. 700 bar                  |  |
| Weight                                                                  | 8.8 kg                        |  |
| Dimensions                                                              | H x W x D: 220 x 160 x 120 mm |  |
| Item                                                                    | Part No.                      |  |
| Hydraulic crimping tool for work bench mounting 6 - 300 mm <sup>2</sup> | <b>THK22</b>                  |  |

**Available dies for Series 22 for PK 22 and THK 22**

|                                                                                                                                  |    |                         |    | 433 |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type, tubular cable lugs for switchgear connections                              |    | 6 - 300                 |    | 434 |
| Insulated tubular cable lugs and connectors, insulated pin terminals                                                             |    | 10 - 150                |    | 434 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                   |    | 10 - 70                 |    | 435 |
| Tubular cable lugs and connectors for solid conductors                                                                           |    | 1.5 - 16                |    | 435 |
| Tubular cable lugs and connectors, Ni, stainless steel                                                                           |                                                                                     |                         |                                                                                     |     |
| Tubular cable lugs and connectors, stainless steel                                                                               |    | 0.5 - 16                |    | 435 |
| Tubular cable lugs and connectors, Ni                                                                                            |    | 10 - 50                 |    | 435 |
| Compression cable lugs and connectors acc. to DIN - Cu                                                                           |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu                                                         |    | 6 - 300                 |    | 436 |
| Double crimping compression cable lugs                                                                                           |    | 2 x 50 - 2 x 70         |    | 436 |
| Terminals, connectors and pin terminals acc. to DIN - Cu                                                                         |                                                                                     |                         |                                                                                     |     |
| Terminals (DIN 46234) and pin terminals (DIN 46230) Cu, solderless connectors (DIN 46341) Cu                                     |    | 10 - 70                 |    | 437 |
| Insulated terminals and pin terminals                                                                                            |    | 10 - 70                 |    | 437 |
| Sleeves for compacted conductors and sector shaped conductors, Cu                                                                |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped conductors, 3 and 4 core sector shaped conductors                         |    | 10 sm - 300 se / 240 sm |    | 437 |
| Compression cable lugs and connectors acc. to DIN - Al                                                                           |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors acc. to DIN - Al                                                                           |    | 10 - 300                |    | 438 |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm² |    | 25 - 185                |    | 438 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, aluminum crimping                         |   | 25/4 - 120/20           |   | 439 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, steel crimping                            |  | 25/4 - 120/20           |  | 439 |
| Compression cable lugs and connectors - Al/Cu                                                                                    |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors - Al/Cu                                                                                    |  | 10 - 300                |  | 438 |
| Clamps and screw connectors                                                                                                      |                                                                                     |                         |                                                                                     |     |
| C-clamps                                                                                                                         |  | 4 - 50                  |  | 439 |
| H-clamps                                                                                                                         |  | 70                      |  | 439 |
| Cable end-sleeves                                                                                                                |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                |  | 10 - 240                |  | 440 |
| Twin cable end-sleeves                                                                                                           |  | 2 x 4 - 2 x 16          |  | 440 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                     |  | 10 - 240                |  | 440 |
| Twin cable end-sleeves, trapezoidal, for fine stranded conductors                                                                |  | 2 x 4 - 2 x 16          |  | 441 |

Please observe the restrictions in the technical index when crimping connectors!



PK 60 VP Hydraulic crimping head 10 - 240 mm<sup>2</sup>



- ▶ Suitable for crimping tubular cable lugs and connectors "standard type" and fine and superfine stranded conductors to 240 mm<sup>2</sup>
- ▶ The patented centring system guarantees every time optimum crimping results
- ▶ No additional dies required

Characteristics

- Quad-point indent crimping
- Wide crimping
- Open crimping head with quick coupling, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

| Technical data     |                          |
|--------------------|--------------------------|
| Crimping force     | 55 kN                    |
| Crimping range     | 10 - 240 mm <sup>2</sup> |
| Operating pressure | max. 700 bar             |
| Weight             | 2.8 kg                   |

| Item                                             | Part No. |      |
|--------------------------------------------------|----------|------|
| Hydraulic crimping head 10 - 240 mm <sup>2</sup> | PK60VP   |      |
| Scope of supply                                  |          | Page |
| Carrying bag                                     | TT2      | 217  |

| Suitable for                                                                       | Connection material | Crimping range mm <sup>2</sup> | Crimp profile |
|------------------------------------------------------------------------------------|---------------------|--------------------------------|---------------|
| Tubular cable lugs standard type and tubular cable lugs for switchgear connections |                     | 10 - 240                       |               |
| Connectors, Standard type                                                          |                     | 10 - 120                       |               |
| Tubular cable lugs for fine stranded conductors                                    |                     | 10 - 240                       |               |
| Connector for fine stranded conductors                                             |                     | 10 - 95                        |               |





**PK 60 VP/FT Hydraulic crimping head 16 - 300 mm²**

- ▶ Suitable for crimping tubular cable lugs and connectors "standard type" and fine and superfine stranded conductors to 300 mm²
- ▶ The patented centring system guarantees every time optimum crimping results
- ▶ Closed crimping head - ideal for utility lines construction

**Characteristics**

- Quad-point indent crimping
- Wide crimping
- Closed crimping head with quick coupling, flip top style, under no pressure, rotates 360°
- For connecting to hydraulic drive units with 700 bar operating pressure for best possible crimping results

| Technical data     |              |
|--------------------|--------------|
| Crimping force     | 55 kN        |
| Crimping range     | 16 - 300 mm² |
| Operating pressure | max. 700 bar |
| Length             | 315 mm       |
| Weight             | 2.8 kg       |

| Item                                 | Part No.        |      |
|--------------------------------------|-----------------|------|
| Hydraulic crimping head 16 - 300 mm² | <b>PK60VPFT</b> |      |
| Scope of supply                      | Part No.        | Page |
| Carrying bag                         | TT2             | 217  |

| Suitable for                                                                       | Connection material                                                               | Crimping range mm² | Crimp profile                                                                     |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|
| Tubular cable lugs standard type and tubular cable lugs for switchgear connections |  | 16 - 300           |  |
| Tubular cable lugs and connectors for fine stranded conductors                     |  | 16 - 300           |  |



### PK 120/42 Hydraulic crimping head 10 - 400 mm<sup>2</sup>



- ▶ Large crimping range up to 400 mm<sup>2</sup>
- ▶ C-head with large 42 mm opening width
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools

#### Characteristics

- For interchangeable dies, series 13, wide crimping
- Crimping head with quick coupling, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

| Technical data                                   |                          |      |
|--------------------------------------------------|--------------------------|------|
| Crimping force                                   | 130 kN                   |      |
| Stroke / opening width                           | 42 mm                    |      |
| Crimping range                                   | 10 - 400 mm <sup>2</sup> |      |
| Operating pressure                               | max. 700 bar             |      |
| Weight                                           | 4.5 kg                   |      |
| Item                                             | Part No.                 |      |
| Hydraulic crimping head 10 - 400 mm <sup>2</sup> | PK12042                  |      |
| Scope of supply                                  | Part No.                 | Page |
| Carrying bag                                     | TT2                      | 217  |



**13**  
KLAUKE



### THK 120 Hydraulic crimping tool for workbench mounting 10 - 400 mm<sup>2</sup>



- ▶ Large crimping range up to 400 mm<sup>2</sup>
- ▶ For workbench mounting
- ▶ BG-compliant version
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools

#### Characteristics

- For interchangeable dies, series 13, wide crimping
- Quick coupling
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

| Technical data                                                           |                               |  |
|--------------------------------------------------------------------------|-------------------------------|--|
| Crimping force                                                           | 120 kN                        |  |
| Crimping range                                                           | 10 - 400 mm <sup>2</sup>      |  |
| Operating pressure                                                       | max. 700 bar                  |  |
| Weight                                                                   | 12 kg                         |  |
| Dimensions                                                               | H x W x D: 285 x 160 x 110 mm |  |
| Item                                                                     | Part No.                      |  |
| Hydraulic crimping tool for work bench mounting 10 - 400 mm <sup>2</sup> | THK120                        |  |

**13**  
KLAUKE



**Available dies for Series 13 for PK 120/42 and THK 120**

|                                                                                                                                              |    |                         |    | 442 |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type, tubular cable lugs for switchgear connections                                          |    | 16 - 400                |    | 443 |
| Insulated tubular cable lugs and connectors, insulated pin terminals                                                                         |    | 10 - 150                |    | 443 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                               |    | 16 - 150                |    | 444 |
| <b>Compression cable lugs and connectors acc. to DIN - Cu</b>                                                                                |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu                                                                     |    | 16 - 300                |    | 444 |
| Double crimping compression cable lugs                                                                                                       |    | 2 x 50 - 2 x 95         |    | 444 |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                                                                              |                                                                                     |                         |                                                                                     |     |
| Terminals (DIN 46234) and pin terminals (DIN 46230) Cu, solderless connectors (DIN 46341) Cu                                                 |    | 16 - 150                |    | 445 |
| Insulated terminals and pin terminals                                                                                                        |    | 10 - 95                 |    | 445 |
| <b>Sleeves for compacted conductors and sector shaped conductors, Cu</b>                                                                     |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped conductors, 3 and 4 core sector shaped conductors                                     |    | 10 sm - 300 se / 300 sm |    | 445 |
| <b>Compression cable lugs and connectors acc. to DIN - Al</b>                                                                                |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors acc. to DIN - Al                                                                                       |    | 10 - 240                |    | 446 |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182, Al conductors DIN EN 50182, 120 - 185 mm <sup>2</sup> |    | 25 - 185                |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, aluminum crimping                                     |    | 25/4 - 120/20           |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, steel crimping                                        |    | 25/4 - 120/20           |    | 447 |
| <b>Compression cable lugs and connectors - Al/Cu</b>                                                                                         |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors - Al/Cu                                                                                                |   | 10 - 240                |   | 446 |
| <b>Clamps and screw connectors</b>                                                                                                           |                                                                                     |                         |                                                                                     |     |
| C-clamps                                                                                                                                     |  | 10 - 70                 |  | 447 |
| H-clamps                                                                                                                                     |  | 70 - 120                |  | 447 |
| <b>Cable end-sleeves</b>                                                                                                                     |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                            |  | 25 - 240                |  | 448 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                                 |  | 25 - 240                |  | 448 |

Please observe the restrictions in the technical index when crimping connectors!

PK 120 U Hydraulic crimping head 10 - 400 mm<sup>2</sup>



- ▶ H-head for deep groove crimping
- ▶ Up to 60% less crimping operations due to wide crimping compared with 6 t tools

Characteristics

- For interchangeable dies, series 13, wide crimping
- H-Form crimping head with quick coupling, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

| Technical data                                   |                          |         |
|--------------------------------------------------|--------------------------|---------|
| Crimping force                                   | 120 kN                   |         |
| Stroke / opening width                           | 20 mm                    |         |
| Crimping range                                   | 10 - 400 mm <sup>2</sup> |         |
| Operating pressure                               | max. 700 bar             |         |
| Length                                           | 320 mm                   |         |
| Weight                                           | 3.7 kg                   |         |
| Item                                             | Part No.                 |         |
| Hydraulic crimping head 10 - 400 mm <sup>2</sup> | PK120U                   |         |
| Scope of supply                                  |                          | Page    |
| Carrying bag                                     |                          | TT2 217 |

13



**Available dies for Series 13 for PK 120 U**

|                                                                                                                                        |    |                         |    | 442 |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----|
| Tubular cable lugs and connectors, Cu, standard type,<br>tubular cable lugs for switchgear connections                                 |    | 16 - 400                |    | 443 |
| Insulated tubular cable lugs and connectors, insulated pin<br>terminals                                                                |    | 10 - 150                |    | 443 |
| Tubular cable lugs and connectors for fine stranded conductors                                                                         |    | 16 - 150                |    | 444 |
| <b>Compression cable lugs and connectors acc. to DIN - Cu</b>                                                                          |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs (DIN 46235) and connectors<br>(DIN 46267, part 1) Cu                                                            |    | 16 - 300                |    | 444 |
| Double crimping compression cable lugs                                                                                                 |    | 2 x 50 - 2 x 95         |    | 444 |
| <b>Terminals, connectors and pin terminals acc. to DIN - Cu</b>                                                                        |                                                                                     |                         |                                                                                     |     |
| Terminals (DIN 46234) and pin terminals (DIN 46230) Cu,<br>solderless connectors (DIN 46341) Cu                                        |    | 16 - 150                |    | 445 |
| Insulated terminals and pin terminals                                                                                                  |    | 10 - 95                 |    | 445 |
| <b>Sleeves for compacted conductors and sector shaped conductors, Cu</b>                                                               |                                                                                     |                         |                                                                                     |     |
| Pre-rounding crimping dies for Al and Cu sector shaped conduc-<br>tors, 3 and 4 core sector shaped conductors                          |    | 10 sm - 300 se / 300 sm |    | 445 |
| <b>Compression cable lugs and connectors acc. to DIN - Al</b>                                                                          |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors acc. to DIN - Al                                                                                 |    | 10 - 240                |    | 446 |
| Compression joints for full tension connections of Aldrey cables<br>acc. to DIN EN 50182, Al conductors DIN EN 50182,<br>120 - 185 mm² |    | 25 - 185                |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, aluminum crimping                            |    | 25/4 - 120/20           |    | 446 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables<br>acc. to DIN EN 50182, steel crimping                               |    | 25/4 - 120/20           |    | 447 |
| <b>Compression cable lugs and connectors - Al/Cu</b>                                                                                   |                                                                                     |                         |                                                                                     |     |
| Compression cable lugs and connectors - Al/Cu                                                                                          |   | 10 - 240                |   | 430 |
| <b>Clamps and screw connectors</b>                                                                                                     |                                                                                     |                         |                                                                                     |     |
| C-clamps                                                                                                                               |  | 10 - 70                 |  | 447 |
| H-clamps                                                                                                                               |  | 70 - 120                |  | 447 |
| <b>Cable end-sleeves</b>                                                                                                               |                                                                                     |                         |                                                                                     |     |
| Cable end-sleeves                                                                                                                      |  | 25 - 240                |  | 448 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                                                           |  | 25 - 240                |  | 448 |

Please observe the restrictions in the technical index when crimping connectors!



PK 25/2 Hydraulic crimping head 16 - 625 mm<sup>2</sup>

- ▶ For dies acc. to DIN 48083, page 3
- ▶ Very large crimping range to 625 mm<sup>2</sup>
- ▶ For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

## Characteristics

- For interchangeable dies, series 25, wide crimping
- Crimping head with quick coupling, under no pressure, rotates 360°

| Technical data                                   |                          |      |
|--------------------------------------------------|--------------------------|------|
| Crimping force                                   | 250 kN                   |      |
| Stroke / opening width                           | 20 mm                    |      |
| Crimping range                                   | 16 - 625 mm <sup>2</sup> |      |
| Operating pressure                               | max. 700 bar             |      |
| Length                                           | 335 mm                   |      |
| Weight                                           | 5.3 kg                   |      |
| Item                                             | Part No.                 |      |
| Hydraulic crimping head 16 - 625 mm <sup>2</sup> | PK252                    |      |
| Scope of supply                                  | Part No.                 | Page |
| Carrying bag                                     | TT2                      | 217  |

25  
Klauke

**Available dies for Series 25 for PK 25/2**

|                                                                                                          |    |               |    |     |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|-----|
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    |     |
|                                                                                                          |    |               |    | 452 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, aluminum crimping |    | 25/4 - 120/20 |    | 452 |
| Compression joints acc. to DIN 48085, part 3 for Al-steel cables acc. to DIN EN 50182, steel crimping    |    | 25/4 - 120/20 |    | 453 |
| <b>Aluminum/copper compression cable lugs and connectors</b>                                             |                                                                                     |               |                                                                                     |     |
| Aluminum/copper compression cable lugs and connectors                                                    |    | 10 - 500      |    | 452 |
| <b>Clamps and screw connectors</b>                                                                       |                                                                                     |               |                                                                                     |     |
| C-clamps                                                                                                 |    | 10 - 185      |    | 453 |
| H-clamps                                                                                                 |   | 70 - 120      |   | 453 |
| <b>Cable end-sleeves</b>                                                                                 |                                                                                     |               |                                                                                     |     |
| Cable end-sleeves                                                                                        |  | 25 - 240      |  | 454 |
| Cable end-sleeves, trapezoidal, for fine stranded conductors                                             |  | 25 - 240      |  | 454 |

Please observe the restrictions in the technical index when crimping connectors!



### PK 45 Hydraulic crimping head 120 - 1000 mm²



**45**  
Klauke

45 ton



- ▶ Very large crimping range to 1000 mm²
- ▶ Sturdy construction for safe working
- ▶ For connecting to hydraulic pumps with 700 bar operating pressure for best possible crimping results

#### Characteristics

- For interchangeable dies, series 45, wide crimping
- Crimping head with quick coupling, under no pressure, rotates 360°

| Technical data                         |                |      |
|----------------------------------------|----------------|------|
| Crimping force                         | 450 kN         |      |
| Crimping range                         | 120 - 1000 mm² |      |
| Operating pressure                     | max. 700 bar   |      |
| Weight                                 | 10.3 kg        |      |
| Height                                 | 265 mm         |      |
| Item                                   | Part No.       |      |
| Hydraulic crimping head 120 - 1000 mm² | <b>PK45</b>    |      |
| Scope of supply                        | Part No.       | Page |
| Carrying bag                           | TT2            | 217  |

#### Available dies for Series 45 for PK 45

| Suitable for                                                                                                                     | Connection material | Crimping range mm² | Crimp profile | Page |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------|---------------|------|
| Compression cable lugs and connectors acc. to DIN - Cu                                                                           |                     |                    |               |      |
| Compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) Cu                                                         |                     | 120 - 1000         |               | 455  |
| Compression cable lugs and connectors acc. to DIN - Al                                                                           |                     |                    |               |      |
| Compression cable lugs and connectors acc. to DIN - Al                                                                           |                     | 150 - 500          |               | 455  |
| Compression joints for full tension connections of Aldrey cables acc. to DIN EN 50182, Al conductors DIN EN 50182, 150 - 300 mm² |                     |                    |               |      |
|                                                                                                                                  |                     | 150 - 300          |               | 455  |

### PK 1000 Hydraulic crimping head, 100 t, up to 1600 mm²



**100**  
Klauke

100 ton

- ▶ Single-acting crimping head for connecting to hydraulic pumps with 700 bar operating pressure
- ▶ Compact, simple design
- ▶ Extremely high crimping force

#### Characteristics

- For interchangeable dies (outer: to IZUMI standard EP-100W, inside: DIN standard or customer request)
- Nickel-plated version
- Quick coupling

#### Order info

- Also available in country-specific version, part number appendix "C"

| Technical data                                   |                        |  |
|--------------------------------------------------|------------------------|--|
| Crimping force                                   | 1000 kN                |  |
| Stroke                                           | 25 mm                  |  |
| Crimping range                                   | up to 1600 mm²         |  |
| Operating pressure                               | max. 700 bar           |  |
| Weight                                           | without dies: 27 kg    |  |
| Height                                           | Incl. handles: 365 mm  |  |
| Dimensions                                       | Outer diameter: 195 mm |  |
| Item                                             | Part No.               |  |
| Hydraulic 100 t crimping head with Cejn coupling | <b>PK1000</b>          |  |



**SDG 45 Hydraulic cutting head 45 mm dia.**

- ▶ High cutting force cuts armoured copper and aluminum cables and Al/St cables (ACSR)
- ▶ Also suitable for round material made of Al, Cu and Steel
- ▶ Extremely robust design and lightweight

**Characteristics**

- Closed head with bolt interlock, flip open jaws
- Cutting head with quick coupling, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible cutting results

| Technical data     |                 |
|--------------------|-----------------|
| Cutting range      | max. 45 mm dia. |
| Cutting force      | 60 kN           |
| Operating pressure | max. 700 bar    |
| Length             | 340 mm          |
| Weight             | 3.8 kg          |

| Item                              | Part No. |      |
|-----------------------------------|----------|------|
| Hydraulic cutting head 45 mm dia. | SDG45    |      |
| Scope of supply                   | Part No. | Page |
| Carrying bag                      | TT2      | 217  |

| Accessories        | Part No. | Page |
|--------------------|----------|------|
| Outer fixed blade  | ESG45EF  |      |
| Inner moving blade | ESG45ES1 |      |



ESG45EF



ESG45ES1

**SDG 50 Hydraulic cutting head 48 mm dia.**

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Low weight

**Characteristics**

- Closed crimping head, flip top style
- Cutting head with quick coupling, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible cutting results

| Technical data     |                 |
|--------------------|-----------------|
| Cutting range      | max. 48 mm dia. |
| Cutting force      | 60 kN           |
| Operating pressure | max. 700 bar    |
| Length             | 330 mm          |
| Weight             | 2.5 kg          |

| Item                              | Part No. |      |
|-----------------------------------|----------|------|
| Hydraulic cutting head 48 mm dia. | SDG50    |      |
| Scope of supply                   | Part No. | Page |
| Carrying bag                      | TT2      | 217  |

| Accessories        | Part No. | Page |
|--------------------|----------|------|
| Inner moving blade | ESG50ES  |      |
| Outer fixed blade  | ESG50EF1 |      |



ESG50EF1



ESG50ES

## SDG 55 Hydraulic cutting head 55 mm dia.



ESG55EF

ESG55ES

- ▶ High cutting force cuts armoured copper and aluminum cables and Al/St cables (ACSR)
- ▶ Also suitable for round material made of Al, Cu and Steel
- ▶ 120 kN cutting force for maximum output

## Characteristics

- Closed cutting head with bolt interlock, flip top style, under no pressure, rotates 360°, with quick coupling
- For connecting to hydraulic pumps with 700 bar operating pressure
- Ergonomic handling through handle

| Technical data                    |                 |      |
|-----------------------------------|-----------------|------|
| Cutting range                     | max. 55 mm dia. |      |
| Cutting force                     | 120 kN          |      |
| Operating pressure                | max. 700 bar    |      |
| Length                            | 380 mm          |      |
| Weight                            | 5.6 kg          |      |
| Item                              | Part No.        |      |
| Hydraulic cutting head 55 mm dia. | <b>SDG55</b>    |      |
| Scope of supply                   | Part No.        | Page |
| Carrying bag                      | TT2             | 217  |
| Accessories                       | Part No.        | Page |
| Outer fixed blade                 | ESG55EF         |      |
| Inner moving blade                | ESG55ES         |      |

## SDG 65 Hydraulic cutting head 65 mm dia.



ES65E

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Also suitable for fine stranded cable
- ▶ Safe working due to high ground stability by double stops

## Characteristics

- Open cutting head with quick coupling, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure

| Technical data                    |                 |      |
|-----------------------------------|-----------------|------|
| Cutting range                     | max. 65 mm dia. |      |
| Cutting force                     | 42 kN           |      |
| Operating pressure                | max. 700 bar    |      |
| Length                            | 425 mm          |      |
| Weight                            | 4.7 kg          |      |
| Item                              | Part No.        |      |
| Hydraulic cutting head 65 mm dia. | <b>SDK65</b>    |      |
| Scope of supply                   | Part No.        | Page |
| Carrying bag                      | TT2             | 217  |
| Accessories                       | Part No.        | Page |
| Replacement blade                 | ES65E           |      |

## SDG 85/2 Hydraulic cutting head 85 mm dia.

- ▶ High user safety through cutting head with bolt interlock
- ▶ Exceptionally light and compact design
- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)

### Characteristics

- Closed cutting head with bolt interlock, flip top style, under no pressure, rotates 360°, with quick coupling
- For connecting to hydraulic drive units with 700 bar operating pressure for the best possible cutting results
- Handle enables easy handling

| Technical data                    |                 |      |
|-----------------------------------|-----------------|------|
| Cutting range                     | max. 85 mm dia. |      |
| Cutting force                     | 60 kN           |      |
| Operating pressure                | max. 700 bar    |      |
| Length                            | 445 mm          |      |
| Weight                            | 4.3 kg          |      |
| Item                              | Part No.        |      |
| Hydraulic cutting head 85 mm dia. | <b>SDG852</b>   |      |
| Scope of supply                   | Part No.        | Page |
| Carrying bag                      | TT2             | 217  |
| Accessories                       |                 |      |
| Outer fixed blade                 | ESG85EF1        |      |
| Inner moving blade                | ESG85ES1        |      |



ESG85EF1



ESG85ES1

## SDG 85 Hydraulic cutting head 85 mm dia.

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Suitable for fine stranded cable and telecommunication cable
- ▶ Exceptionally light and compact design
- ▶ Safe working due to high ground stability by double stops

### Characteristics

- Open cutting head with quick coupling, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible cutting results
- Uniform cut by knife guide

| Technical data                    |                 |      |
|-----------------------------------|-----------------|------|
| Cutting range                     | max. 85 mm dia. |      |
| Cutting force                     | 30 kN           |      |
| Operating pressure                | max. 700 bar    |      |
| Length                            | 450 mm          |      |
| Weight                            | 5.2 kg          |      |
| Item                              | Part No.        |      |
| Hydraulic cutting head 85 mm dia. | <b>SDK85</b>    |      |
| Scope of supply                   | Part No.        | Page |
| Carrying bag                      | TT2             | 217  |
| Accessories                       |                 |      |
| Replacement blade                 | ES85E           |      |



ES85E

## SDG 105 Hydraulic cutting head 105 mm dia.



ESG105EF



ESG105ES

- ▶ Cuts copper and aluminum cables (for armoured cables)
- ▶ 120 kN cutting force for extremely wide cutting range up to 105 mm dia.
- ▶ Exceptionally light and compact design

## Characteristics

- Closed cutting head with bolt interlock, under no pressure, rotates 360°, with quick coupling
- Compact design permits cutting also in constricted places
- Handle enables easy handling
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible cutting results

| Technical data     |                  |
|--------------------|------------------|
| Cutting range      | max. 105 mm dia. |
| Cutting force      | 120 kN           |
| Operating pressure | max. 700 bar     |
| Length             | 432 mm           |
| Weight             | 7.7 kg           |

| Item                               | Part No. |      |
|------------------------------------|----------|------|
| Hydraulic cutting head 105 mm dia. | SDG105   |      |
| Scope of supply                    | Part No. | Page |
| Carrying bag                       | TT2      | 217  |

| Accessories        | Part No. | Page |
|--------------------|----------|------|
| Inner moving blade | ESG105ES |      |
| Outer fixed blade  | ESG105EF |      |

## SDK 105 Hydraulic cutting head 105 mm dia.



ES105E

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Extremely wide cutting range up to 105 mm dia. – also for fine stranded cables
- ▶ Exceptionally light and compact design
- ▶ Safe working due to high ground stability by double stops

## Characteristics

- Open cutting head with quick coupling, under no pressure, rotates 360°
- For connecting to hydraulic pumps with 700 bar operating pressure for best possible cutting results
- High ground stability by double stops

| Technical data     |                  |
|--------------------|------------------|
| Cutting range      | max. 105 mm dia. |
| Cutting force      | 74 kN            |
| Operating pressure | max. 700 bar     |
| Length             | 510 mm           |
| Weight             | 7.7 kg           |

| Item                               | Part No. |      |
|------------------------------------|----------|------|
| Hydraulic cutting head 105 mm dia. | SDK105   |      |
| Scope of supply                    | Part No. | Page |
| Carrying bag                       | TT4      | 217  |

| Accessories       | Part No. | Page |
|-------------------|----------|------|
| Replacement blade | ES105E   |      |

## SDK 120 Hydraulic cutting head 120 mm dia.

- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Extremely wide cutting range up to 120 mm dia. – also for fine stranded cables
- ▶ Exceptionally light and compact design
- ▶ Safe working due to high ground stability by double stops

### Characteristics

- Open cutting head with quick coupling, under no pressure, rotates 360°
- High ground stability by double stops
- For connecting to hydraulic drive units with 700 bar operating pressure for the best possible cutting results

| Technical data                     |                  |      |
|------------------------------------|------------------|------|
| Cutting range                      | max. 120 mm dia. |      |
| Cutting force                      | 55 kN            |      |
| Operating pressure                 | max. 700 bar     |      |
| Length                             | 538 mm           |      |
| Weight                             | 8.7 kg           |      |
| Item                               | Part No.         |      |
| Hydraulic cutting head 120 mm dia. | <b>SDK120</b>    |      |
| Scope of supply                    | Part No.         | Page |
| Carrying bag                       | TT4              | 217  |
| Accessories                        | Part No.         | Page |
| Replacement blade                  | ES120E           |      |



ES120E

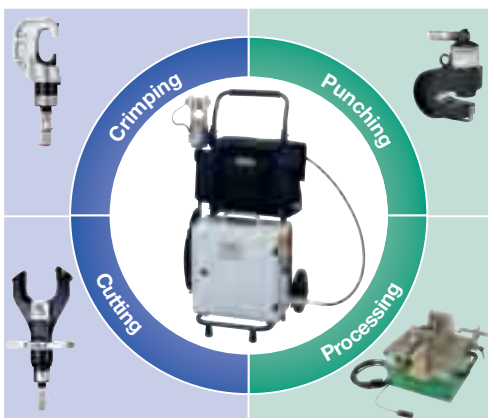


## Drive with a system.

### Hydraulic drive units for Klauke tools.

Klauke stands for connections with system. This applies for both tool and connecting material combinations as well as for individual components within hydraulic tools and systems. All system pumps are capable of driving all Klauke crimping, cutting and universal heads. In addition, individual types with appropriate functions can also be connected to the Bus Bar Tool centre.

All system pumps are precisely matched to Klauke tools and generate 700 bar pressure.



- **System pumps with 700 bar pressure:**
  - Foot pumps
  - Electric pumps for 115 V to 400 V
  - 18 V battery powered hydraulic pump, with Li-ion technology.
- **For driving:**
  - Crimping heads and crimping tools for workbench mounting
  - Cutting heads
  - Bus bar processing centres.

Currently the only electro-hydraulic drive unit on the market, the **EHP 4** offers the option of regulating the piston feed speed. This means the optimum speed can be selected for every application.

**FHP 2 Foot pump 700 bar**

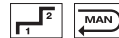
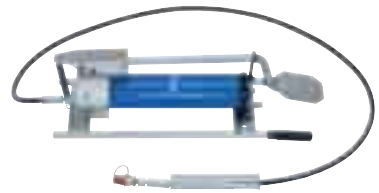
- ▶ Two-stage hydraulics
- ▶ Manual retraction in case of need and at high pressure end
- ▶ Sturdy design

**Characteristics**

- For the operation of hydraulic crimping and cutting heads
- Automatic pressure switch off

| Technical data     |              |      |
|--------------------|--------------|------|
| Operating pressure | max. 700 bar |      |
| Weight             | 12 kg        |      |
| Item               | Part No.     |      |
| Foot pump 700 bar  | <b>FHP2</b>  |      |
| Scope of supply    | Part No.     | Page |
| Hydraulic hose, 2m | HS22         | 402  |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Hydraulic hose, 3m                               | HS23     | 402  |
| Hydraulic hose, 4m                               | HS24     | 402  |
| Hydraulic hose, 5m                               | HS25     | 402  |
| Hydraulic hose, 6m                               | HS26     | 402  |
| Hydraulic hose, 8m                               | HS28     | 402  |
| Hydraulic hose, 10m                              | HS210    | 402  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Pressure sensor 1000 bar                         | TP1000   | 406  |


**PHD 2 Pneumatic hydraulic booster, 700 bar**

- ▶ Manual retraction in case of need and at high pressure end

**Characteristics**

- For the operation of hydraulic crimping and cutting heads

| Technical data                           |              |      |
|------------------------------------------|--------------|------|
| Required air pressure                    | max. 6 bar   |      |
| Operating pressure                       | max. 700 bar |      |
| Weight                                   | 6.3 kg       |      |
| Item                                     | Part No.     |      |
| Pneumatic-hydraulic pressure transmitter | <b>PHD2</b>  |      |
| Scope of supply                          | Part No.     | Page |
| Hydraulic hose, 2m                       | HS22         | 402  |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Hydraulic hose, 3m                               | HS23     | 402  |
| Hydraulic hose, 4m                               | HS24     | 402  |
| Hydraulic hose, 5m                               | HS25     | 402  |
| Hydraulic hose, 6m                               | HS26     | 402  |
| Hydraulic hose, 8m                               | HS28     | 402  |
| Hydraulic hose, 10m                              | HS210    | 402  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Pressure sensor 1000 bar                         | TP1000   | 406  |



## EHP 2 Electro hydraulic drive unit 400 V, 700 bar

► Compact dimensions and low weight combined with high conveying capacity

## Characteristics

- With three-phase motor
- For the operation of hydraulic crimping and cutting heads
- Hydraulic hose, 2 m
- Connecting cable, 4 m
- Three-stage safety foot switch
- Electronic control
- 70% power-on time



400V

| Technical data     |                       |
|--------------------|-----------------------|
| Version            | Three-phase motor     |
| Rated output       | 0.55 kW               |
| Motor voltage      | 360 V - 440 V / 50 Hz |
| Capacity           | 0.82 l / min.         |
| Operating pressure | max. 700 bar          |
| Weight             | 22.9 kg               |
| Operating mode     | 70% power-on time     |

| Item                                                                 | Part No.       |      |
|----------------------------------------------------------------------|----------------|------|
| Electro-hydraulic pump, 700 bar                                      | <b>EHP2380</b> |      |
| Scope of supply                                                      | Part No.       | Page |
| Hydraulic hose, 2m                                                   | HS22           | 402  |
| Foot switch for electro-hydraul. pumps EHP 2 to EHP 4 and HK 12/2 EL | FTA1           | 402  |

| Accessories                                         | Part No. | Page |
|-----------------------------------------------------|----------|------|
| Transport trolley for electro-hydraulic pump EHP 2  | TW50     | 401  |
| Two-hand safety controller for pumps EHP 2 to EHP 4 | ZST3     | 402  |
| Hydraulic hose, 3m                                  | HS23     | 402  |
| Hydraulic hose, 4m                                  | HS24     | 402  |
| Hydraulic hose, 5m                                  | HS25     | 402  |
| Hydraulic hose, 6m                                  | HS26     | 402  |
| Hydraulic hose, 8m                                  | HS28     | 402  |
| Hydraulic hose, 10m                                 | HS210    | 402  |
| Digital meter for force and pressure measurement    | TC1U     | 406  |
| Pressure sensor 1000 bar                            | TP1000   | 406  |
| Adapter Klauke sleeve to Greenlee plug              | CMGSK    |      |



**EHP 3 Electro hydraulic drive unit 400 V, 700 bar**

- ▶ Continuous operation
- ▶ High conveying capacities with compact dimensions

**Characteristics**

- With three-phase motor
- For the operation of hydraulic crimping and cutting heads
- Hydraulic hose, 2 m
- Connecting cable, 4 m
- Three-stage safety foot switch
- Electronic control

| Technical data     |                            |
|--------------------|----------------------------|
| Version            | Three-phase motor          |
| Rated output       | 1.1 kW                     |
| Motor voltage      | 360 V - 440 V / 50 - 60 Hz |
| Capacity           | 0.9 l / min.               |
| Operating pressure | max. 700 bar               |
| Weight             | 40.9 kg                    |
| Operating mode     | 100% power-on time         |

| Item                                                                 | Part No.    |      |
|----------------------------------------------------------------------|-------------|------|
| Electro-hydraulic pump, 700 bar                                      | <b>EHP3</b> |      |
| Scope of supply                                                      | Part No.    | Page |
| Hydraulic hose, 2m                                                   | HS22        | 402  |
| Foot switch for electro-hydraul. pumps EHP 2 to EHP 4 and HK 12/2 EL | FTA1        | 402  |

| Accessories                                         | Part No. | Page |
|-----------------------------------------------------|----------|------|
| Two-hand safety controller for pumps EHP 2 to EHP 4 | ZST3     | 402  |
| Hydraulic hose, 3m                                  | HS23     | 402  |
| Hydraulic hose, 4m                                  | HS24     | 402  |
| Hydraulic hose, 5m                                  | HS25     | 402  |
| Hydraulic hose, 6m                                  | HS26     | 402  |
| Hydraulic hose, 8m                                  | HS28     | 402  |
| Hydraulic hose, 10m                                 | HS210    | 402  |
| Digital meter for force and pressure measurement    | TC1U     | 406  |
| Pressure sensor 1000 bar                            | TP1000   | 406  |
| Transport trolley for electro-hydraulic pump EHP 3  | TWEHP3   | 401  |
| Adapter Klauke sleeve to Greenlee plug              | CMGSK    |      |


**400V**


## EHP 4 Electro hydraulic drive unit, 700 bar



- ▶ Manually adjustable piston stroke speed / volume of the pump
- ▶ Closed, compact and lockable housing (IP54 or higher) to protect against humidity, dust and unauthorised manipulation
- ▶ High capacity

## Characteristics

- Compatibility with hydraulic crimping and cutting heads of Klauke
- To connect bus bar tool centre with adapter CMGSK
- For use in conjunction with the LSK 120 with adapter CMGSK for punching bus bars
- Compatibility with Greenlee punching tools (round and special shape punches) with adapter CMGSK
- Manually adjustable piston stroke speed / volume of the pump

## Order info

- The hydraulic pumps can be individually configured as customer-specific system.

| Technical data                                                       |                                          |      |
|----------------------------------------------------------------------|------------------------------------------|------|
| Version                                                              | AC                                       |      |
| Rated output                                                         | 0.75 kW                                  |      |
| Motor voltage                                                        | EHP4115: 115V/50 Hz, EHP4230: 230V/50 Hz |      |
| Capacity                                                             | 0.82 l / min.                            |      |
| Operating pressure                                                   | max. 700 bar                             |      |
| Weight                                                               | 28.3 kg                                  |      |
| Operating mode                                                       | 70% power-on time                        |      |
| Item                                                                 | Part No.                                 |      |
| Electro-hydraulic pump, 115 V                                        | <b>EHP4115</b>                           |      |
| Electro-hydraulic pump, 230 V                                        | <b>EHP4230</b>                           |      |
| Scope of supply                                                      | Part No.                                 | Page |
| Hydraulic hose, 3m                                                   | HS23                                     | 402  |
| Foot switch for electro-hydraul. pumps EHP 2 to EHP 4 and HK 12/2 EL | FTA1                                     | 402  |
| Accessories                                                          | Part No.                                 | Page |
| Two-hand safety controller for pumps EHP 2 to EHP 4                  | ZST3                                     | 402  |
| Hydraulic hose, 3m                                                   | HS23                                     | 402  |
| Hydraulic hose, 4m                                                   | HS24                                     | 402  |
| Hydraulic hose, 5m                                                   | HS25                                     | 402  |
| Hydraulic hose, 6m                                                   | HS26                                     | 402  |
| Hydraulic hose, 8m                                                   | HS28                                     | 402  |
| Hydraulic hose, 10m                                                  | HS210                                    | 402  |
| Digital meter for force and pressure measurement                     | TC1U                                     | 406  |
| Pressure sensor 1000 bar                                             | TP1000                                   | 406  |
| Transport trolley for electro-hydraulic pump EHP 4                   | TW150                                    | 401  |
| Adapter Klauke sleeve to Greenlee plug                               | CMGSK                                    |      |

## AHP 700-L Battery powered hydraulic pump, 700 bar

- ▶ Compact and lightweight for mobile use
- ▶ High capacity
- ▶ Suitable for operating all single-acting Klauke crimping, cutting and punching tools with 700 bar operating pressure

### Characteristics

- Programme-switching between crimping, cutting, and punching
- Housing from impact-resistant, fibreglass reinforced polyamide
- Large display for monitoring, diagnostics and setting the pump
- Two powerful, high-capacity Li-Ion batteries
- High-performance motor for maximum operating speed
- Automatic retraction
- Manual retract in case of need
- Manual retract interrupt with "teach in" (MRS+)
- Remote control with cable for easy operation of the battery-operated pump
- Integrated storage compartment for storing the remote control
- Multifunction LED for maintenance control, charge level indicator of the batteries and for data transmission to PC via USB adapter
- Environmentally-friendly hydraulic oil, quickly biodegradable
- All high-pressure hoses have coupling plug and coupling sleeve, oil filled
- Shoulder strap with padding for high wearing comfort

### Order info

- Also available in country-specific version, part number appendix „C“



| Technical data       |                                     |
|----------------------|-------------------------------------|
| Battery voltage      | 18 V                                |
| Battery capacity     | 2 x 3.0 Ah, Li-Ion                  |
| Charging time        | 22 min.                             |
| Weight incl. battery | (with two batteries) approx. 6.4 kg |
| Ambient temperature  | -12°C to +40 °C                     |
| Operating pressure   | max. 700 bar                        |
| Max. oil volume;     | approx. 800 ml                      |
| Dimensions           | H x W x D: 330 x 160 x 280 mm       |

| Item                                          | Part No.       |          |      |
|-----------------------------------------------|----------------|----------|------|
| Battery powered hydraulic pump, 700 bar       | <b>AHP700L</b> |          |      |
| Scope of supply                               | Part No.       | Quantity | Page |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)         | RAL2           | 2        | 398  |
| Quick-charger for 18V Li-Ion batteries, 230 V | LGL1           | 1        | 400  |
| Hydraulic hose, 2m, oil filled                | HSOEL2         | 1        | 403  |
| Carrying strap with shoulder padding          | TG3            | 1        |      |
| Carrying bag                                  | TT2            | 1        | 217  |
| Remote control with 1.5 m cable               | HTA4           | 1        | 404  |

| Accessories                                                          | Part No. | Page |
|----------------------------------------------------------------------|----------|------|
| Hydraulic hose, 3m, oil filled                                       | HSOEL3   | 403  |
| Hydraulic hose, 4m, oil filled                                       | HSOEL4   | 403  |
| Hydraulic hose, 5m, oil filled                                       | HSOEL5   | 403  |
| Hydraulic hose, 6m, oil filled                                       | HSOEL6   | 403  |
| Hydraulic hose, 8m, oil filled                                       | HSOEL8   | 403  |
| Hydraulic hose, 10m, oil filled                                      | HSOEL10  | 403  |
| 18 V mains adapter for 240 V Voltage                                 | NG2230   | 399  |
| USB adapter                                                          | PGA1     | 408  |
| Digital meter for force and pressure measurement                     | TC1U     | 406  |
| Two-hand safety control for battery powered hydraulic pump AHP 700-L | ZST4     | 402  |
| Foot switch for battery powered hydraulic pump AHP 700-L             | FTA4     | 402  |
| Pressure sensor 1000 bar                                             | TP1000   | 406  |

## System solutions for special requirements.

**Hydraulic systems for crimping,  
cutting, bending and punching.**

Hydraulic systems offer a host of applications: crimping especially large connecting materials, cutting cables with large diameters or cutting potentially live cables. The scope of supply includes drive units, tools, high-pressure hoses and transport aids such as boxes or trolleys.

Thanks to the various drive types, for instance with foot pump, hydraulic pumps without an external energy supply or driven by electric motors, there's a solution for every application.



- Hydraulic crimping system to 450 kN.
- Hydraulic cutting systems to 120 mm dia.
- GS-tested safety cutting tools.



## ■ *Ideal for large cross sections and diameters.*

- ▶ Crimping systems with 1000 kN crimping force for nominal cross sections up to 1600 mm<sup>2</sup>.
- ▶ Hydraulic cutting systems for copper and aluminum cables without armouring up to 120 mm dia.
- ▶ Extremely sturdy crimping and cutting heads.
- ▶ **Systems can be configured** with various hose lengths from 2 m to 10 m.
- ▶ Drive via foot or 230 V and 400 V electric pumps.



### **Benefits:**

- ▶ Perfectly matched crimping and cutting systems are available for frequent applications.
- ▶ Systems with foot pumps work without an external power supply and are ideal for mobile use.
- ▶ Crimping and cutting systems with electric pumps offer increased comfort.
- ▶ The various hose lengths allow optimised adjustment to individual working situations.

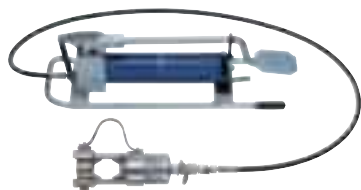
## ■ *Safe cutting operations even on live cables.*

- ▶ Tested safety cutting devices for cutting live cables.
- ▶ Tested tools certified to GS.
- ▶ With electro-hydraulic drive or with foot pump.

### **Benefits:**

- ▶ Increased safety **since live cables can be cut without risk.**
- ▶ These cutting tools, tested by the government safety organisation, offer the highest possible level of safety for the user.
- ▶ Thanks to its compact design, the battery powered hydraulic version is much lighter than alternative systems.



HK 25/2 Hydraulic crimping tool with foot pump 16 - 625 mm<sup>2</sup>

- ▶ Extremely wide cross section range up to 625 mm<sup>2</sup>
- ▶ Hydraulic system with 250 kN crimping force
- ▶ Foot pump with two-stage hydraulics

## Characteristics

- For interchangeable dies, series 25, wide crimping
- H-Form crimping head with quick coupling, under no pressure, rotates 360°
- Manual retraction in case of need and at high pressure end

## Order info

- The wide choice of available crimping dies can be found in the catalogue, chapter "Crimping dies" under Series 25.

| Technical data                                                  |                          |      |
|-----------------------------------------------------------------|--------------------------|------|
| Crimping force                                                  | 250 kN                   |      |
| Crimping range                                                  | 16 - 625 mm <sup>2</sup> |      |
| Operating pressure                                              | max. 700 bar             |      |
| Weight                                                          | 17.6 kg                  |      |
| Item                                                            | Part No.                 |      |
| Hydraulic crimping tool with foot pump 16 - 625 mm <sup>2</sup> | <b>HK252</b>             |      |
| Scope of supply                                                 | Part No.                 | Page |
| Hydraulic hose, 2m                                              | HS22                     | 402  |
| Steel carrying case                                             | MKU                      | 216  |
| Accessories                                                     | Part No.                 | Page |
| Hydraulic hose, 3m                                              | HS23                     | 402  |
| Hydraulic hose, 4m                                              | HS24                     | 402  |
| Hydraulic hose, 5m                                              | HS25                     | 402  |
| Hydraulic hose, 6m                                              | HS26                     | 402  |
| Hydraulic hose, 8m                                              | HS28                     | 402  |
| Hydraulic hose, 10m                                             | HS210                    | 402  |
| Digital meter for force and pressure measurement                | TC1U                     | 406  |
| Pressure sensor 1000 bar                                        | TP1000                   | 406  |

## HK 45 Hydraulic crimping tool with foot pump 120 - 1,000 mm<sup>2</sup>

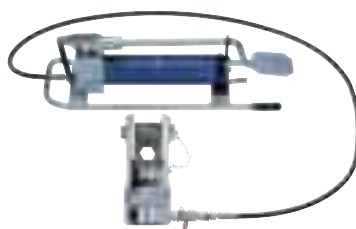
- ▶ Extremely large cross section range to 1000 mm<sup>2</sup>
- ▶ Hydraulic system with 450 kN crimping force
- ▶ Foot pump with two-stage hydraulics

### Characteristics

- For interchangeable dies, series 45, wide crimping
- Crimping head, H-shape with quick coupling
- Manual retraction in case of need and at high pressure end
- High-pressure hose, 2 m

### Order info

- The wide choice of available crimping dies can be found in the catalogue, chapter "Crimping dies" under Series 45.



| Technical data                                                    |                             |      |
|-------------------------------------------------------------------|-----------------------------|------|
| Crimping force                                                    | 450 kN                      |      |
| Crimping range                                                    | 120 - 1,000 mm <sup>2</sup> |      |
| Operating pressure                                                | max. 700 bar                |      |
| Weight                                                            | 23 kg                       |      |
| Item                                                              | Part No.                    |      |
| Hydraulic crimping tool with foot pump 120 - 1000 mm <sup>2</sup> | <b>HK45</b>                 |      |
| Scope of supply                                                   | Part No.                    | Page |
| Hydraulic hose, 2m                                                | HS22                        | 402  |
| Steel carrying case                                               | MKU                         | 216  |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Hydraulic hose, 3m                               | HS23     | 402  |
| Hydraulic hose, 4m                               | HS24     | 402  |
| Hydraulic hose, 5m                               | HS25     | 402  |
| Hydraulic hose, 6m                               | HS26     | 402  |
| Hydraulic hose, 8m                               | HS28     | 402  |
| Hydraulic hose, 10m                              | HS210    | 402  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Pressure sensor 1000 bar                         | TP1000   | 406  |

HK 12/2 EL/380 Hydraulic crimping tool with pump 400V, 16 - 400 mm<sup>2</sup>**13****400V**

- ▶ Large cross section range up to 400 mm<sup>2</sup>
- ▶ C-head with 42 mm opening width
- ▶ For mobile use due to transport trolley and long cable

**Characteristics**

- For interchangeable dies, series 13, wide crimping
- C-Form crimping head with quick coupling, under no pressure, rotates 360°
- Electronic control with three-phase motor

**Order info**

- The wide choice of available crimping dies can be found in the catalogue, chapter "Crimping dies" under Series 13.

| Technical data                                                       |                          |      |
|----------------------------------------------------------------------|--------------------------|------|
| Crimping force                                                       | 120 kN                   |      |
| Crimping range                                                       | 16 - 400 mm <sup>2</sup> |      |
| Version                                                              | Three-phase motor 400 V  |      |
| Rated output                                                         | 0.55 kW                  |      |
| Motor voltage                                                        | 360 V - 440 V / 50 Hz    |      |
| Capacity                                                             | 0.82 l / min.            |      |
| Operating pressure                                                   | max. 700 bar             |      |
| Weight                                                               | 44.5 kg                  |      |
| Item                                                                 | Part No.                 |      |
| Crimping tool with pump, 16 - 400 mm <sup>2</sup> , 400 V            | <b>HK122EL380</b>        |      |
| Scope of supply                                                      | Part No.                 | Page |
| Hydraulic hose, 2m                                                   | HS22                     | 402  |
| Foot switch for electro-hydraul. pumps EHP 2 to EHP 4 and HK 12/2 EL | FTA1                     | 402  |
| Transport trolley for electro-hydraulic pump EHP 2                   | TW50                     | 401  |
| Accessories                                                          | Part No.                 | Page |
| Hydraulic hose, 3m                                                   | HS23                     | 402  |
| Hydraulic hose, 4m                                                   | HS24                     | 402  |
| Hydraulic hose, 5m                                                   | HS25                     | 402  |
| Hydraulic hose, 6m                                                   | HS26                     | 402  |
| Hydraulic hose, 8m                                                   | HS28                     | 402  |
| Hydraulic hose, 10m                                                  | HS210                    | 402  |
| Two-hand safety controller for pumps EHP 2 to EHP 4                  | ZST3                     | 402  |
| Digital meter for force and pressure measurement                     | TC1U                     | 406  |
| Pressure sensor 1000 bar                                             | TP1000                   | 406  |



## HK 25/2 EL/380 Hydraulic crimping tool with pump 400 V, 16 - 625 mm<sup>2</sup>

- ▶ Extremely wide cross section range up to 625 mm<sup>2</sup>
- ▶ Crimping head, H-shape
- ▶ For mobile use due to transport trolley and long cable

### Characteristics

- For interchangeable dies, series 25, wide crimping
- H-Form crimping head with quick coupling, under no pressure, rotates 360°
- Electronic control with three-phase motor

### Order info

- The wide choice of available crimping dies can be found in the catalogue, chapter "Crimping dies" under Series 25.

| Technical data     |                          |
|--------------------|--------------------------|
| Crimping force     | 250 kN                   |
| Crimping range     | 16 - 625 mm <sup>2</sup> |
| Version            | Three-phase motor 400 V  |
| Rated output       | 0.55 kW                  |
| Motor voltage      | 360 V - 440 V / 50 Hz    |
| Capacity           | 0.82 l / min.            |
| Operating pressure | max. 700 bar             |
| Weight             | 45.9 kg                  |

| Item                                                                 | Part No.          |      |
|----------------------------------------------------------------------|-------------------|------|
| Crimping tool with pump, 16 - 625 mm <sup>2</sup> , 400 V            | <b>HK252EL380</b> |      |
| Scope of supply                                                      | Part No.          | Page |
| Hydraulic hose, 2m                                                   | HS22              | 402  |
| Foot switch for electro-hydraul. pumps EHP 2 to EHP 4 and HK 12/2 EL | FTA1              | 402  |
| Transport trolley for electro-hydraulic pump EHP 2                   | TW50              | 401  |

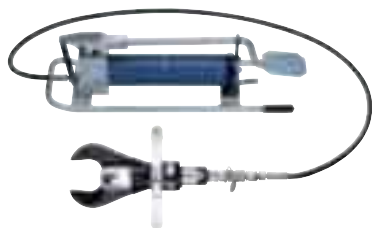
| Accessories                                         | Part No. | Page |
|-----------------------------------------------------|----------|------|
| Hydraulic hose, 3m                                  | HS23     | 402  |
| Hydraulic hose, 4m                                  | HS24     | 402  |
| Hydraulic hose, 5m                                  | HS25     | 402  |
| Hydraulic hose, 6m                                  | HS26     | 402  |
| Hydraulic hose, 8m                                  | HS28     | 402  |
| Hydraulic hose, 10m                                 | HS210    | 402  |
| Two-hand safety controller for pumps EHP 2 to EHP 4 | ZST3     | 402  |
| Digital meter for force and pressure measurement    | TC1U     | 406  |
| Pressure sensor 1000 bar                            | TP1000   | 406  |



**400V**



## AS 65 FHP Hydraulic cutting tool with foot pump, 65 mm dia.



- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Also suitable for fine stranded cable
- ▶ Safe working due to high ground stability by double stops
- ▶ Foot pump with two-stage hydraulics

## Characteristics

- Open cutting head with quick coupling, under no pressure, rotates 360°
- Manual retraction in case of need and at high pressure end
- Hydraulic hose, 2 m



ES65E

| Technical data     |                 |
|--------------------|-----------------|
| Cutting range      | max. 65 mm dia. |
| Operating pressure | max. 700 bar    |
| Weight             | 16.7 kg         |

| Item                                             | Part No. |      |
|--------------------------------------------------|----------|------|
| Hydraulic cutting tool with foot pump 65 mm dia. | AS65FHP  |      |
| Scope of supply                                  | Part No. | Page |
| Hydraulic hose, 2m                               | HS22     | 402  |
| Steel carrying case                              | MKU      | 216  |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Hydraulic hose, 3m                               | HS23     | 402  |
| Hydraulic hose, 4m                               | HS24     | 402  |
| Hydraulic hose, 5m                               | HS25     | 402  |
| Hydraulic hose, 6m                               | HS26     | 402  |
| Hydraulic hose, 8m                               | HS28     | 402  |
| Hydraulic hose, 10m                              | HS210    | 402  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Pressure sensor 1000 bar                         | TP1000   | 406  |
| Replacement blade                                | ES65E    |      |

**AS 105 FHP / AS 120 FHP Hydraulic cutting tools with foot pump, 105 and 120 mm dia.**

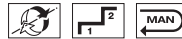
- ▶ Cuts copper and aluminum cables with light weight steel armouring (depending on cable type)
- ▶ Suitable for fine stranded cable and telecommunication cable
- ▶ Safe working due to high ground stability by double stops
- ▶ Extremely wide cutting range up to 120 mm dia., also for fine stranded cables

**Characteristics**

- Foot pump with two-stage hydraulics
- Open cutting head with quick coupling, under no pressure, rotates 360°
- Manual retraction in case of need and at high pressure end
- Hydraulic hose, 2 m

| Technical data                                    |                                                          |      |
|---------------------------------------------------|----------------------------------------------------------|------|
| Cutting range                                     | AS 105 FHP: max. 105 mm dia., AS120FHP: max. 120 mm dia. |      |
| Cutting force                                     | AS105FHP: 74 kN, AS120FHP: 55 kN                         |      |
| Operating pressure                                | max. 700 bar                                             |      |
| Weight                                            | AS105FHP: 19.7 kg, AS120FHP: 20.7 kg                     |      |
| Item                                              | Part No.                                                 |      |
| Hydraulic cutting tool with foot pump 105 mm dia. | <b>AS105FHP</b>                                          |      |
| Hydraulic cutting tool with foot pump 120 mm dia. | <b>AS120FHP</b>                                          |      |
| Scope of supply                                   | Part No.                                                 | Page |
| Hydraulic hose, 2m                                | HS22                                                     | 402  |
| Steel carrying case                               | MKU                                                      | 216  |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Hydraulic hose, 3m                               | HS23     | 402  |
| Hydraulic hose, 4m                               | HS24     | 402  |
| Hydraulic hose, 5m                               | HS25     | 402  |
| Hydraulic hose, 6m                               | HS26     | 402  |
| Hydraulic hose, 8m                               | HS28     | 402  |
| Hydraulic hose, 10m                              | HS210    | 402  |
| Digital meter for force and pressure measurement | TC1U     | 406  |
| Pressure sensor 1000 bar                         | TP1000   | 406  |
| Replacement blade                                | ES105E   |      |
| Replacement blade                                | ES120E   |      |



**ES105E**



**ES120E**

## SSG Hydraulic safety cutting unit with foot pump up to max. 105 mm dia.



- ▶ BG-tested safety cutting unit guarantees safe cuts of live copper and aluminum cables without steel armouring up to a rated voltage of 60 kV
- ▶ Single-conductor live cables without steel armouring can be cut under voltage of up to 110 kV/60 Hz

## Characteristics

- Cutting head with quick coupling, 360° rotatable
- Two-stage hydraulics
- Manual retraction in case of need and at high pressure end
- Safety high-pressure hose, 10 m

| Technical data      | SSG65                                        | SSGG85                                    | SSG105                                     | SSGG105                                    |
|---------------------|----------------------------------------------|-------------------------------------------|--------------------------------------------|--------------------------------------------|
| Head type           | open (SSK65)                                 | closed (SSKG85)                           | open (SSK105)                              | Closed (SSGG105)                           |
| Cutting range       | max. 65 mm dia.<br>(depending on cable type) | max. 85 mm dia. (depending on cable type) | max. 105 mm dia. (depending on cable type) | max. 105 mm dia. (depending on cable type) |
| Operating pressure  | 625 bar                                      | 625 bar                                   | 625 bar                                    | 625 bar                                    |
| Hydraulic oil       | Special oil Rivolta S.B.H.11                 | Special oil Rivolta S.B.H.11              | Special oil Rivolta S.B.H.11               | Special oil Rivolta S.B.H.11               |
| Weight              | 16.0 kg                                      | 16.0 kg                                   | 19.0 kg                                    | 19.0 kg                                    |
| Ambient temperature | -20°C to +40 °C                              | -20°C to +40 °C                           | -20°C to +40 °C                            | -20°C to +40 °C                            |

| Item                                                          | Part No.       |
|---------------------------------------------------------------|----------------|
| Hydraulic safety cutting unit with foot pump max. 65 mm dia.  | <b>SSG65</b>   |
| Hydraulic safety cutting unit with foot pump max. 85 mm dia.  | <b>SSGG85</b>  |
| Hydraulic safety cutting unit with foot pump max. 105 mm dia. | <b>SSG105</b>  |
| Hydraulic safety cutting unit with foot pump max. 105 mm dia. | <b>SSGG105</b> |

| Scope of supply             | Part No. | Page |
|-----------------------------|----------|------|
| Safety/hydraulic hose, 10 m |          |      |
| Earthing kit                | EG1      |      |
| Steel carrying case         | MKSSG    |      |

| Accessories                           | Part No.    | Page |
|---------------------------------------|-------------|------|
| Heat protection cover 1.80 m x 1.80 m | <b>HSD1</b> |      |
| Heat protection cover 1.20 m x 0.90 m | <b>HSD2</b> |      |
| Heat protection cover 0.45 m x 0.60 m | <b>HSD3</b> |      |

| Replacement blade for | SSG65 | SSGG85 | SSG105 | SSGG105 |
|-----------------------|-------|--------|--------|---------|
| ES65E                 | •     |        |        |         |
| ES105E                |       |        | •      |         |
| ESG85EF1              |       | •      |        |         |
| ESG85ES1              |       | •      |        |         |
| ESG105EF              |       |        |        | •       |
| ESG105ES              |       |        |        | •       |



SSK65



SSKG85



SSK105



SSG105

**ESSG Battery powered hydraulic safety cutting units up to max. 105 mm dia.**

- ▶ BG-tested safety cutting unit guarantees safe cuts of live copper and aluminum cables without steel armouring up to a rated voltage of 60 kV
- ▶ Single-conductor lives cables without steel armouring can be cut under voltage of up to 110 kV/60 Hz
- ▶ Powerful 3.3 Ah Li-Ion battery

**Characteristics**

- 2-stage hydraulic system with fast feed and power stroke
- Quick motor stop for high user safety
- Electronic control
- Multifunction LED for maintenance control and charging display of the battery
- LED display for service interval after 250 cuts
- 10 m non-conducting high-pressure hose with a coupling to connect to pump ESSG-L

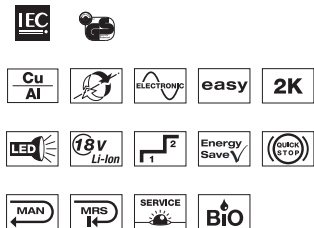
| Technical data      | ESSG65I                                         | ESSGG85L                                        | ESSG105L                                         |
|---------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Head type           | open (SSK65)                                    | closed (SSK85)                                  | open (SSK105)                                    |
| Cutting range       | max. 65 mm dia.<br>(depending on<br>cable type) | max. 85 mm dia.<br>(depending on<br>cable type) | max. 105 mm dia.<br>(depending on<br>cable type) |
| Cutting force       | 35 kN                                           | 60 kN                                           | 80 kN                                            |
| Cutting time        | approx. 21 s 40 s                               | approx. 21 s 40 s                               | approx. 21s 40<br>(depending on<br>cable sizes)  |
| Operating pressure  | 625 bar                                         | 625 bar                                         | 625 bar                                          |
| Battery voltage     | 18 V                                            | 18 V                                            | 18 V                                             |
| Battery capacity    | 3.3 Ah, Li-Ion                                  | 3.3 Ah, Li-Ion                                  | 3.3 Ah, Li-Ion                                   |
| Charging time       | 60 min.                                         | 60 min.                                         | 60 min.                                          |
| Hydraulic oil       | Special oil Rivolta<br>S.B.H.11                 | Special oil Rivolta<br>S.B.H.11                 | Special oil Rivolta<br>S.B.H.11                  |
| Weight              | 10.12 kg                                        | 9.98 kg                                         | 13.13 kg                                         |
| Ambient temperature | -20°C to +40 °C                                 | -20°C to +40 °C                                 | -20°C to +40 °C                                  |

| Item                                                         | Part No.        |
|--------------------------------------------------------------|-----------------|
| Battery powered hydraulic safety cutting unit, max. Ø 65 mm  | <b>ESSG65L</b>  |
| Battery powered hydraulic safety cutting unit, max. Ø 85 mm  | <b>ESSGG85L</b> |
| Battery powered hydraulic safety cutting unit, max. Ø 105 mm | <b>ESSG105L</b> |

| Scope of supply                       | Part No.   | Page |
|---------------------------------------|------------|------|
| Battery 18 V / 3.3 Ah, Li-Ion (54 Wh) | RAL3       | 398  |
| Charger for 18 V Li-Ion batteries     | LGL3       | 401  |
| Plastic case for ESSG65L and ESSG105L | KKESSGL    |      |
| Plastic case for ESSGG85L             | KKESSGG85L |      |
| Earthing kit                          | EG1        |      |

| Accessories                           | Part No.    | Page |
|---------------------------------------|-------------|------|
| Heat protection cover 1.80 m x 1.80 m | <b>HSD1</b> | 394  |
| Heat protection cover 1.20 m x 0.90 m | <b>HSD2</b> | 394  |
| Heat protection cover 0.45 m x 0.60 m | <b>HSD3</b> | 394  |
| USB adapter                           | <b>PGA1</b> | 408  |

| Replacement blade for | ESSG65L | ESSGG85L | ESSG105L |
|-----------------------|---------|----------|----------|
| ES65E                 | •       |          |          |
| ES105E                |         |          | •        |
| ESG85EF1              |         | •        |          |
| ESG85ES1              |         | •        |          |



SSK65



SSK85



SSK105

## *Power packs, hoses and more for your tools.*

### Accessories for hydraulic tools.

The accessories for our hydraulic tools give you greater flexibility when using Klauke tools. Additional operating components, as well as high-pressure hoses in various lengths, permit individual system solutions. The NG2 power supply unit turns every 18 V tool into a mains-powered tool in no time.

The new generation of batteries for our tools offers a great number of benefits. At 18 V rated voltage and a capacity of 3.0 Ah, these batteries offer 50% more energy than predecessor models for even more crimping and cutting operations. They are also much lighter, and thanks to Li-ion technology, there's no memory effect during charging and discharging. Due to a minimum self-discharge of the batteries, the tools are practically always ready for use.



- **Batteries and chargers for Klauke hydraulic tools.**
- **Power packs for 115 V and 230 V.**
- **Hand and foot control units.**
- **Hoses, sleeves, connectors and nipples.**



*The power packs in NG2/230 and NG2/115 are capable of operating all tools in the Klauke® mini+, Klauke® ultra, Klauke® ultra+ and Klauke® multi series.*

**RAM 2 Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh)**
**Characteristics**

- For battery operated hydraulic tools of Klauke-Mini Series
- Environmentally friendly by NiMH technology

| Technical data                         |                                       |
|----------------------------------------|---------------------------------------|
| Battery voltage                        | 9.6 V                                 |
| Battery capacity                       | 2.0 Ah, NiMH                          |
| Charging time                          | With LG4F: 40 min., with LG5: 15 min. |
| Cell technology                        | NiMH                                  |
| Weight                                 | 0.4 kg                                |
| Item                                   | Part No.                              |
| Battery 9.6 V / 2.0 Ah, NiMH (19.6 Wh) | <b>RAM2</b>                           |


**RAM 3 Battery 9.6 V / 3.0 Ah, NiMH (28.8 Wh)**
**Characteristics**

- For battery operated hydraulic tools of Klauke-Mini Series
- Environmentally friendly by NiMH technology
- High battery capacity

| Technical data                         |                                       |
|----------------------------------------|---------------------------------------|
| Battery voltage                        | 9.6 V                                 |
| Battery capacity                       | 3.0 Ah                                |
| Charging time                          | With LG4F: 40 min., with LG5: 15 min. |
| Cell technology                        | NiMH                                  |
| Weight                                 | 0.5 kg                                |
| Item                                   | Part No.                              |
| Battery 9.6 V / 3.0 Ah, NiMH (28.8 Wh) | <b>RAM3</b>                           |


**RA 5 Battery 12 V / 3.0 Ah, NiMH (36 Wh)**
**Characteristics**

- Compatible with all Klauke 12 V battery powered hydraulic tools
- Environmentally friendly by NiMH technology
- High battery capacity

| Technical data                      |                                       |
|-------------------------------------|---------------------------------------|
| Battery voltage                     | 12 V                                  |
| Battery capacity                    | 3.0 Ah                                |
| Charging time                       | With LG4F: 40 min., with LG5: 15 min. |
| Ambient temperature                 | -20°C to +40 °C                       |
| Cell technology                     | NiMH                                  |
| Weight                              | 0.6 kg                                |
| Item                                | Part No.                              |
| Battery 12 V / 3.0 Ah, NiMH (36 Wh) | <b>RA5</b>                            |



## RAL 1 Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh)



## Characteristics

- For battery powered hydraulic tools of Klauke-Mini+ Series
- No memory effect
- Extremely low self-discharge
- Light weight (40% lighter than comparable NiMH batteries)

| Technical data                          |                    |
|-----------------------------------------|--------------------|
| Battery voltage                         | 18 V               |
| Battery capacity                        | 1.3 Ah             |
| Charging time                           | With LGL1: 15 min. |
| Cell technology                         | Li-Ion             |
| Weight                                  | 0.4 kg             |
| Item                                    | Part No.           |
| Battery 18 V / 1.3 Ah, Li-Ion (23.4 Wh) | <b>RAL1</b>        |

## RAL 2 Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)



## Characteristics

- For battery powered hydraulic tools of Klauke-Mini+, Klauke Ultra, Klauke Ultra+ and Klauke Multi Series
- No memory effect
- Extremely low self-discharge
- Light weight (40% lighter than comparable NiMH batteries)

| Technical data                        |                    |
|---------------------------------------|--------------------|
| Battery voltage                       | 18 V               |
| Battery capacity                      | 3.0 Ah             |
| Charging time                         | With LGL1: 22 min. |
| Cell technology                       | Li-Ion             |
| Weight                                | 0.6 kg             |
| Item                                  | Part No.           |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh) | <b>RAL2</b>        |

## RAL 3 Battery 18 V / 3.3 Ah, Li-Ion (54 Wh)



## Characteristics

- For safety cutting units
- No memory effect
- Extremely low self-discharge
- Light weight (40% lighter than comparable NiMH batteries)

| Technical data                        |                    |
|---------------------------------------|--------------------|
| Battery voltage                       | 18 V               |
| Battery capacity                      | 3.3 Ah             |
| Charging time                         | With LGL3: 60 min. |
| Ambient temperature                   | -20°C to +40 °C    |
| Cell technology                       | Li-Ion             |
| Weight                                | 0.6 kg             |
| Item                                  | Part No.           |
| Battery 18 V / 3.3 Ah, Li-Ion (54 Wh) | <b>RAL3</b>        |



## NG2 Mains adapter 18 V for 120 V resp. 230 V mains voltage

### Suitable for

- All Klauke tools with 18 V all-mains sets

### Characteristics

- Temperature protection
- Current limiter
- Overload protection 250 V
- Cable lengths: 5 m



| Technical data                       |               |
|--------------------------------------|---------------|
| Mains supply                         | 120 V / 230 V |
| Voltage range                        | 18 V          |
| Weight                               | 0.8 kg        |
| Item                                 | Part No.      |
| 18 V mains adapter for 120 V Voltage | NG2115        |
| 18 V mains adapter for 230 V Voltage | NG2230        |

## LG 4 F Charger for NiCd and NiMH batteries

### Characteristics

- For all Klauke 9.6 V and 12 V batteries

| Technical data                      |                              |
|-------------------------------------|------------------------------|
| Charging time                       | 40-60 min.                   |
| Ambient temperature                 | -20°C to +40 °C              |
| Mains supply                        | AC: 230 V                    |
| Voltage range                       | 7.2V / 9.6V / 12V / 14.4V DC |
| Weight                              | 0.5 kg                       |
| Item                                | Part No.                     |
| Charger for NiCd and NiMH batteries | LG4F                         |



## LG 5 Quick charger for NiCd and NiMH batteries

### Characteristics

- For all Klauke 9.6 V and 12 V batteries

| Technical data                                               |                                       |
|--------------------------------------------------------------|---------------------------------------|
| Charging time                                                | NiCd: 10 - 60 min, NiMH: 20 - 30 min. |
| Mains supply                                                 | AC: 230 V                             |
| Voltage range                                                | 7.2V / 9.6V / 12V / 14.4V DC          |
| Weight                                                       | 1.3 kg                                |
| Item                                                         | Part No.                              |
| Quick charger for NiCd and NiMH batteries, 230 V mains power | LG5                                   |



## LG 6 Car charger 12 V for NiCd and NiMH batteries



### Characteristics

- For all Klauke 9.6 V and 12 V batteries
- Connection to car cigarette lighter

| Technical data                              |                                       |
|---------------------------------------------|---------------------------------------|
| Charging time                               | NiCd: 45 - 70 min, NiMH: 45 - 75 min. |
| Mains supply                                | AC: 12 V                              |
| Voltage range                               | 7.2V / 9.6V / 12V / 14.4V DC          |
| Weight                                      | 0.6 kg                                |
| Item                                        | Part No.                              |
| 12V car charger for NiCd and NiMH batteries | <b>LG6</b>                            |

## LGL 1 Quick charger for 18V Li-Ion-Batteries



### Characteristics

- For all Klauke Li-Ion Batteries with 18 V

| Technical data                                |                                        |
|-----------------------------------------------|----------------------------------------|
| Charging time                                 | With RAL1: 15 min., with RAL2: 22 min. |
| Mains supply                                  | 230 V AC                               |
| Voltage range                                 | 18 V                                   |
| Weight                                        | 1.0 kg                                 |
| Item                                          | Part No.                               |
| Quick-charger for 18V Li-Ion batteries, 230 V | <b>LGL1</b>                            |

## LGL 2 Car charger 12 V for 18 V Li-Ion batteries



### Characteristics

- For all Klauke Li-Ion Batteries with 18 V
- Connection to car cigarette lighter

| Technical data                           |                                        |
|------------------------------------------|----------------------------------------|
| Charging time                            | With RAL1: 15 min., with RAL2: 22 min. |
| Mains supply                             | 12 V                                   |
| Voltage range                            | 18 V                                   |
| Weight                                   | 1.0 kg                                 |
| Item                                     | Part No.                               |
| 12V car charger for 18V Li-Ion batteries | <b>LGL2</b>                            |

## LGL 3 Charger for 18 V Li-Ion batteries

### Characteristics

- For 18 V / 3.3 Ah Li-Ion batteries
- Charger for safety cutting unit batteries

| Technical data                    |             |
|-----------------------------------|-------------|
| Charging time                     | 60 min.     |
| Mains supply                      | 220 - 240 V |
| Voltage range                     | 18 V        |
| Weight                            | 0.6 kg      |
| Item                              | Part No.    |
| Charger for 18 V Li-Ion batteries | <b>LGL3</b> |



## TW 50 / TW EHP 3 Transport trolley for electro-hydraulic pumps

### Characteristics

- For electro hydraulic pumps EHP2 and EHP3
- Weight: TW50 - 11.1 kg / TWEHP3 - 12 kg

| Item                                               | Part No.      |
|----------------------------------------------------|---------------|
| Transport trolley for electro-hydraulic pump EHP 2 | <b>TW50</b>   |
| Transport trolley for electro-hydraulic pump EHP 3 | <b>TWEHP3</b> |



## TW 150 Transport trolley for electro-hydraulic pump EHP 4

### Characteristics

- Weight: 8.7 kg

| Item                                               | Part No.     |
|----------------------------------------------------|--------------|
| Transport trolley for electro-hydraulic pump EHP 4 | <b>TW150</b> |



### FTA 3 / FTA 4 Two-hand safety control for hydraulic pumps



#### Characteristics

- For pumps: EHP 2, EHP 3, EHP 4 and AHP 700-L
- Connecting cable, 10 m

| Item                                                                 | Part No. |
|----------------------------------------------------------------------|----------|
| Two-hand safety controller for pumps EHP 2 to EHP 4                  | ZST3     |
| Two-hand safety control for battery powered hydraulic pump AHP 700-L | ZST4     |

### FTA 1 / FTA 4 Foot switch for pumps



#### Characteristics

- For pumps: EHP 2, EHP 3, EHP 4, HK 12/2 EL, AHP 700-L
- Connecting cable FTA 1: 10 m, FTA 4: 5 m

| Item                                                                 | Part No. |
|----------------------------------------------------------------------|----------|
| Foot switch for electro-hydraul. pumps EHP 2 to EHP 4 and HK 12/2 EL | FTA1     |
| Foot switch for battery powered hydraulic pump AHP 700-L             | FTA4     |

### T 15 Special hydraulic oil

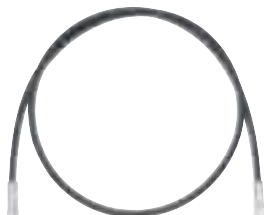


#### Characteristics

- For all hydraulic pumps, exception: safety cutting units
- Environmentally-friendly hydraulic oil, quickly biodegradable
- 5 l canister

| Item                  | Part No. |
|-----------------------|----------|
| Special hydraulic oil | T15      |

### HS 2 Hydraulic hoses



#### Suitable for

- For hydraulic crimping and cutting systems and pumps
- For connecting to hydraulic pumps FHP 2, PHD 2, EHP 2, EHP 3, EHP 4, HK12/2 EL, HK 25/2 EL, AS 65 FHP, AS 105 FHP, HK 25/2, HK 45

| Item                | Part No. |
|---------------------|----------|
| Hydraulic hose, 2m  | HS22     |
| Hydraulic hose, 3m  | HS23     |
| Hydraulic hose, 4m  | HS24     |
| Hydraulic hose, 5m  | HS25     |
| Hydraulic hose, 6m  | HS26     |
| Hydraulic hose, 8m  | HS28     |
| Hydraulic hose, 10m | HS210    |

## HS OEL Hydraulic hoses, oil filled

### Characteristics

- For battery powered hydraulic pump AHP 700-L

### Order info

- Also available in country-specific version, part number appendix "C"

| Item                            | Part No. |
|---------------------------------|----------|
| Hydraulic hose, 2m, oil filled  | HSOEL2   |
| Hydraulic hose, 3m, oil filled  | HSOEL3   |
| Hydraulic hose, 4m, oil filled  | HSOEL4   |
| Hydraulic hose, 5m, oil filled  | HSOEL5   |
| Hydraulic hose, 6m, oil filled  | HSOEL6   |
| Hydraulic hose, 8m, oil filled  | HSOEL8   |
| Hydraulic hose, 10m, oil filled | HSOEL10  |



## KST 2 Coupler plug

### Characteristics

- For hydraulic crimping and cutting systems and pumps
- Including adapter
- Suitable for connecting to hydraulic hoses HS2

| Item         | Part No. |
|--------------|----------|
| Coupler plug | KST2     |



## KMF 1 Coupler for crimping and cutting heads

### Characteristics

- KMF 1: For connecting to hydraulic crimping/cutting heads: PK 18, PK 22, PK 120/42, PK 120 U, PK 25/2, PK 45, PK 60 VP, PK 60 VP/FT, PK 60 UNV, THK 18, THK 22, THK 120, SDG 45, SDG 50, SDG 55, SDG 85/2, SDG 105, SDK 65, SDK 85, SDK 105, SDK 120
- Includes barrel nipple
- With 1/4" connection (external thread)

| Item                                                      | Part No. |
|-----------------------------------------------------------|----------|
| Coupler for crimping and cutting heads with barrel nipple | KMF1     |



## DNP 2 Barrel nipple

### Characteristics

- To connect and to extend hydraulic hoses HS 2

| Item          | Part No. |
|---------------|----------|
| Barrel nipple | DNP2     |



HTA 4 Remote control for hydraulic pump



Characteristics

- For battery powered pump AHP 700-L

| Item                            | Part No. |
|---------------------------------|----------|
| Remote control with 1.5 m cable | HTA4     |

## Guarantee quality, *by tool check.*

### Force and pressure measuring systems for hydraulic crimping tools.

Klauke hydraulic tools meet the highest quality standards. To maintain this guarantee, frequently used tools and drive units in particular must be inspected on a regular basis. With its various sensors and adapters, the TC 1U is a powerful system for measuring force and pressure.

In enterprises that have a distinct quality management system, in the engineering technology sector for example, customers often expect proof of the tools' actual crimping forces. This Klauke measuring system offers the facility of measuring and documenting the required values on-site.



- Measuring systems for inspecting hydraulic tools and drive units.
- For inspection and documentation under the quality management system.



## TC 1 U Digital meter for force and pressure measurement



### Characteristics

- Optional: Measuring adapter for measuring the crimping force
- Illuminated LCD display
- Memory for 1 mil. measured values
- USB interface

| Item                                                                                           | Part No. |      |
|------------------------------------------------------------------------------------------------|----------|------|
| Digital meter for force and pressure measurement                                               | TC1U     |      |
| Scope of supply                                                                                | Part No. | Page |
| Switched-mode power supply with international plug adapter EU, UK, US, AUS from 115 V to 230 V | TCCUNI   |      |
| Plastic case                                                                                   | KKTC1B   |      |

| Measuring Adapter | Tool Series                  | Required sensor | Part No. | Page |
|-------------------|------------------------------|-----------------|----------|------|
|                   | Measuring adapter, series 50 | TF70L           | MA50     |      |
|                   | Measuring adapter, series 4  | TF70L           | MA4      |      |
|                   | Measuring adapter, series 5  | TF70L           | MA5      |      |
|                   | Measuring adapter, series 18 | TF70L           | MA18     |      |
|                   | Measuring adapter, series 22 | TF70L           | MA22     |      |
|                   | Measuring adapter VP         | TF70L           | MAVP     |      |
|                   | Measuring adapter, series 13 | TF130L          | MA120    |      |

## TF force sensors for measuring the crimping force



### Characteristics

- For connecting to TC 1 U with appropriate measuring adapter

| Item                 | Part No.      |
|----------------------|---------------|
| Force sensor, 70 kN  | <b>TF70L</b>  |
| Force sensor, 130 kN | <b>TF130L</b> |

## TP 1000 / TPC 15 Pressure sensor and connecting cable for measuring oil pressure up to 1000 bar



### Characteristics

- For connecting to TC 1 U

| Item                                         | Part No.      |
|----------------------------------------------|---------------|
| Pressure sensor 1000 bar                     | <b>TP1000</b> |
| Connection cable for pressure sensor TP 1000 | <b>TPC15</b>  |



## Intelligent recording - *i-press*®

### quality control via software.



Our "Safety Plus" battery powered hydraulic crimping tools are set apart mainly by their intelligent additional functions. The technical highlight is the "Intelligent Pressing System" with integrated pressure sensor which permanently monitors the hydraulic crimp force of every crimping operation. The tools signal deviations from the specified crimping pressure or operating faults with a warning beep and flashing LEDs. For the user this means maximum safety at every single crimping operation. The PGA1 USB Adapter and i-press evaluation software make the "Safety Plus" model series even more intelligent and working with these tools even safer.

The PGA1 USB Adapter and i-press evaluation software allow you to read data from the tools and transmit it to a computer. The i-press software checks the quality of each and every crimping option and provides proof of such quality

to the customer. It is also possible to request further performance parameters, such as the number of crimps, the current consumption in Ah or the operating time.

The i-press software is available in German, English, French and Spanish and can be downloaded from our website free of charge.

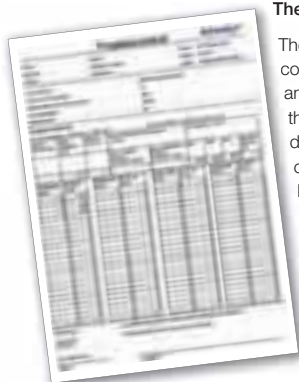
All Safety Plus tools are factory-fitted as standard with an optical interface which enables the crimping operation to be read out from a PC or laptop.



#### The operating mode is very simple:

The recording head is linked to a computer via a USB port. All crimping and machine data are transferred from the tool to the computer and the test certificate indicating date and time is displayed as a pdf document. This is how you record the trouble-free function of the tool. User errors, such as premature stopping and retraction of the hydraulics or other faults that could prevent correct crimps are displayed. You can then print out the test report. Because the system uses the realtime clock of the connected computer, the test reports are recognised by QA systems.

There is also the option of programming individual projects into the tool and creating project-related reports.



PGA 1 USB Adapter



- ▶ Easy connection to PC via USB interface
- ▶ Free download of "ipress" software via [www.klauke.com](http://www.klauke.com)
- ▶ Statistical evaluation of average crimping process of battery powered hydraulic crimping tools

Characteristics

- Documentation of trouble-free function of battery powered hydraulic crimping tools using "Intelligent Pressing System" - IPS
- Statistical evaluation of crimping process
- Suitable to read data from Klauke product line "Generation Safety Plus" and the previous models with multifunction LED
- Transmission of crimping and machine data of tool on the computer
- Test certificate as PDF document with display of date and time

| Technical data      |                    |
|---------------------|--------------------|
| System requirements | From Windows XP    |
| Version             | USB 2.0            |
| Length              | 1.80 m (USB-Kabel) |
| Weight              | 315 g              |
| Item                | Part No.           |
| USB adapter         | PGA1               |





“We came up with plenty of ideas for your crimping results. For example, the correct crimping profile for every connecting material.”



Emira Karajkovic,  
Supply Chain

|           |     |
|-----------|-----|
| Series 50 | 414 |
| Series 4  | 416 |
| Series 5  | 422 |
| Series 18 | 427 |
| Series 22 | 433 |
| Series 13 | 442 |
| Series 25 | 449 |
| Series 45 | 455 |



## Nine series to cover every crimping operation.

### Crimping dies for Klauke crimping tools.

Klauke crimping dies are set apart by their outstanding durability and highest precision. Only top-quality material is used in production. Precision is the key to production. The dies are subject to a rigid quality control. All dies are bright polished to achieve best possible crimping results.

We offer a broad range of crimping dies for all Klauke tools with interchangeable dies. We guarantee safe electrical connections subject to the use of matched Klauke tools, Klauke dies and Klauke connecting material.

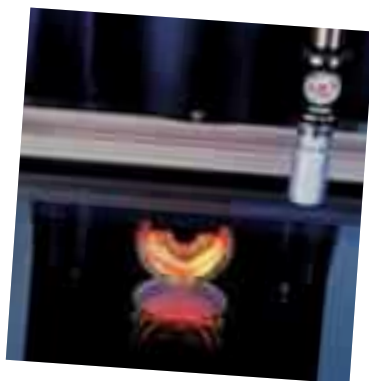
**blue connection®**

*Simple. Safe. Efficient.*



*Blue dies for blue connection, yellow-chromed for copper, silver-coloured for aluminum.*

- Nine series of dies are perfectly matched to Klauke tools.
- The correct crimping types for every connecting material.
- Polished profiled surfaces for maximum crimping results.
- Dies for blue connection®, copper and aluminum differ in colour.



*In the production of Klauke crimping dies, precision is paramount.*

| Connecting material                                                                          | 50<br>Klouske                                                                     | 4<br>Klouske                                                                      | 5<br>Klouske                                                                      | 18<br>Klouske                                                                     | 22<br>Klouske                                                                     | 13<br>Klouske                                                                     | 25<br>Klouske                                                                     | 45<br>Klouske                                                                     | 100<br>Klouske                                                                    |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                                                                              |  |  |  |  |  |  |  |  |  |
|             |                                                                                   | 6-150 mm <sup>2</sup>                                                             | 6-185 mm <sup>2</sup>                                                             |                                                                                   | 6-300 mm <sup>2</sup>                                                             | 16-400 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |                                                                                   |
|             | 0.75-10 mm <sup>2</sup>                                                           | 6-150 mm <sup>2</sup>                                                             | 6-240 mm <sup>2</sup>                                                             | 6-185 mm <sup>2</sup>                                                             | 6-300 mm <sup>2</sup>                                                             | 16-400 mm <sup>2</sup>                                                            | 16-400 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |
|             |                                                                                   | 10-70 mm <sup>2</sup>                                                             | 10-95 mm <sup>2</sup>                                                             | 10-95 mm <sup>2</sup>                                                             | 10-150 mm <sup>2</sup>                                                            | 10-150 mm <sup>2</sup>                                                            | 10-150 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |
|             |                                                                                   | 10-50 mm <sup>2</sup>                                                             | 10-50 mm <sup>2</sup>                                                             | 10-50 mm <sup>2</sup>                                                             | 10-70 mm <sup>2</sup>                                                             | 16-150 mm <sup>2</sup>                                                            | 16-300 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |
|             | 1.5-10 mm <sup>2</sup>                                                            | 1.5-16 mm <sup>2</sup>                                                            |                                                                                   | 1.5-16 mm <sup>2</sup>                                                            | 1.5-16 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| VA<br>      |                                                                                   | 0.5-16 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   | 10-50 mm <sup>2</sup>                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Ni<br>      |                                                                                   | 0.5-16 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   | 10-50 mm <sup>2</sup>                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| DIN<br>     |                                                                                   | 6-120 mm <sup>2</sup>                                                             | 6-185 mm <sup>2</sup>                                                             | 6-185 mm <sup>2</sup>                                                             | 6-300 mm <sup>2</sup>                                                             | 16-300 mm <sup>2</sup>                                                            | 16-625 mm <sup>2</sup>                                                            | 120-1000 mm <sup>2</sup>                                                          | Upon request                                                                      |
|             | 0.5-10 mm <sup>2</sup>                                                            | 10-35 mm <sup>2</sup>                                                             | 10-50 mm <sup>2</sup>                                                             | 10-70 mm <sup>2</sup>                                                             | 10-70 mm <sup>2</sup>                                                             | 16-150 mm <sup>2</sup>                                                            | 16-240 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |
|             | 10-16 mm <sup>2</sup>                                                             | 10-16 mm <sup>2</sup>                                                             |                                                                                   | 10-50 mm <sup>2</sup>                                                             | 10-70 mm <sup>2</sup>                                                             | 10-95 mm <sup>2</sup>                                                             | 10-150 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |
|             |                                                                                   | 10sm <sup>1)</sup> -<br>150se <sup>2)</sup> /<br>120sm <sup>1)</sup>              | 10sm <sup>1)</sup> -<br>300se <sup>2)</sup> /<br>240sm <sup>1)</sup>              | 10sm <sup>1)</sup> -<br>240se <sup>2)</sup> /<br>185sm <sup>1)</sup>              | 10sm <sup>1)</sup> -<br>300se <sup>2)</sup> /<br>240sm <sup>1)</sup>              | 10sm <sup>1)</sup> -<br>300sm <sup>1)</sup>                                       | 10sm <sup>1)</sup> -<br>300sm <sup>1)</sup>                                       |                                                                                   |                                                                                   |
| Al<br>      |                                                                                   | 10-70 mm <sup>2</sup>                                                             | 10-150 mm <sup>2</sup>                                                            | 10-185 mm <sup>2</sup>                                                            | 10-240 mm <sup>2</sup>                                                            | 10-240 mm <sup>2</sup>                                                            | 10-500 mm <sup>2</sup>                                                            | 150-500 mm <sup>2</sup>                                                           | Upon request                                                                      |
| Aldrey<br>  |                                                                                   | 25-50 mm <sup>2</sup>                                                             | 25-95 mm <sup>2</sup>                                                             | 25-95 mm <sup>2</sup>                                                             | 25-185 mm <sup>2</sup>                                                            | 25-185 mm <sup>2</sup>                                                            | 25-300 mm <sup>2</sup>                                                            | 100-300 mm <sup>2</sup>                                                           | Upon request                                                                      |
| Al/St<br>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4 (St)-120 (Al)                                                                   | 4 (St)-120 (Al)                                                                   | 4 (St)-120 (Al)                                                                   |                                                                                   |                                                                                   |
| Al/Cu<br> |                                                                                   | 10-70 mm <sup>2</sup>                                                             |                                                                                   | 10-185 mm <sup>2</sup>                                                            | 10-240 mm <sup>2</sup>                                                            | 10-240 mm <sup>2</sup>                                                            | 10-500 mm <sup>2</sup>                                                            | 150-500 mm <sup>2</sup>                                                           | Upon request                                                                      |
|           |                                                                                   | 4-35 mm <sup>2</sup>                                                              | 16-35 mm <sup>2</sup>                                                             | 4-50 mm <sup>2</sup>                                                              | 4-50 mm <sup>2</sup>                                                              | 10-70 mm <sup>2</sup>                                                             | 10-185 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |
|           |                                                                                   |                                                                                   |                                                                                   | 70 mm <sup>2</sup>                                                                | 70-120 mm <sup>2</sup>                                                            | 70-120 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |                                                                                   |
|           | 0.14-50 mm <sup>2</sup>                                                           | 10-50 mm <sup>2</sup>                                                             | 10-95 mm <sup>2</sup>                                                             | 10-95 mm <sup>2</sup>                                                             | 10-240 mm <sup>2</sup>                                                            | 25-240 mm <sup>2</sup>                                                            | 25-240 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |
|           |                                                                                   | 2x4-2x16 mm <sup>2</sup>                                                          | 2x4-2x16 mm <sup>2</sup>                                                          | 2x4-2x16 mm <sup>2</sup>                                                          | 2x4-2x16 mm <sup>2</sup>                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|           | 0.1-16 mm <sup>2</sup>                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|           | 0.1-6 mm <sup>2</sup>                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| BNC plugs                                                                                    | RG 58, RG 59, RG 62, RG 71                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Turned pin receptacle and pin connectors                                                     | 0.1-4 mm <sup>2</sup>                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

<sup>1)</sup> Sector shaped multi-stranded. <sup>2)</sup> Sector shaped single wire.



K 50



EK 50 ML



EK 15/50



EK 15/50 G



TEKP1

## Crimping dies R 50



## Suitable for

- Copper tubular cable lugs and connectors, standard type

| Cross section<br>mm <sup>2</sup> | Part No.    |
|----------------------------------|-------------|
| 0,75-2,5                         | <b>R501</b> |
| 4-10                             | <b>R502</b> |

## Crimping dies M 50



## Suitable for

- Copper tubular cable lugs and compression joints for solid conductors

| Cross section<br>mm <sup>2</sup> | Part No.      |
|----------------------------------|---------------|
| 1,5-4                            | <b>M50154</b> |
| 6-10                             | <b>M50610</b> |

## Crimping dies Q 50



## Suitable for

- Copper solderless terminals (DIN 46234) and pin terminals (DIN 46230) acc. to DIN
- Copper solderless connectors (DIN 46341) acc. to DIN

| Cross section<br>mm <sup>2</sup> | Part No.    |
|----------------------------------|-------------|
| 0,5-10                           | <b>Q501</b> |

## Crimping dies AE 50



## Suitable for

- Cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No.     |
|----------------------------------|--------------|
| 0,14 - 10                        | <b>AE501</b> |
| 10-25                            | <b>AE502</b> |
| 35-50                            | <b>AE503</b> |



## Crimping dies IS 50, single crimping

### Suitable for

- Insulated cable connections, single crimping

| Cross section<br>mm <sup>2</sup> | Part No.     | for part-no.   |
|----------------------------------|--------------|----------------|
| 10-16                            | <b>IS502</b> |                |
| 0,5-2,5                          | <b>IS504</b> | 670 WS, 680 WS |
| 4-6                              | <b>IS505</b> | 700 WS         |



## Crimping dies IS 50, double crimping

### Suitable for

- Insulated cable connections, double crimping

| Cross section<br>mm <sup>2</sup> | Part No.     | for part-no. |
|----------------------------------|--------------|--------------|
| 0,5-6                            | <b>IS501</b> |              |
| 0,1-1                            | <b>IS503</b> | 8201-8201B   |



## Crimping dies CR 50

### Suitable for

- Non-insulated receptacles

| Cross section<br>mm <sup>2</sup> | Part No.     | tab width<br>mm | for part-no.  |
|----------------------------------|--------------|-----------------|---------------|
| 0,25-6                           | <b>CR501</b> | 2,8 / 6,3       |               |
| 0,5-2,5                          | <b>CR502</b> | 4,8             |               |
| 0,5-1                            | <b>CR503</b> | 2,8             | 38201, 38201A |
| 0,5-2,5                          | <b>CR504</b> | 6,3             | 3720, 3735    |
| 0,5-1,5                          | <b>CR505</b> | 6,3             | 3725          |



## Crimping dies BNC 50

### Suitable for

- For stud and shielded sleeves
- BNC plugs for coax cable RG 58, 59, 62 and 71

| Part No.      |
|---------------|
| <b>BNC501</b> |



## Crimping dies SB 50

### Suitable for

- Turned pin receptacles
- Pin connectors

| Cross section<br>mm <sup>2</sup> | Part No.     |
|----------------------------------|--------------|
| 0,1-1                            | <b>SB501</b> |
| 1,5-2,5                          |              |
| 4                                |              |





K 35/4



EK 35/4



EK 35/4 L

Crimping dies, blue connection® HB 4



► Accurate assignment of crimping tool/crimping die through colour-coding system

Suitable for

- Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Cross section<br>mm² | Part No. | Crimp width<br>mm | Number of crimps |
|----------------------|----------|-------------------|------------------|
| 6                    | HB46     | 9                 | 1                |
| 10                   | HB410    | 9                 | 1                |
| 16                   | HB416    | 9                 | 1                |
| 25                   | HB425    | 9                 | 1                |
| 35                   | HB435    | 9                 | 1                |
| 50                   | HB450    | 9                 | 1                |
| 70                   | HB470    | 5                 | 2                |
| 95                   | HB495    | 5                 | 2                |
| 120                  | HB4120   | 5                 | 2                |
| 150                  | HB4150   | 5                 | 2                |

Crimping die set 6 - 150 mm², blue connection® HB 4 in plastic case, 11 pieces



Suitable for

- Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Part No. |
|----------|
| HB4SET   |

## Crimping dies HR 4

### Suitable for

- Copper tubular cable lugs and connectors, standard type
- Tubular cable lugs for switchgear connections



| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 6                                | HR46     | 5                 |
| 10                               | HR410    | 5                 |
| 16                               | HR416    | 5                 |
| 25                               | HR425    | 5                 |
| 35                               | HR435    | 5                 |
| 50                               | HR450    | 5                 |
| 70                               | HR470    | 5                 |
| 95                               | HR495    | 5                 |
| 120                              | HR4120   | 5                 |
| 150                              | HR4150   | 5                 |

## Crimping die set, 6 - 150 mm<sup>2</sup> HR 4 in plastic case, 11 pieces

### Suitable for

- Copper tubular cable lugs and connectors, standard type
- Tubular cable lugs for switchgear connections



| Part No. |
|----------|
| HR4SET   |

## Crimping dies HIS 4

### Suitable for

- Insulated tubular cable lugs and connectors
- Insulated pin terminals



| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 10                               | HIS410   | 5                 |
| 16                               | HIS416   | 5                 |
| 25                               | HIS425   | 5                 |
| 35                               | HIS435   | 5                 |
| 50                               | HIS450   | 5                 |
| 70                               | HIS470   | 5                 |

## Crimping dies HF 4



## Suitable for

- Tubular cable lugs and connectors for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 10                               | HF410    |
| 16                               | HF416    |
| 25                               | HF425    |
| 35                               | HF435    |

## Crimping dies HM 4



## Suitable for

- Tubular cable lugs and compression joints for solid conductors

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 1.5-2.5<br>4                     | HM4154   | 5                 |
| 6-10                             | HM4610   | 5                 |
| 16                               | HM416    | 5                 |

## Crimping dies HN 4



## Suitable for

- Nickel tubular cable lugs and connectors
- Stainless steel tubular cable lugs and connectors

| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 0,5-1,0                          | HN4051   |
| 1,5-2,5                          | HN41525  |
| 4-6                              | HN446    |
| 10                               | HN410    |
| 16                               | HN416    |

## Crimping dies HD 4



## Suitable for

- Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) acc. to DIN

| Cross section<br>mm <sup>2</sup> | Part No. | Code | Crimp width<br>mm |
|----------------------------------|----------|------|-------------------|
| 6                                | HD46     | 5    | 5                 |
| 10                               | HD410    | 6    | 5                 |
| 16                               | HD416    | 8    | 5                 |
| 25                               | HD425    | 10   | 5                 |
| 35                               | HD435    | 12   | 5                 |
| 50                               | HD450    | 14   | 5                 |
| 70                               | HD470    | 16   | 5                 |
| 95                               | HD495    | 18   | 5                 |
| 120                              | HD4120   | 20   | 5                 |

## Crimping die set, 6 - 120 mm<sup>2</sup> HD 4 in plastic case, 10 pieces

### Suitable for

- Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) acc. to DIN



| Part No.      |
|---------------|
| <b>HD4SET</b> |

## Crimping dies HQ 4

### Suitable for

- Copper solderless terminals (DIN 46234) and pin terminals (DIN 46230) acc. to DIN
- Copper solderless connectors (DIN 46341) acc. to DIN



| Cross section<br>mm <sup>2</sup> | Part No.     |
|----------------------------------|--------------|
| 10                               | <b>HQ410</b> |
| 16                               | <b>HQ416</b> |
| 25                               | <b>HQ425</b> |
| 35                               | <b>HQ435</b> |

## Crimping dies HISQ 4

### Suitable for

- Insulated solderless terminals and pin terminals



| Cross section<br>mm <sup>2</sup> | Part No.       |
|----------------------------------|----------------|
| 10                               | <b>HISQ410</b> |
| 16                               | <b>HISQ416</b> |

## Crimping dies HRU 4

### Suitable for

- Pre-rounding dies for sector-shaped Al and Cu conductors
- 3- and 4-core sector-shaped conductors



| Cross section<br>mm <sup>2</sup> sm | Cross section<br>mm <sup>2</sup> se | Part No.          | Conductor dia.<br>mm | Pre-rounding<br>width<br>mm |
|-------------------------------------|-------------------------------------|-------------------|----------------------|-----------------------------|
| 10                                  |                                     | <b>HRU410</b>     | 4,1                  | 9                           |
| 16                                  |                                     | <b>HRU416</b>     | 5,1                  | 9                           |
| 25                                  | 35                                  | <b>HRU43525</b>   | 6,3                  | 9                           |
| 35                                  | 50                                  | <b>HRU45035</b>   | 7,5                  | 9                           |
| 50                                  | 70                                  | <b>HRU47050</b>   | 9,0                  | 9                           |
| 70                                  | 95                                  | <b>HRU49570</b>   | 10,5                 | 9                           |
| 95                                  | 120                                 | <b>HRU412095</b>  | 12,5                 | 9                           |
| 120                                 | 150                                 | <b>HRU4150120</b> | 14,0                 | 9                           |











Crimping dies HC 4 / HMC 4



Suitable for  
■ Clamps, C-type

| Cross section<br>mm²    | Part No. | Crimp width<br>mm |
|-------------------------|----------|-------------------|
| 16                      | HC416    | 5                 |
| 25                      | HC425    | 5                 |
| 4-4                     | HMC44    | 5                 |
| 10-10                   | HMC410   | 5                 |
| 10-16<br>10-25<br>35-35 | HMC435   | 5                 |







Crimping dies HA 4

**Crimping dies HZAE 4**

**Suitable for**

- Twin cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No.       | Crimp width<br>mm |
|----------------------------------|----------------|-------------------|
| 2 x 4                            | <b>HZAE44</b>  | 10                |
| 2 x 6                            | <b>HZAE46</b>  | 10                |
| 2 x 10                           | <b>HZAE410</b> | 10                |
| 2 x 16                           | <b>HZAE416</b> | 10                |



| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
|                                  |          |                   |
|                                  |          |                   |
|                                  |          |                   |
|                                  |          |                   |
|                                  |          |                   |
|                                  |          |                   |



| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
|                                  |          |                   |
|                                  |          |                   |
|                                  |          |                   |
|                                  |          |                   |
|                                  |          |                   |
|                                  |          |                   |





HK 60 UNV  
+ UA5



EK 50/5-L



EKM 60 UNV-L  
+ UA5



EK 60 UNV-L  
+ UA5



PK 60 UNV  
+ UA5

## Crimping dies, blue connection® HB 5



► Accurate assignment of crimping tool/crimping die through colour-coding system

### Suitable for

- Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm | Number of crimps |
|----------------------------------|----------|-------------------|------------------|
| 6 + 35                           | HB5635   | 9                 | 1                |
| 10 + 50                          | HB51050  | 9                 | 1                |
| 16 + 70                          | HB51670  | 9                 | 1                |
| 25 + 95                          | HB52595  | 9                 | 1                |
| 120                              | HB5120   | 5                 | 2                |
| 150                              | HB5150   | 5                 | 2                |
| 185                              | HB5185   | 5                 | 2                |

## Crimping die set 6 - 185 mm<sup>2</sup>, blue connection® HB 5 in plastic case, 8 pieces



### Suitable for

- Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Part No. |
|----------|
| HB5SET   |

## Crimping dies HR 5



### Suitable for

- Copper tubular cable lugs and connectors, standard type

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 6 + 35                           | HR5635   | 5                 |
| 10 + 50                          | HR51050  | 5                 |
| 16 + 70                          | HR51670  | 5                 |
| 25 + 95                          | HR52595  | 5                 |
| 120                              | HR5120   | 5                 |
| 150                              | HR5150   | 5                 |
| 185                              | HR5185   | 5                 |
| 240                              | HR5240   | 5                 |



**Crimping die set, 6 - 240 mm<sup>2</sup>, HR 5 in plastic case, 9 pieces**
**Suitable for**

- Copper tubular cable lugs and connectors, standard type



| Part No.      |
|---------------|
| <b>HR5SET</b> |

**Crimping dies HIS 5**
**Suitable for**

- Insulated tubular cable lugs and connectors
- Insulated pin terminals



| Cross section<br>mm <sup>2</sup> | Part No.      | Crimp width<br>mm |
|----------------------------------|---------------|-------------------|
| 10                               | <b>HIS510</b> | 5                 |
| 16                               | <b>HIS516</b> | 5                 |
| 25                               | <b>HIS525</b> | 5                 |
| 35                               | <b>HIS535</b> | 5                 |
| 50                               | <b>HIS550</b> | 5                 |
| 70                               | <b>HIS570</b> | 5                 |
| 95                               | <b>HIS595</b> | 5                 |

**Crimping dies HF 5**
**Suitable for**

- Tubular cable lugs and connectors for fine stranded conductors



| Cross section<br>mm <sup>2</sup> | Part No.     |
|----------------------------------|--------------|
| 10                               | <b>HF510</b> |
| 16                               | <b>HF516</b> |
| 25                               | <b>HF525</b> |
| 35                               | <b>HF535</b> |
| 50                               | <b>HF550</b> |

**Crimping dies HD 5**
**Suitable for**

- Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) acc. to DIN



| Cross section<br>mm <sup>2</sup> | Part No.       | Code    | Crimp width<br>mm |
|----------------------------------|----------------|---------|-------------------|
| 6 + 35                           | <b>HD5635</b>  | 5 + 12  | 5                 |
| 10 + 50                          | <b>HD51050</b> | 6 + 14  | 5                 |
| 16 + 70                          | <b>HD51670</b> | 8 + 16  | 5                 |
| 25 + 95                          | <b>HD52595</b> | 10 + 18 | 5                 |
| 120                              | <b>HD5120</b>  | 20      | 5                 |
| 150                              | <b>HD5150</b>  | 22      | 5                 |
| 185                              | <b>HD5185</b>  | 25      | 5                 |

Crimping die set, 6 - 185 mm<sup>2</sup> HD 5 in plastic case, 8 pieces

## Suitable for

- Copper compression cable lugs (DIN 46234) and connectors (DIN 46267, part 1) acc. to DIN

Part No.

HD5SET

## Crimping dies HQ 5



## Suitable for

- Copper solderless terminals (DIN 46234) and pin terminals (DIN 46230) acc. to DIN

| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 10                               | HQ510    |
| 16                               | HQ516    |
| 25                               | HQ525    |
| 35                               | HQ535    |
| 50                               | HQ550    |

## Crimping dies HRU 5



## Suitable for

- Pre-rounding dies for sector-shaped Al and Cu conductors
- 3- and 4-core sector-shaped conductors

| Cross section<br>mm <sup>2</sup> sm | Cross section<br>mm <sup>2</sup> se | Part No.   | Conductor dia.<br>mm | Pre-rounding<br>width<br>mm |
|-------------------------------------|-------------------------------------|------------|----------------------|-----------------------------|
| 10                                  |                                     | HRU510     | 4,1                  | 12                          |
| 16                                  |                                     | HRU516     | 5,1                  | 12                          |
| 25                                  | 35                                  | HRU53525   | 6,3                  | 12                          |
| 35                                  | 50                                  | HRU55035   | 7,5                  | 12                          |
| 50                                  | 70                                  | HRU57050   | 9                    | 12                          |
| 70                                  | 95                                  | HRU59570   | 10,5                 | 12                          |
| 95                                  | 120                                 | HRU512095  | 12,5                 | 12                          |
| 120                                 | 150                                 | HRU5150120 | 14                   | 12                          |
| 150                                 | 185                                 | HRU5185150 | 15,7                 | 12                          |
| 185                                 | 240                                 | HRU5240185 | 17,5                 | 12                          |
| 240                                 | 300                                 | HRU5300240 | 20,3                 | 12                          |

## Crimping dies HA 5

### Suitable for

- Aluminum compression cable lugs and connectors to DIN
- Aluminum/copper compression cable lugs and connectors (aluminum side)

| Cross section<br>mm <sup>2</sup> | Part No. | Code | Crimp width<br>mm |
|----------------------------------|----------|------|-------------------|
| 10                               | HA510    | 10   | 7                 |
| 16-25                            | HA51625  | 12   | 7                 |
| 35                               | HA535    | 14   | 7                 |
| 50                               | HA550    | 16   | 7                 |
| 70                               | HA570    | 18   | 7                 |
| 95-120                           | HA595120 | 22   | 7                 |
| 150                              | HA5150   | 25   | 7                 |



## Crimping dies HC 5

### Suitable for

- Clamps, C-type

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 16                               | HC516    | 5                 |
| 25                               | HC525    | 5                 |
| 35                               | HC535    | 5                 |



## Crimping dies HZAE 5



## Suitable for

- Twin cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 2 x 4                            | HZAE54   | 20                |
| 2 x 6                            | HZAE56   | 20                |
| 2 x 10                           | HZAE510  | 20                |
| 2 x 16                           | HZAE516  | 20                |

## Crimping dies HAES 5



## Suitable for

- Cable end-sleeves
- Special trapezoid crimp for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 10                               | HAES510  | 20                |
| 16                               | HAES516  | 20                |
| 25                               | HAES525  | 20                |
| 35                               | HAES535  | 20                |
| 50                               | HAES550  | 20                |
| 70                               | HAES570  | 20                |
| 95                               | HAES590  | 20                |

## Crimping dies HZAES 5



## Suitable for

- Twin cable end-sleeves
- Special trapezoid crimp for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 2 x 4                            | HZAES54  | 20                |
| 2 x 6                            | HZAES56  | 20                |
| 2 x 10                           | HZAES510 | 20                |
| 2 x 16                           | HZAES516 | 20                |

**18**  
Klauke



K 18



HK 60/18



HK 60 UNV  
+ UA18



EK 50/18-L



EKM 60 UNV-L  
+ UA18



EK 60 UNV-L  
+ UA18



THK 18



PK 18



PK 60 UNV  
+ UA18

## Crimping dies R

### Suitable for

- Copper tubular cable lugs and connectors, standard type
- Tubular cable lugs for switchgear connections

| Cross section<br>mm <sup>2</sup> | Part No.    | Crimp width<br>mm |
|----------------------------------|-------------|-------------------|
| 6                                | <b>R6</b>   | 5                 |
| 10                               | <b>R10</b>  | 5                 |
| 16                               | <b>R16</b>  | 5                 |
| 25                               | <b>R25</b>  | 5                 |
| 35                               | <b>R35</b>  | 5                 |
| 50                               | <b>R50</b>  | 5                 |
| 70                               | <b>R70</b>  | 5                 |
| 95                               | <b>R95</b>  | 5                 |
| 120                              | <b>R120</b> | 5                 |
| 150                              | <b>R150</b> | 5                 |
| 185                              | <b>R185</b> | 5                 |

► For connectors see assembly instructions for connector materials (general information) in the technical index, page I-8



## Crimping dies IS

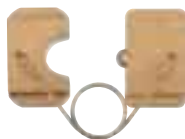
### Suitable for

- Insulated tubular cable lugs and connectors
- Insulated pin terminals

| Cross section<br>mm <sup>2</sup> | Part No.    | Crimp width<br>mm |
|----------------------------------|-------------|-------------------|
| 10                               | <b>IS10</b> | 5                 |
| 16                               | <b>IS16</b> | 5                 |
| 25                               | <b>IS25</b> | 5                 |
| 35                               | <b>IS35</b> | 5                 |
| 50                               | <b>IS50</b> | 5                 |
| 70                               | <b>IS70</b> | 5                 |
| 95                               | <b>IS95</b> | 5                 |



## Crimping dies F

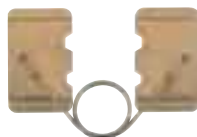


## Suitable for

- Tubular cable lugs and connectors for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No.   |
|----------------------------------|------------|
| 10                               | <b>F10</b> |
| 16                               | <b>F16</b> |
| 25                               | <b>F25</b> |
| 35                               | <b>F35</b> |
| 50                               | <b>F50</b> |

## Crimping dies M



## Suitable for

- Tubular cable lugs and compression joints for solid conductors

| Cross section<br>mm <sup>2</sup> | Part No.    | Crimp width<br>mm |
|----------------------------------|-------------|-------------------|
| 1.5-4                            | <b>M154</b> | 5                 |
| 6-10                             | <b>M610</b> | 5                 |
| 16                               | <b>M16</b>  | 5                 |

## Crimping dies D



## Suitable for

- Compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) to DIN - Cu

| Cross section<br>mm <sup>2</sup> | Part No.    | Code | Crimp width<br>mm |
|----------------------------------|-------------|------|-------------------|
| 6                                | <b>D6</b>   | 5    | 5                 |
| 10                               | <b>D10</b>  | 6    | 5                 |
| 16                               | <b>D16</b>  | 8    | 5                 |
| 25                               | <b>D25</b>  | 10   | 5                 |
| 35                               | <b>D35</b>  | 12   | 5                 |
| 50                               | <b>D50</b>  | 14   | 5                 |
| 70                               | <b>D70</b>  | 16   | 5                 |
| 95                               | <b>D95</b>  | 18   | 5                 |
| 120                              | <b>D120</b> | 20   | 5                 |
| 150                              | <b>D150</b> | 22   | 5                 |
| 185                              | <b>D185</b> | 25   | 5                 |

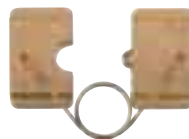
► For connectors see assembly instructions for connector materials (general information) in the technical index, page i-8

## Crimping dies Q

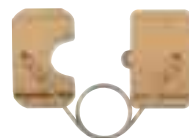
### Suitable for

- Copper solderless terminals (DIN 46234) and pin terminals (DIN 46230) to DIN
- Copper solderless connectors (DIN 46341) to DIN

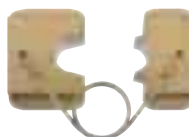
| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 10                               | Q10      |
| 16                               | Q16      |
| 25                               | Q25      |
| 35                               | Q35      |
| 50                               | Q50      |
| 70                               | Q70      |



|  |  |
|--|--|
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |



|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |













For connectors see assembly instructions for connector materials (general information) in the technical index, page I-8

Crimping dies C / MC



Suitable for  
■ Clamps, C-type

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 16                               | C16      | 5                 |
| 25                               | C25      | 5                 |
| 35                               | C35      | 5                 |
| 50                               | C50      | 5                 |
| 4-4                              | MC4      | 5                 |
| 10-10                            | MC10     | 5                 |
| 10-16<br>10-25<br>10-35          | MC35     | 5                 |

For connectors see assembly instructions for connector materials (general information) in the technical index, page I-8



**Crimping dies AE**
**Suitable for**

- Cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No.    | Crimp width<br>mm |
|----------------------------------|-------------|-------------------|
| 10                               | <b>AE10</b> | 20                |
| 16                               | <b>AE16</b> | 20                |
| 25                               | <b>AE25</b> | 20                |
| 35                               | <b>AE35</b> | 20                |
| 50                               | <b>AE50</b> | 20                |
| 70                               | <b>AE70</b> | 20                |
| 95                               | <b>AE95</b> | 20                |


**Crimping dies ZAE**
**Suitable for**

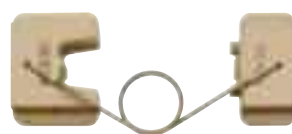
- Twin cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No.     | Crimp width<br>mm |
|----------------------------------|--------------|-------------------|
| 2 x 4                            | <b>ZAE4</b>  | 20                |
| 2 x 6                            | <b>ZAE6</b>  | 20                |
| 2 x 10                           | <b>ZAE10</b> | 20                |
| 2 x 16                           | <b>ZAE16</b> | 20                |

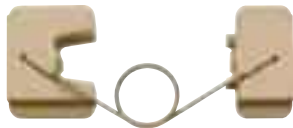

**Crimping dies AES**
**Suitable for**

- Cable end-sleeves
- Special trapezoid crimp for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No.     | Crimp width<br>mm |
|----------------------------------|--------------|-------------------|
| 10                               | <b>AES10</b> | 20                |
| 16                               | <b>AES16</b> | 20                |
| 25                               | <b>AES25</b> | 20                |
| 35                               | <b>AES35</b> | 20                |
| 50                               | <b>AES50</b> | 20                |
| 70                               | <b>AES70</b> | 20                |
| 95                               | <b>AES95</b> | 20                |



Crimping dies ZAES



Suitable for

- Twin cable end-sleeves
- Special trapezoid crimp for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No.      | Crimp width<br>mm |
|----------------------------------|---------------|-------------------|
| 4                                | <b>ZAES4</b>  | 20                |
| 6                                | <b>ZAES6</b>  | 20                |
| 10                               | <b>ZAES10</b> | 20                |
| 16                               | <b>ZAES16</b> | 20                |

Cutting die



► For multi-stranded Al and Cu cables without armouring

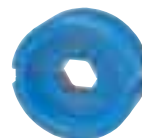
| Cutting range | Part No.   |
|---------------|------------|
| 18 mm         | <b>S18</b> |



**22**  
**Klauke**

## Crimping dies, blue connection® B 22

► Accurate assignment of crimping tool/crimping die through colour-coding system



### Suitable for

- Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Cross section<br>mm <sup>2</sup> | Part No.      | Crimp width<br>mm | Number of crimps |
|----------------------------------|---------------|-------------------|------------------|
| 6                                | <b>b226</b>   | 9                 | 1                |
| 10                               | <b>b2210</b>  | 9                 | 1                |
| 16                               | <b>b2216</b>  | 9                 | 1                |
| 25                               | <b>b2225</b>  | 9                 | 1                |
| 35                               | <b>b2235</b>  | 9                 | 1                |
| 50                               | <b>b2250</b>  | 9                 | 1                |
| 70                               | <b>b2270</b>  | 9                 | 1                |
| 95                               | <b>b2295</b>  | 9                 | 1                |
| 120                              | <b>b22120</b> | 9                 | 1                |
| 150                              | <b>b22150</b> | 9                 | 1                |
| 185                              | <b>b22185</b> | 5                 | 2                |
| 240                              | <b>b22240</b> | 5                 | 2                |
| 300                              | <b>b22300</b> | 5                 | 3                |

## Crimping die set 6 - 300 mm<sup>2</sup>, blue connection® B 22 in plastic case, 14 pieces

### Suitable for

- Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2



| Part No.      |
|---------------|
| <b>B22SET</b> |

## Crimping dies R 22



## Suitable for

- Copper tubular cable lugs and connectors, standard type
- Tubular cable lugs for switchgear connections

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 6                                | R226     | 5                 |
| 10                               | R2210    | 5                 |
| 16                               | R2216    | 5                 |
| 25                               | R2225    | 5                 |
| 35                               | R2235    | 5                 |
| 50                               | R2250    | 5                 |
| 70                               | R2270    | 5                 |
| 95                               | R2295    | 5                 |
| 120                              | R22120   | 5                 |
| 150                              | R22150   | 5                 |
| 185                              | R22185   | 5                 |
| 240                              | R22240   | 5                 |
| 300                              | R22300   | 5                 |

Crimping die set, 6 - 300 mm<sup>2</sup> R 22 in plastic case, 14 pieces

## Suitable for

- Copper tubular cable lugs and connectors, standard type
- Tubular cable lugs for switchgear connections

| Part No. |
|----------|
| R22SET   |

## Crimping dies IS 22



## Suitable for

- Insulated tubular cable lugs and connectors
- Insulated pin terminals

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 10                               | IS2210   | 5                 |
| 16                               | IS2216   | 5                 |
| 25                               | IS2225   | 5                 |
| 35                               | IS2235   | 5                 |
| 50                               | IS2250   | 5                 |
| 70                               | IS2270   | 5                 |
| 95                               | IS2295   | 5                 |
| 120                              | IS22120  | 5                 |
| 150                              | IS22150  | 5                 |

## Crimping dies F 22

### Suitable for

- Tubular cable lugs and connectors for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 10                               | F2210    |
| 16                               | F2216    |
| 25                               | F2225    |
| 35                               | F2235    |
| 50                               | F2250    |
| 70                               | F2270    |



## Crimping dies M 22

### Suitable for

- Tubular cable lugs and compression joints for solid conductors

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 1,5-4                            | M22154   | 5                 |
| 6-10                             | M22610   | 5                 |
| 16                               | M2216    | 5                 |

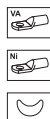


## Crimping dies N 22

### Suitable for

- Nickel tubular cable lugs and connectors
- Stainless steel tubular cable lugs and connectors

| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 10                               | N2210    |
| 16                               | N2216    |
| 25                               | N2225    |
| 35                               | N2235    |
| 50                               | N2250    |



## Crimping dies D 22



## Suitable for

- Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) acc. to DIN

| Cross section<br>mm <sup>2</sup> | Part No. | Code | Crimp width<br>mm |
|----------------------------------|----------|------|-------------------|
| 6                                | D226     | 5    | 5                 |
| 10                               | D2210    | 6    | 5                 |
| 16                               | D2216    | 8    | 5                 |
| 25                               | D2225    | 10   | 5                 |
| 35                               | D2235    | 12   | 5                 |
| 50                               | D2250    | 14   | 5                 |
| 70                               | D2270    | 16   | 5                 |
| 95                               | D2295    | 18   | 5                 |
| 120                              | D22120   | 20   | 5                 |
| 150                              | D22150   | 22   | 5                 |
| 185                              | D22185   | 25   | 5                 |
| 240                              | D22240   | 28   | 5                 |
| 300                              | D22300   | 32   | 5                 |

Crimping die set, 6 - 300 mm<sup>2</sup> D 22 in plastic case, 14 pieces

## Suitable for

- Copper compression cable lugs (DIN 46235) and connectors (DIN 46267, part 1) acc. to DIN

| Part No. |
|----------|
| D22SET   |

## Crimping dies DP 22



## Suitable for

- Double compression cable lugs

| Cross section<br>mm <sup>2</sup> | Part No. | Code  |
|----------------------------------|----------|-------|
| 2 x 50                           | DP2250   | 22 DP |
| 2 x 70                           | DP2270   | 24 DP |

## Crimping dies Q 22

### Suitable for

- Copper solderless terminals (DIN 46234) and pin terminals (DIN 46230) acc. to DIN
- Copper solderless connectors (DIN 46341) acc. to DIN



| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 10                               | Q2210    |
| 16                               | Q2216    |
| 25                               | Q2225    |
| 35                               | Q2235    |
| 50                               | Q2250    |
| 70                               | Q2270    |

## Crimping dies ISQ 22

### Suitable for

- Insulated solderless terminals and pin terminals

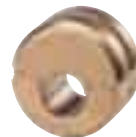


| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 10                               | ISQ2210  |
| 16                               | ISQ2216  |
| 25                               | ISQ2225  |
| 35                               | ISQ2235  |
| 50                               | ISQ2250  |
| 70                               | ISQ2270  |

## Crimping dies RU 22

### Suitable for

- Pre-rounding of sector-shaped Al- and Cu-conductors
- 3- and 4-core sector-shaped conductors



| Cross section<br>mm <sup>2</sup> sm | Cross section<br>mm <sup>2</sup> se | Part No.   | Conductor dia.<br>mm | Pre-rounding<br>width<br>mm |
|-------------------------------------|-------------------------------------|------------|----------------------|-----------------------------|
| 10                                  |                                     | RU2210     | 4,1                  | 19,5                        |
| 16                                  |                                     | RU2216     | 5,1                  | 19,5                        |
| 25                                  | 35                                  | RU223525   | 6,3                  | 19,5                        |
| 35                                  | 50                                  | RU225035   | 7,5                  | 19,5                        |
| 50                                  | 70                                  | RU227050   | 9,0                  | 19,5                        |
| 70                                  | 95                                  | RU229570   | 10,5                 | 19,5                        |
| 95                                  | 120                                 | RU2212095  | 12,5                 | 19,5                        |
| 120                                 | 150                                 | RU22150120 | 14,0                 | 19,5                        |
| 150                                 | 185                                 | RU22185150 | 15,8                 | 19,5                        |
| 185                                 | 240                                 | RU22240185 | 17,5                 | 19,5                        |
| 240                                 | 300                                 | RU22300240 | 20,3                 | 19,5                        |

## Crimping dies A 22



## Suitable for

- Aluminum compression cable lugs and connectors acc. to DIN
- Aluminum/copper compression cable lugs and connectors (aluminum side)

| Cross section<br>mm <sup>2</sup> | Part No. | Code | Crimp width<br>mm |
|----------------------------------|----------|------|-------------------|
| 10                               | A2210    | 10   | 7                 |
| 16-25                            | A221625  | 12   | 7                 |
| 35                               | A2235    | 14   | 7                 |
| 50                               | A2250    | 16   | 7                 |
| 70                               | A2270    | 18   | 7                 |
| 95-120                           | A2295120 | 22   | 7                 |
| 150                              | A22150   | 25   | 7                 |
| 185                              | A22185   | 28   | 7                 |
| 240                              | A22240   | 32   | 5                 |
| 300                              | A22300   | 34   | 5                 |

Crimping die set, 10 - 300 mm<sup>2</sup> A 22 in plastic case, 11 pieces

## Suitable for

- Aluminum compression cable lugs and connectors to DIN
- Aluminum/copper compression cable lugs and connectors (aluminum side)

| Part No. |
|----------|
| A22SET   |

## Crimping dies AD 22



## Suitable for

- Compression joints for full tension connections of Aldrey conductors acc. to DIN EN 50182
- Al-conductor DIN EN 50182, 120 - 185 mm<sup>2</sup>

| Cross section<br>mm <sup>2</sup> | Part No.   | Code | Crimp width<br>mm |
|----------------------------------|------------|------|-------------------|
| 25                               | AD2225     | 12   | 7                 |
| 35                               | AD2235     | 14   | 7                 |
| 50                               | AD2250     | 16   | 7                 |
| 70                               | AD2270     | 18   | 7                 |
| 95                               | AD2295     | 20   | 7                 |
| 120                              | AD22120    | 25   | 7                 |
| 150-185                          | AD22150185 | 28   | 7                 |



## Crimping dies AST 22

### Suitable for

- Compression joints acc. to DIN 48085, part 3 for Al-/St-cable acc. to DIN EN 50182
- Aluminum crimping

| Cross section<br>mm² | Part No. | Code | Crimp width<br>mm |
|----------------------|----------|------|-------------------|
| 25-4                 | AST2225  | 12   | 7                 |
| 35-6                 | AST2235  | 14   | 7                 |
| 50-8                 | AST2250  | 16   | 7                 |
| 70-12                | AST2270  | 18   | 7                 |
| 95-15                | AST2295  | 22   | 7                 |
| 120-20               | AST22120 | 25   | 7                 |



## Crimping dies AE 22



## Suitable for

- Cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 10                               | AE2210   | 20                |
| 16                               | AE2216   | 20                |
| 25                               | AE2225   | 20                |
| 35                               | AE2235   | 20                |
| 50                               | AE2250   | 20                |
| 70                               | AE2270   | 20                |
| 95                               | AE2295   | 20                |
| 120                              | AE22120  | 20                |
| 150                              | AE22150  | 20                |
| 185*                             | AE22185  | 20                |
| 240*                             | AE22240  | 20                |

► \* = except THK 22

## Crimping dies ZAE 22

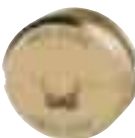


## Suitable for

- Twin cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 2 x 4                            | ZAE224   | 20                |
| 2 x 6                            | ZAE226   | 20                |
| 2 x 10                           | ZAE2210  | 20                |
| 2 x 16                           | ZAE2216  | 20                |

## Crimping dies AES 22



## Suitable for

- Cable end-sleeves
- Special trapezoid crimp for fine stranded conductors

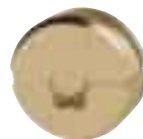
| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 10                               | AES2210  | 20                |
| 16                               | AES2216  | 20                |
| 25                               | AES2225  | 20                |
| 35                               | AES2235  | 20                |
| 50                               | AES2250  | 20                |
| 70                               | AES2270  | 20                |
| 95                               | AES2295  | 20                |
| 120                              | AES22120 | 20                |
| 150                              | AES22150 | 20                |
| 185*                             | AES22185 | 20                |
| 240*                             | AES22240 | 20                |

► \* = except THK 22

**Crimping dies ZAES 22**

**Suitable for**

- Twin cable end-sleeves
- Special trapezoid crimp for fine stranded conductors



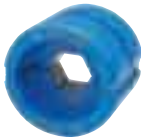
| Cross section<br>mm² | Part No.        | Crimp width<br>mm |
|----------------------|-----------------|-------------------|
| 2 x 4                | <b>ZAES224</b>  | 20                |
| 2 x 6                | <b>ZAES226</b>  | 20                |
| 2 x 10               | <b>ZAES2210</b> | 20                |
| 2 x 16               | <b>ZAES2216</b> | 20                |



**13**  
**Klauke**



## Crimping dies blue connection® HB 13



► Accurate assignment of crimping tool/crimping die through colour-coding system

### Suitable for

- Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Cross section<br>mm² | Part No. | Crimp width<br>mm | Number of crimps |
|----------------------|----------|-------------------|------------------|
| 16                   | hb1316   | 9                 | 1                |
| 25                   | hb1325   | 9                 | 1                |
| 35                   | hb1335   | 12                | 1                |
| 50                   | hb1350   | 12                | 1                |
| 70                   | hb1370   | 12                | 1                |
| 95                   | hb1395   | 12                | 1                |
| 120                  | hb13120  | 12                | 1                |
| 150                  | hb13150  | 12                | 1                |
| 185                  | hb13185  | 12                | 1                |
| 240                  | hb13240  | 12                | 1                |
| 300                  | hb13300  | 9                 | 2                |
| 400                  | hb13400  | 9                 | 2                |

## Crimping die set 16 - 400 mm², blue connection® HB 13 in plastic case, 13 pieces



### Suitable for

- Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Part No. |
|----------|
| HB13SET  |

## Crimping dies HR 13

### Suitable for

- Copper tubular cable lugs and connectors, standard type
- Tubular cable lugs for switchgear connections



| Cross section<br>mm² | Part No.       | Crimp width<br>mm |
|----------------------|----------------|-------------------|
| 16                   | <b>HR1316</b>  | 10                |
| 25                   | <b>HR1325</b>  | 10                |
| 35                   | <b>HR1335</b>  | 10                |
| 50                   | <b>HR1350</b>  | 13                |
| 70                   | <b>HR1370</b>  | 13                |
| 95                   | <b>HR1395</b>  | 14                |
| 120                  | <b>HR13120</b> | 14                |
| 150                  | <b>HR13150</b> | 14                |
| 185                  | <b>HR13185</b> | 11                |
| 240                  | <b>HR13240</b> | 11                |
| 300                  | <b>HR13300</b> | 11                |
| 400                  | <b>HR13400</b> | 5*                |

► For connectors see assembly instructions for connector materials (general information) in the technical index, page I-8

► \* = Narrow crimping (press 5 x)

## Crimping dies HIS 13

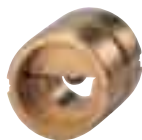
### Suitable for

- Insulated tubular cable lugs and connectors
- Insulated pin terminals



| Cross section<br>mm² | Part No.        | Crimp width<br>mm |
|----------------------|-----------------|-------------------|
| 10                   | <b>HIS1310</b>  | 5                 |
| 16                   | <b>HIS1316</b>  | 5                 |
| 25                   | <b>HIS1325</b>  | 5                 |
| 35                   | <b>HIS1335</b>  | 5                 |
| 50                   | <b>HIS1350</b>  | 5                 |
| 70                   | <b>HIS1370</b>  | 5                 |
| 95                   | <b>HIS1395</b>  | 5                 |
| 120                  | <b>HIS13120</b> | 5                 |
| 150                  | <b>HIS13150</b> | 5                 |

## Crimping dies HF 13



## Suitable for

- Tubular cable lugs and connectors for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 16                               | HF1316   |
| 25                               | HF1325   |
| 35                               | HF1335   |
| 50                               | HF1350   |
| 70                               | HF1370   |
| 95                               | HF1395   |
| 120                              | HF13120  |
| 150                              | HF13150  |

## Crimping dies HD 13



## Suitable for

- Copper compression cable lugs (DIN 46235) acc. to DIN
- Copper compression connectors (DIN 46267, part 1) acc. to DIN

| Cross section<br>mm <sup>2</sup> | Part No. | Code | Crimp width<br>mm |
|----------------------------------|----------|------|-------------------|
| 16                               | HD1316   | 8    | 10                |
| 25                               | HD1325   | 10   | 10                |
| 35                               | HD1335   | 12   | 10                |
| 50                               | HD1350   | 14   | 13                |
| 70                               | HD1370   | 16   | 13                |
| 95                               | HD1395   | 18   | 14                |
| 120                              | HD13120  | 20   | 14                |
| 150                              | HD13150  | 22   | 10                |
| 185                              | HD13185  | 25   | 10                |
| 240                              | HD13240  | 28   | 10                |
| 300                              | HD13300  | 32   | 7*                |

► For connectors see assembly instructions for connector materials (general information) in the technical index, page i-8

► \* = Narrow crimping (press 5 x)

## Crimping dies HDP 13



## Suitable for

- Double compression cable lugs

| Cross section<br>mm <sup>2</sup> | Part No. | Code  | Crimp width<br>mm |
|----------------------------------|----------|-------|-------------------|
| 2 x 50                           | HDP1350  | 22 DP | 12                |
| 2 x 70                           | HDP1370  | 24 DP | 12                |
| 2 x 95                           | HDP1395  | 29 DP | 12                |

## Crimping dies HQ 13

### Suitable for

- Copper solderless terminals (DIN 46234) and pin terminals (DIN 46230) acc. to DIN
- Copper solderless connectors (DIN 46341) acc. to DIN



| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 16                               | HQ1316   |
| 25                               | HQ1325   |
| 35                               | HQ1335   |
| 50                               | HQ1350   |
| 70                               | HQ1370   |
| 95                               | HQ1395   |
| 120                              | HQ13120  |
| 150                              | HQ13150  |

## Crimping dies HISQ 13

### Suitable for

- Insulated solderless terminals and pin terminals



| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 10                               | HISQ1310 |
| 16                               | HISQ1316 |
| 25                               | HISQ1325 |
| 35                               | HISQ1335 |
| 50                               | HISQ1350 |
| 70                               | HISQ1370 |
| 95                               | HISQ1395 |

## Crimping dies HRU 13

### Suitable for

- Pre-rounding dies for sector-shaped Al and Cu conductors
- 3- and 4-core sector-shaped conductors



| Cross section<br>mm <sup>2</sup> sm | Cross section<br>mm <sup>2</sup> se | Part No.    | Conductor dia.<br>mm | Pre-rounding<br>width<br>mm |
|-------------------------------------|-------------------------------------|-------------|----------------------|-----------------------------|
| 10                                  |                                     | HRU1310     | 4,1                  | 35                          |
| 16                                  |                                     | HRU1316     | 5,1                  | 35                          |
| 25                                  | 35                                  | HRU133525   | 6,3                  | 35                          |
| 35                                  | 50                                  | HRU135035   | 7,5                  | 35                          |
| 50                                  | 70                                  | HRU137050   | 9,0                  | 35                          |
| 70                                  | 95                                  | HRU139570   | 10,5                 | 35                          |
| 95                                  | 120                                 | HRU1312095  | 12,5                 | 35                          |
| 120                                 | 150                                 | HRU13150120 | 14,0                 | 35                          |
| 150                                 | 185                                 | HRU13185150 | 15,8                 | 35                          |
| 185                                 | 240                                 | HRU13240185 | 17,5                 | 35                          |
| 240                                 | 300                                 | HRU13300240 | 20,3                 | 35                          |
| 300                                 |                                     | HRU13300SM  | 22,5                 | 35                          |

## Crimping dies HA 13



## Suitable for

- Aluminum compression cable lugs and connectors acc. to DIN
- Aluminum/copper compression cable lugs and connectors (aluminum side)

| Cross section<br>mm <sup>2</sup> | Part No.  | Code | Crimp width<br>mm |
|----------------------------------|-----------|------|-------------------|
| 10                               | HA1310    | 10   | 12                |
| 16-25                            | HA131625  | 12   | 12                |
| 35                               | HA1335    | 14   | 12                |
| 50                               | HA1350    | 16   | 12                |
| 70                               | HA1370    | 18   | 12                |
| 95-120                           | HA1395120 | 22   | 14                |
| 150                              | HA13150   | 25   | 14                |
| 185                              | HA13185   | 28   | 14                |
| 240                              | HA13240   | 32   | 5                 |

► For connectors see assembly instructions for connector materials (general information) in the technical index, page i-8

## Crimping dies HAD 13



## Suitable for

- Compression joints for full tension connections of Aldrey conductors according to DIN EN 50182
- Al-conductor acc. to DIN EN 50182, 120 - 185 mm<sup>2</sup>

| Cross section<br>mm <sup>2</sup> | Part No.    | Code | Crimp width<br>mm |
|----------------------------------|-------------|------|-------------------|
| 25                               | HAD1325     | 12   | 12                |
| 35                               | HAD1335     | 14   | 12                |
| 50                               | HAD1350     | 16   | 12                |
| 70                               | HAD1370     | 18   | 12                |
| 95                               | HAD1395     | 20   | 14                |
| 120                              | HAD13120    | 25   | 14                |
| 150-185                          | HAD13150185 | 28   | 14                |

► For connectors see assembly instructions for connector materials (general information) in the technical index, page i-8

## Crimping dies HAST 13



## Suitable for

- Compression joints acc. to DIN 48085, part 3 for Al-/St-cable acc. to DIN EN 50182
- Aluminum crimping

| Cross section<br>mm <sup>2</sup> | Part No.  | Code | Crimp width<br>mm |
|----------------------------------|-----------|------|-------------------|
| 25-4                             | HAST1325  | 12   | 12                |
| 35-6                             | HAST1335  | 14   | 12                |
| 50-8                             | HAST1350  | 16   | 12                |
| 70-12                            | HAST1370  | 18   | 12                |
| 95-15                            | HAST1395  | 22   | 14                |
| 120-20                           | HAST13120 | 25   | 14                |

► For connectors see assembly instructions for connector materials (general information) in the technical index, page i-8



## Crimping dies HST 13

### Suitable for

- Compression joints acc. to DIN 48085, part 3 for Al-/St-cable acc. to DIN EN 50182
- Steel crimping



| Cross section<br>mm² | Part No.         | Code | Crimp width<br>mm |
|----------------------|------------------|------|-------------------|
| 25-4<br>35-6         | <b>HST1346</b>   | 6    | 12                |
| 50-8                 | <b>HST138</b>    | 7    | 12                |
| 70-12<br>95-15       | <b>HST131215</b> | 9    | 12                |
| 120-20               | <b>HST1320</b>   | 13   | 12                |



|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |



|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

► For connectors see assembly instructions for connector materials (general information) in the technical index, page i-8

## Crimping dies HAE 13

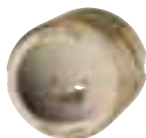


## Suitable for

- Cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 25                               | HAE1325  | 20                |
| 35                               | HAE1335  | 20                |
| 50                               | HAE1350  | 26                |
| 70                               | HAE1370  | 26                |
| 95                               | HAE1395  | 26                |
| 120                              | HAE13120 | 26                |
| 150                              | HAE13150 | 26                |
| 185                              | HAE13185 | 26                |
| 240                              | HAE13240 | 26                |

## Crimping dies HAES 13



## Suitable for

- Cable end-sleeves
- Special trapezoid crimp for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No.  | Crimp width<br>mm |
|----------------------------------|-----------|-------------------|
| 25                               | HAES1325  | 20                |
| 35                               | HAES1335  | 20                |
| 50                               | HAES1350  | 26                |
| 70                               | HAES1370  | 26                |
| 95                               | HAES1395  | 26                |
| 120                              | HAES13120 | 26                |
| 150                              | HAES13150 | 26                |
| 185                              | HAES13185 | 26                |
| 240                              | HAES13240 | 26                |



## Crimping dies HR 25

### Suitable for

- Copper tubular cable lugs and connectors, standard type
- Tubular cable lugs for switchgear connections



| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 16                               | HR2516   | 10                |
| 25                               | HR2525   | 10                |
| 35                               | HR2535   | 10                |
| 50                               | HR2550   | 13                |
| 70                               | HR2570   | 13                |
| 95                               | HR2595   | 15                |
| 120                              | HR25120  | 15                |
| 150                              | HR25150  | 20                |
| 185                              | HR25185  | 20                |
| 240                              | HR25240  | 20                |
| 300                              | HR25300  | 20                |
| 400                              | HR25400  | 20                |

## Crimping dies HIS 25

### Suitable for

- Insulated tubular cable lugs and connectors
- Insulated pin terminals



| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 10                               | HIS2510  | 7                 |
| 16                               | HIS2516  | 7                 |
| 25                               | HIS2525  | 8                 |
| 35                               | HIS2535  | 8                 |
| 50                               | HIS2550  | 10                |
| 70                               | HIS2570  | 12                |
| 95                               | HIS2595  | 14                |
| 120                              | HIS25120 | 14                |
| 150                              | HIS25150 | 16                |















Crimping dies HF 25



- 

| Cross section<br>mm <sup>2</sup> | Part No. |
|----------------------------------|----------|
| 16                               | HQ2516   |
| 25                               | HQ2525   |
| 35                               | HQ2535   |
| 50                               | HQ2550   |
| 70                               | HQ2570   |
| 95                               | HQ2595   |
| 120                              | HQ25120  |
| 150                              | HQ25150  |
| 185                              | HQ25185  |
| 240                              | HQ25240  |



## Crimping dies HA 25



## Suitable for

- Aluminum compression cable lugs and connectors acc. to DIN
- Aluminum/copper compression cable lugs and connectors (aluminum side)

| Cross section<br>mm <sup>2</sup> | Part No.  | Code | Crimp width<br>mm |
|----------------------------------|-----------|------|-------------------|
| 10                               | HA2510    | 10   | 12                |
| 16-25                            | HA251625  | 12   | 12                |
| 35                               | HA2535    | 14   | 12                |
| 50                               | HA2550    | 16   | 12                |
| 70                               | HA2570    | 18   | 12                |
| 95-120                           | HA2595120 | 22   | 14                |
| 150                              | HA25150   | 25   | 14                |
| 185                              | HA25185   | 28   | 14                |
| 240                              | HA25240   | 32   | 17                |
| 300                              | HA25300   | 34   | 17                |
| 400                              | HA25400   | 38   | 17                |
| 500                              | HA25500   | 44   | 15                |

## Crimping dies HAD 25



## Suitable for

- Compression joints for full tension connections of Aldrey conductors acc. to DIN EN 50182
- Al-conductor acc. to DIN EN 50182, 120 - 300 mm<sup>2</sup>

| Cross section<br>mm <sup>2</sup> | Part No.    | Code | Crimp width<br>mm |
|----------------------------------|-------------|------|-------------------|
| 25                               | HAD2525     | 12   | 12                |
| 35                               | HAD2535     | 14   | 12                |
| 50                               | HAD2550     | 16   | 12                |
| 70                               | HAD2570     | 18   | 12                |
| 95                               | HAD2595     | 20   | 14                |
| 120                              | HAD25120    | 25   | 14                |
| 150-185                          | HAD25150185 | 28   | 14                |
| 240                              | HAD25240    | 34   | 17                |
| 300                              | HAD25300    | 38   | 17                |

## Crimping dies HAST 25



## Suitable for

- Compression joints acc. to DIN 48085, part 3 for Al-/St-cable acc. to DIN EN 50182
- Aluminum crimping

| Cross section<br>mm <sup>2</sup> | Part No.  | Code | Crimp width<br>mm |
|----------------------------------|-----------|------|-------------------|
| 25-4                             | HAST2525  | 12   | 12                |
| 35-6                             | HAST2535  | 14   | 12                |
| 50-8                             | HAST2550  | 16   | 12                |
| 70-12                            | HAST2570  | 18   | 12                |
| 95-15                            | HAST2595  | 22   | 14                |
| 120-20                           | HAST25120 | 25   | 14                |



## Crimping dies HAE 25



## Suitable for

- Cable end-sleeves

| Cross section<br>mm <sup>2</sup> | Part No. | Crimp width<br>mm |
|----------------------------------|----------|-------------------|
| 25                               | HAE2525  | 20                |
| 35                               | HAE2535  | 20                |
| 50                               | HAE2550  | 26                |
| 70                               | HAE2570  | 26                |
| 95                               | HAE2595  | 26                |
| 120                              | HAE25120 | 26                |
| 150                              | HAE25150 | 26                |
| 185                              | HAE25185 | 26                |
| 240                              | HAE25240 | 26                |

## Crimping dies HAES 25

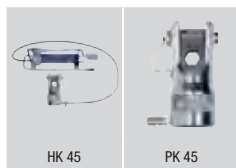


## Suitable for

- Cable end-sleeves
- Special trapezoid crimp for fine stranded conductors

| Cross section<br>mm <sup>2</sup> | Part No.  | Crimp width<br>mm |
|----------------------------------|-----------|-------------------|
| 25                               | HAES2525  | 20                |
| 35                               | HAES2535  | 20                |
| 50                               | HAES2550  | 26                |
| 70                               | HAES2570  | 26                |
| 95                               | HAES2595  | 26                |
| 120                              | HAES25120 | 26                |
| 150                              | HAES25150 | 26                |
| 185                              | HAES25185 | 26                |
| 240                              | HAES25240 | 26                |




**45**  
**Klauke**
**Crimping dies HD 45**
**Suitable for**

- Copper compression cable lugs (DIN 46235) acc. to DIN
- Copper compression connectors (DIN 46267, part 1) acc. to DIN



| Cross section<br>mm <sup>2</sup> | Part No. | Code | Crimp width<br>mm |
|----------------------------------|----------|------|-------------------|
| 120                              | HD45120  | 20   | 15                |
| 150                              | HD45150  | 22   | 15                |
| 185                              | HD45185  | 25   | 15                |
| 240                              | HD45240  | 28   | 15                |
| 300                              | HD45300  | 32   | 17                |
| 400                              | HD45400  | 38   | 17                |
| 500                              | HD45500  | 42   | 17                |
| 625                              | HD45625  | 44   | 17                |
| 800                              | HD45800  | 52   | 20                |
| 1000                             | HD451000 | 58   | 20                |

**Crimping dies HA 45**
**Suitable for**

- Aluminum compression cable lugs and connectors acc. to DIN
- Aluminum/copper compression cable lugs and connectors (aluminum side)



| Cross section<br>mm <sup>2</sup> | Part No. | Code | Crimp width<br>mm |
|----------------------------------|----------|------|-------------------|
| 150                              | HA45150  | 25   | 15                |
| 185                              | HA45185  | 28   | 15                |
| 240                              | HA45240  | 32   | 17                |
| 300                              | HA45300  | 34   | 20                |
| 400                              | HA45400  | 38   | 20                |
| 500                              | HA45500  | 44   | 20                |

**Crimping dies HAD 45**
**Suitable for**

- Compression joints for full tension connections of Aldrey conductors according to DIN EN 50182
- Al-conductor acc. to DIN EN 50182, 150 - 300 mm<sup>2</sup>



| Cross section<br>mm <sup>2</sup> | Part No.    | Code | Crimp width<br>mm |
|----------------------------------|-------------|------|-------------------|
| 150-185                          | HAD45150185 | 28   | 20                |
| 240                              | HAD45240    | 34   | 20                |
| 300                              | HAD45300    | 38   | 20                |



” *With our hand tools  
you will get the hang of it.  
Professionals trust Klauke  
quality, Made in Germany.“*

Karl-Ulrich Schütz,  
Sales and Distribution

**VDE tools 458**

|                       |     |
|-----------------------|-----|
| Pliers                | 460 |
| Screwdrivers          | 464 |
| Assortments and sets  | 466 |
| Safety tools          | 471 |
| Fully insulated tools | 475 |
| Tool case             | 480 |

**Standard tools 482**

|                                       |     |
|---------------------------------------|-----|
| Pliers                                | 484 |
| Electronic/precision mechanic's tools | 489 |
| Screwdrivers                          | 490 |
| Bits, holders and adapters            | 493 |
| Assortments and sets                  | 495 |
| Measuring and marking                 | 501 |
| Basic tools                           | 503 |
| Tool case                             | 507 |

**Wire stripping tools 514**
**Stripping tools 518**
**Stripping tools for communication technology 522**


# Klauke®

## Heavy-duty insulation up to 1000 V.

### Tested and approved VDE tools from Klauke.

Every Klauke VDE tool is produced and tested as per the latest directives for the safety testing procedure according to EN/IEC 60900 (VDE 0682 Part 201). All VDE tools are approved to 1000 volt AC and 1500 volt DC.



Klauke pliers have been granted the IF Product Design Award.



- VDE Pliers.
- VDE Side cutters.
- VDE Cable cutters.
- VDE Screwdrivers.
- Fully-insulated tools.



*The impact-resistant hard core optimises the durability of the tools. The handle also offers the option of using the screwdriver as a lever. Another special feature is the profile stamp that clearly identifies the tools.*



## ■ Everything under control, even under voltage.

- ▶ Pliers with **heavy-duty hand protection** to protect against flying sparks.
- ▶ A cold impact test (at  $-25^{\circ}\text{C}$ ), a test of the adhesive strength of the insulation (with 500 N) and a single voltage test in a water bath (10,000 V/AC) are carried out in accordance with EN/IEC 60900.
- ▶ 2-component safety handle.

### Benefits:

- ▶ The heavy-duty hand protection provides added safety when working under voltage.
- ▶ Guaranteed protection even under extreme conditions.
- ▶ Non-slip overlay thanks to matched elastomer materials.

## ■ The screwdriver that goes deep.

- ▶ With magnet and immersion depth of up to 41 mm.

### Benefits:

- ▶ The magnet holds the nut in position in tight spaces.
- ▶ The spring body enables nuts that sit on a long thread easy to fit and remove.



▶ More from Page 466.



## ■ Compacts in narrow situations.

- ▶ Versatile thanks to its small dimensions.
- ▶ Automatic self-triggers when the set torque value is reached.
- ▶ Torque range from 5 to 25 Nm.

### Benefits:

- ▶ The display with clear Nm scale enables the values to be quickly read off.
- ▶ More safety with 2-colour multi-layer insulation to DIN - VDE/EN 60900:2004.

## ■ Safety to hand - the fully-insulated tool set.

- ▶ Fully-insulated to EN 60900, 1/2", 20-part.
- ▶ To DIN 7448 from vanadium special steel.
- ▶ 2-colour dipped insulation - outside orange, inside yellow.
- ▶ Sturdy, impact-proof plastic box with foam inlay.

### Benefits:

- ▶ The most important VDE tools are to hand immediately.
- ▶ The tools are protected from damage in the robust box with foam inlay.
- ▶ Increased safety with 2-colour dipped insulation - damage is immediately visible.



## VDE Cable cutter



## Characteristics

- Adjustable joint
- Cuts fine and superfine stranded copper and alu cables

| Part No.                                     | KL010160IS               | KL010210IS               |
|----------------------------------------------|--------------------------|--------------------------|
| Item                                         | VDE Cable cutter, 160 mm | VDE Cable cutter, 210 mm |
| Part No. POS                                 | KL010160ISSB             | KL010210ISSB             |
| Dimension mm                                 | 160                      | 210                      |
| Weight g                                     | 225                      | 340                      |
| Cutting power single and multistranded cable | 16                       | 25                       |

## VDE Heavy-duty combination plier



## Characteristics

- With combination spanner from 11 - 17 mm (M8 - M10)
- Holds flat and round material
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL020165IS                               | KL020180IS                               | KL020205IS                               |
|-----------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
| Item                              | VDE Heavy-duty combination plier, 165 mm | VDE Heavy-duty combination plier, 180 mm | VDE Heavy-duty combination plier, 205 mm |
| Part No. POS                      | KL020165ISSB                             | KL020180ISSB                             | KL020205ISSB                             |
| Dimension mm                      | 165                                      | 180                                      | 205                                      |
| Weight g                          | 200                                      | 255                                      | 280                                      |
| Cutting power soft wire dia. mm   | 4,0                                      | 5,2                                      | 5,9                                      |
| Cutting power medium wire dia. mm | 3,1                                      | 3,4                                      | 3,8                                      |
| Cutting power hard wire dia. mm   | 2,0                                      | 2,2                                      | 2,5                                      |

## VDE Heavy-duty combination plier, angled



## Characteristics

- 45° angled head
- With combination spanner from 11 - 17 mm (M8 - M10)
- Holds flat and round material
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL026205IS                                      |
|-----------------------------------|-------------------------------------------------|
| Item                              | VDE Heavy-duty combination plier, angled 205 mm |
| Dimension mm                      | 205                                             |
| Weight g                          | 285                                             |
| Cutting power soft wire dia. mm   | 5,9                                             |
| Cutting power medium wire dia. mm | 3,8                                             |
| Cutting power hard wire dia. mm   | 2,5                                             |

## VDE Side cutter

### Characteristics

- Wave profile for optimized cutting of insulated cables
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                                     | KL040145IS              | KL040160IS              | KL040180IS              |
|----------------------------------------------|-------------------------|-------------------------|-------------------------|
| Item                                         | VDE Side cutter, 145 mm | VDE Side cutter, 160 mm | VDE Side cutter, 180 mm |
| Part No. POS                                 | KL040145ISSB            | KL040160ISSB            | KL040180ISSB            |
| Dimension mm                                 | 145                     | 160                     | 180                     |
| Weight g                                     | 180                     | 210                     | 265                     |
| Cutting power soft wire dia. mm              | 5,0                     | 6,0                     | 7,0                     |
| Cutting power medium wire dia. mm            | 2,5                     | 3,5                     | 4,0                     |
| Cutting power hard wire dia. mm              | 1,7                     | 2,0                     | 2,5                     |
| Cutting power single and multistranded cable | 8,0                     | 11,0                    | 13,0                    |



## VDE Electrician side cutter

### Characteristics

- Inductive hardened precision cutting edges for superfine wires
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire
- Stripping range for single and multi-stranded cables: 1.5mm² and 2.5mm²

| Part No.                                     | KL042190IS                          |
|----------------------------------------------|-------------------------------------|
| Item                                         | VDE Electrician side cutter, 190 mm |
| Part No. POS                                 | KL042190ISSB                        |
| Dimension mm                                 | 190                                 |
| Weight g                                     | 285                                 |
| Cutting power soft wire dia. mm              | 2,0                                 |
| Cutting power medium wire dia. mm            | 1,0                                 |
| Cutting power single and multistranded cable | 4,0                                 |



## VDE Heavy duty side cutter



1000V  
IEC 60900

## Characteristics

- Wave profile for optimized cutting of insulated cables
- Ergonomically designed handles
- High cutting performance on hard wires and piano wires

| Part No.                          | KL045180IS                         | KL044200IS                          | KL045240IS                         |
|-----------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| Item                              | VDE Heavy-duty side cutter, 180 mm | VDE Electrician's heavy duty 200 mm | VDE Heavy-duty side cutter, 240 mm |
| Part No. POS                      | KL044200ISSB                       |                                     |                                    |
| Dimension mm                      | 180                                | 200                                 | 240                                |
| Weight g                          | 285                                | 310                                 | 420                                |
| Cutting power soft wire dia. mm   | 3,7                                | 4,0                                 | 4,5                                |
| Cutting power medium wire dia. mm | 2,6                                | 2,8                                 | 3,5                                |
| Cutting power hard wire dia. mm   | 2,2                                | 2,5                                 | 3,0                                |

## VDE Heavy-duty lever side cutter



1000V  
IEC 60900

## Characteristics

- 40% saving in power
- Inductively-hardened precision cutting edges
- Special tool steel drop-forged, oil-hardened
- Cuts medium-hard wires, e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire as well as piano wire

| Part No.                          | KL046200IS                               |
|-----------------------------------|------------------------------------------|
| Item                              | VDE Heavy-duty lever side cutter, 200 mm |
| Part No. POS                      | KL046200ISSB                             |
| Dimension mm                      | 200                                      |
| Cutting power medium wire dia. mm | 4,5                                      |
| Cutting power hard wire dia. mm   | 3,5                                      |
| Cutting power piano wire dia. mm  | 3,0                                      |

## VDE Telephone plier, straight



1000V  
IEC 60900

## Characteristics

- Long, flat/round jaws
- Serrated jaws
- Cutting edge inductive hardened
- With combination spanner from 11 - 17 mm (M8 - M10)
- With wire cutter for soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL050205IS                            |
|-----------------------------------|---------------------------------------|
| Item                              | VDE Telephone plier, straight, 205 mm |
| Part No. POS                      | KL050205ISSB                          |
| Dimension mm                      | 205                                   |
| Weight g                          | 215                                   |
| Cutting power soft wire dia. mm   | 3,9                                   |
| Cutting power medium wire dia. mm | 3,2                                   |
| Cutting power hard wire dia. mm   | 2,2                                   |



## VDE Telephone plier, bent

### Characteristics

- Long, 45° angled, flat/round jaws
- Serrated jaws
- Cutting edge inductive hardened
- With combination spanner from 11 - 17 mm (M8 - M10)
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL055205IS                        |
|-----------------------------------|-----------------------------------|
| Item                              | VDE Telephone plier, bent, 205 mm |
| Part No. POS                      | KL055205ISSB                      |
| Dimension mm                      | 205                               |
| Weight g                          | 215                               |
| Cutting power soft wire dia. mm   | 3,9                               |
| Cutting power medium wire dia. mm | 3,2                               |
| Cutting power hard wire dia. mm   | 2,2                               |

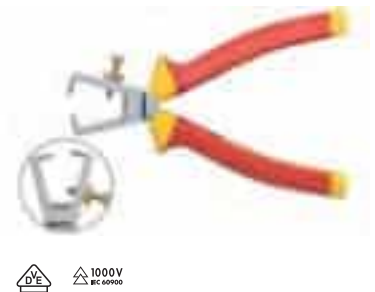


## VDE Wire stripper

### Characteristics

- With opening spring and V-shaped cutting edges
- With setting screw for adjustment the cable diameter
- Stripping range for single and multi-stranded cables 0 to 5.0 mm dia. and 10.0 mm² conductor cross-sections

| Part No.     | KL060160IS                |
|--------------|---------------------------|
| Item         | VDE Wire stripper, 160 mm |
| Part No. POS | KL060160ISSB              |
| Dimension mm | 160                       |
| Weight g     | 185                       |



## VDE Water pump plier, jaw width 50 mm

### Characteristics

- Jaw width 50 mm
- Integrated hand protection
- Ratchet adjustment
- Box joint design
- Double serrated jaws

| Part No.     | KL070250IS                            |
|--------------|---------------------------------------|
| Item         | VDE Water pump plier, jaw width 50 mm |
| Part No. POS | KL070250ISSB                          |
| Dimension mm | 250                                   |
| Weight g     | 410                                   |



Automatic VDE wire stripper 0.2 - 6 mm<sup>2</sup>

△ 1000V  
IEC 60900

## Characteristics

- Tested acc. to VDE standards for safe working on live conductors up to 1000 V
- Adjustable length stop from 5 - 12 mm
- For flexible and solid conductors from 0.2 - 6 mm<sup>2</sup>
- Locking function to protect blades

| Part No.     | KL760180IS                                          |
|--------------|-----------------------------------------------------|
| Item         | Automatic VDE wire stripper 0.2 - 6 mm <sup>2</sup> |
| Dimension mm | 215                                                 |
| Weight g     | 130                                                 |

## VDE Slotted screwdrivers



△ 1000V  
IEC 60900

| Item                                  | Dimension mm    | Weight g | Part No.     |
|---------------------------------------|-----------------|----------|--------------|
| VDE Slotted screwdriver, 2.5 x 0.4 mm | 75 x 2,5 x 0,4  | 22       | KL1007525IS  |
| VDE Slotted screwdriver, 3.0 x 0.5 mm | 100 x 3,0 x 0,5 | 28       | KL10010030IS |
| VDE Slotted screwdriver, 3.5 x 0.6 mm | 100 x 3,5 x 0,6 | 30       | KL10010035IS |
| VDE Slotted screwdriver, 4.0 x 0.8 mm | 100 x 4,0 x 0,8 | 44       | KL10010040IS |
| VDE Slotted screwdriver, 5.5 x 1.0 mm | 125 x 5,5 x 1,0 | 70       | KL10012555IS |
| VDE Slotted screwdriver, 6.5 x 1.2 mm | 150 x 6,5 x 1,2 | 86       | KL10015065IS |
| VDE Slotted screwdriver, 8.0 x 1.2 mm | 175 x 8,0 x 1,2 | 135      | KL10017580IS |

## VDE Phillips screwdrivers



△ 1000V  
IEC 60900

| Item                          | Dimension mm | Weight g | Part No.   |
|-------------------------------|--------------|----------|------------|
| VDE Phillips screwdriver, PH1 | 80 x PH 1    | 52       | KL110PH1IS |
| VDE Phillips screwdriver, PH2 | 100 x PH 2   | 80       | KL110PH2IS |
| VDE Phillips screwdriver, PH3 | 150 x PH 3   | 145      | KL110PH3IS |

## VDE Pozidriv screwdrivers

| Item                          | Dimension<br>mm | Weight<br>g | Part No.          |
|-------------------------------|-----------------|-------------|-------------------|
| VDE Pozidriv screwdriver, PZ1 | 80 x PZ 1       | 49          | <b>KL120PZ1IS</b> |
| VDE Pozidriv screwdriver, PZ2 | 100 x PZ 2      | 76          | <b>KL120PZ2IS</b> |
| VDE Pozidriv screwdriver, PZ3 | 150 x PZ 3      | 140         | <b>KL120PZ3IS</b> |



1000V  
IEC 60900

## VDE Plus/minus screwdrivers

| Item                           | Dimension<br>mm | Weight<br>g | Part No.          |
|--------------------------------|-----------------|-------------|-------------------|
| VDE Plus/Minus screwdriver, Z1 | 80 x Z1         | 52          | <b>KL130PM1IS</b> |
| VDE Plus/Minus screwdriver, Z2 | 100 x Z2        | 80          | <b>KL130PM2IS</b> |



1000V  
IEC 60900

## VDE TORX® screwdriver

| Item                        | Dimension<br>mm | Weight<br>g | Part No.           |
|-----------------------------|-----------------|-------------|--------------------|
| VDE TORX® screwdriver TX 10 | 100 x TX 10     | 45          | <b>KL150TX10IS</b> |
| VDE TORX® screwdriver TX 15 | 100 x TX 15     | 45          | <b>KL150TX15IS</b> |
| VDE TORX® screwdriver TX 20 | 100 x TX 20     | 69          | <b>KL150TX20IS</b> |
| VDE TORX® screwdriver TX 25 | 100 x TX 25     | 69          | <b>KL150TX25IS</b> |
| VDE TORX® screwdriver TX 30 | 100 x TX 30     | 96          | <b>KL150TX30IS</b> |



1000V  
IEC 60900

## VDE-M-TEC Hexagon nut drivers



1000V  
MC 60900



## Characteristics

- With box spanner tube - immersion depth approx. 41 mm - ideal for deep-seated screws and nuts
- With spring-loaded magnetic body

| Item                                     | Dimension<br>mm | Für<br>Gewinde | Weight<br>g | Part No.   |
|------------------------------------------|-----------------|----------------|-------------|------------|
| VDE-M-TEC Hexagon nut driver<br>size 5.5 | 110 x 5,5       | M3             | 100         | KL14555IS  |
| VDE-M-TEC Hexagon nut driver<br>size 6   | 110 x 6,0       | M3,5           | 100         | KL14560IS  |
| VDE-M-TEC Hexagon nut driver<br>size 7   | 110 x 7,0       | M4             | 100         | KL14570IS  |
| VDE-M-TEC Hexagon nut driver<br>size 8   | 110 x 8,0       | M5             | 110         | KL14580IS  |
| VDE-M-TEC Hexagon nut driver<br>size 10  | 125 x 10,0      | M6             | 110         | KL145100IS |
| VDE-M-TEC Hexagon nut driver<br>size 13  | 110 x 13,0      | M8             | 110         | KL145130IS |

## Voltage tester with heavy duty handle, single-pole, VDE 0680 150V - 250V

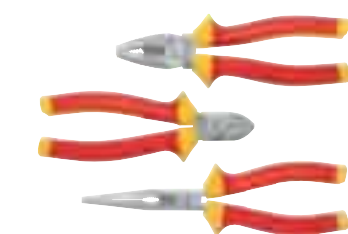


## Characteristics

- Single-pole
- With heavy duty handle
- For voltage detection

| Item                                                                           | Dimension<br>mm | Weight<br>g | Part No.  |
|--------------------------------------------------------------------------------|-----------------|-------------|-----------|
| Voltage tester with heavy duty<br>handle, single-pole,<br>VDE 0680 150V - 250V | 73 x 3,0 x 0,8  | 30          | KL19073IS |

## VDE Pliers set, 3-pieces



1000V  
MC 60900

| Item                    | Part No. |
|-------------------------|----------|
| VDE Plier set, 3-pieces | KL303IS  |

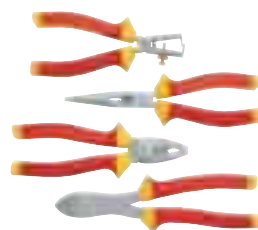
  

| Scope of supply                          | Part No.   | Page |
|------------------------------------------|------------|------|
| VDE Heavy-duty combination plier, 180 mm | KL020180IS | 460  |
| VDE Side cutter, 160 mm                  | KL040160IS | 461  |
| VDE Telephone plier, straight, 205 mm    | KL050205IS | 462  |

**VDE Plier set, 4-pieces**

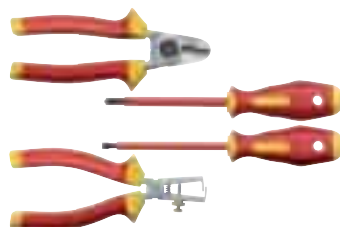
| Item                    | Part No.       |
|-------------------------|----------------|
| VDE Plier set, 4-pieces | <b>KL304IS</b> |

| Scope of supply                                | Part No.   | Page |
|------------------------------------------------|------------|------|
| VDE Heavy-duty combination plier, 180 mm       | KL020180IS | 460  |
| VDE Electrician Heavy-duty side cutter, 200 mm | KL044200IS | 462  |
| VDE Telephone plier, straight, 205 mm          | KL050205IS | 462  |
| VDE Wire stripper, 160 mm                      | KL060160IS | 463  |


**VDE Plier/screwdriver set, 4-pieces**

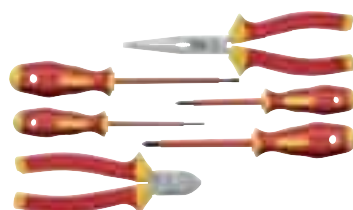
| Item                                | Part No.       |
|-------------------------------------|----------------|
| VDE Plier/screwdriver set, 4-pieces | <b>KL305IS</b> |

| Scope of supply                       | Part No.     | Page |
|---------------------------------------|--------------|------|
| VDE Cable cutter, 160 mm              | KL010160IS   | 460  |
| VDE Wire stripper, 160 mm             | KL060160IS   | 463  |
| VDE Slotted screwdriver, 3.5 x 0.6 mm | KL10010035IS | 464  |
| VDE Plus/Minus screwdriver, Z1        | KL130PM1IS   | 465  |

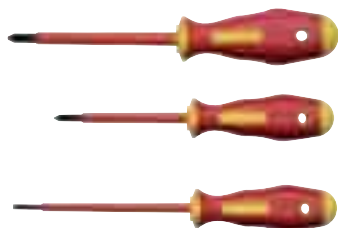

**VDE Plier/screwdriver set, 6-pieces**

| Item                                | Part No.       |
|-------------------------------------|----------------|
| VDE Plier/screwdriver set, 6-pieces | <b>KL306IS</b> |

| Scope of supply                       | Part No.     | Page |
|---------------------------------------|--------------|------|
| VDE Telephone plier, straight, 205 mm | KL050205IS   | 462  |
| VDE Side cutter, 160 mm               | KL040160IS   | 461  |
| VDE Phillips screwdriver, PH1         | KL110PH1IS   | 464  |
| VDE Phillips screwdriver, PH2         | KL110PH2IS   | 464  |
| VDE Slotted screwdriver, 2.5 x 0.4 mm | KL1007525IS  | 464  |
| VDE Slotted screwdriver, 4.0 x 0.8 mm | KL10010040IS | 464  |



## VDE Screwdriver set, 3-pieces

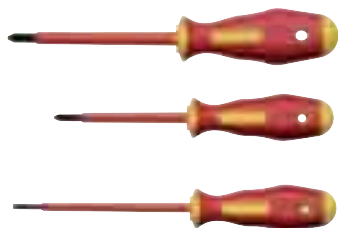


1000V  
IEC 60900

| Item                          | Part No.       |
|-------------------------------|----------------|
| VDE Screwdriver set, 3-pieces | <b>KL391IS</b> |

| Scope of supply                       | Part No.     | Page |
|---------------------------------------|--------------|------|
| VDE Phillips screwdriver, PH1         | KL110PH1IS   | 464  |
| VDE Phillips screwdriver, PH2         | KL110PH2IS   | 464  |
| VDE Slotted screwdriver, 3,5 x 0.6 mm | KL10010035IS | 464  |

## VDE Screwdriver set, 3-pieces

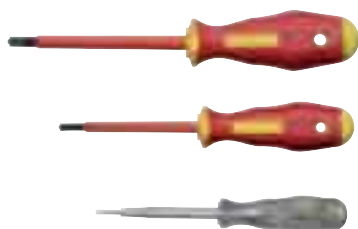


1000V  
IEC 60900

| Item                          | Part No.       |
|-------------------------------|----------------|
| VDE Screwdriver set, 3-pieces | <b>KL392IS</b> |

| Scope of supply                       | Part No.     | Page |
|---------------------------------------|--------------|------|
| VDE Pozidriv screwdriver, PZ1         | KL120PZ1IS   | 465  |
| VDE Pozidriv screwdriver, PZ2         | KL120PZ2IS   | 465  |
| VDE Slotted screwdriver, 4,0 x 0.8 mm | KL10010040IS | 464  |

## VDE Screwdriver set, 3-pieces



1000V  
IEC 60900

| Item                          | Part No.       |
|-------------------------------|----------------|
| VDE Screwdriver set, 3-pieces | <b>KL393IS</b> |

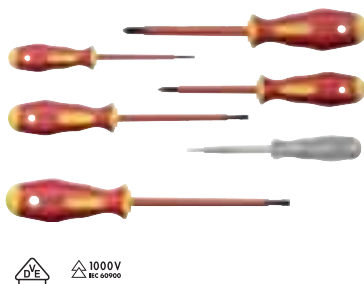
| Scope of supply                                                          | Part No.   | Page |
|--------------------------------------------------------------------------|------------|------|
| VDE Plus/Minus screwdriver, Z1                                           | KL130PM1IS | 465  |
| VDE Plus/Minus screwdriver, Z2                                           | KL130PM2IS | 465  |
| Voltage tester with heavy duty handle, single-pole, VDE 0680 150V - 250V | KL19073IS  | 466  |

**VDE Screwdriver set, 6-pieces**

| Item                          | Part No.       |
|-------------------------------|----------------|
| VDE Screwdriver set, 6-pieces | <b>KL390IS</b> |

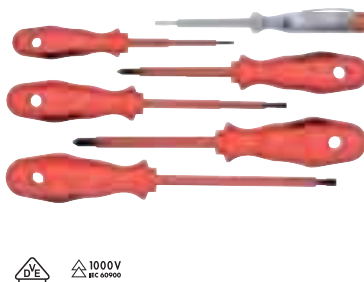
| Scope of supply                                                          | Part No.     | Page |
|--------------------------------------------------------------------------|--------------|------|
| VDE Phillips screwdriver, PH1                                            | KL110PH1IS   | 464  |
| VDE Phillips screwdriver, PH2                                            | KL110PH2IS   | 464  |
| VDE Slotted screwdriver, 2.5 x 0.4 mm                                    | KL1007525IS  | 464  |
| VDE Slotted screwdriver, 4.0 x 0.8 mm                                    | KL10010040IS | 464  |
| VDE Slotted screwdriver, 5.5 x 1.0 mm                                    | KL10012555IS | 464  |
| Voltage tester with heavy duty handle, single-pole, VDE 0680 150V - 250V | KL19073IS    | 466  |


**VDE Screwdriver set, 6-pieces**

| Item                          | Part No.       |
|-------------------------------|----------------|
| VDE Screwdriver set, 6-pieces | <b>KL399IS</b> |

| Scope of supply                       | Part No. | Page |
|---------------------------------------|----------|------|
| VDE Slotted screwdriver, 8.0 x 1.2 mm |          |      |
| VDE Slotted screwdriver, 8.0 x 1.2 mm |          |      |
| VDE Slotted screwdriver, 8.0 x 1.2 mm |          |      |
| VDE Slotted screwdriver, 8.0 x 1.2 mm |          |      |
| VDE Slotted screwdriver, 8.0 x 1.2 mm |          |      |
| VDE Slotted screwdriver, 8.0 x 1.2 mm |          |      |



## Klauke E-smart box, 13-pieces



## Characteristics

- 10 IEC Exchangeable blade set for all applications incl. contactless voltage tester
- Secure grip of blades in the handle by automatic locking
- Snap-on rotating cap and soft coating zone for use as a precision tool
- Safety tool acc. to EN/IEC 60900
- Blades can be re-ordered individually

| Item                                          | Part No.       |      |
|-----------------------------------------------|----------------|------|
| Klauke E-smart box, 13-pieces                 | <b>KL301IS</b> |      |
| Scope of supply                               | Part No.       | Page |
| Blade 2.5 x 0.4 mm                            | KLE300IS1      |      |
| Blade 3.5 x 0.6 mm                            | KLE300IS3      |      |
| Blade 4.0 x 0.8 mm                            | KLE300IS4      |      |
| Blade 5.5 x 1.0 mm                            | KLE300IS5      |      |
| Blade PH 1                                    | KLE300IS6      |      |
| Blade PH 2                                    | KLE300IS7      |      |
| Blade PZ 2                                    | KLE300IS8      |      |
| Blade TX 20                                   | KLE300IS11     |      |
| Blade Plus/Minus Z1                           | KLE300IS13     |      |
| Blade Plus/Minus Z 2                          | KLE300IS14     |      |
| Rotating cap                                  | KLE300IS15     |      |
| E-smart handle 93 x 32 mm                     | KLE300IS12     |      |
| GT-12A Contactless voltage tester 50 - 1000 V | 52063422       | 618  |

## VDE Exchangeable blades



## Characteristics

- Blades from special Chrome-molybdenum-vanadium alloy
- Shank 1/4" for high flexibility
- 100% safe due to VDE single part testing

| Item                                          | Part No.              |  |
|-----------------------------------------------|-----------------------|--|
| Tool bag, including 9 VDE exchangeable blades | <b>KL390TB9</b>       |  |
| VDE slotted blade, 3.5 x 0.6 mm               | <b>KL400S35170ISB</b> |  |
| VDE slotted blade, 4.0 x 0.8 mm               | <b>KL400S40170ISB</b> |  |
| VDE slotted blade, 5.5 x 1.0 mm               | <b>KL400S55170ISB</b> |  |
| VDE Phillips blade, PH1                       | <b>KL400PH1170ISB</b> |  |
| VDE Phillips blade, PH2                       | <b>KL400PH2170ISB</b> |  |
| VDE Pozidriv blade, PZ1                       | <b>KL400PZ1170ISB</b> |  |
| VDE Pozidriv blade, PZ2                       | <b>KL400PZ2170ISB</b> |  |
| VDE Plus/Minus blade, PM1                     | <b>KL400PM1170ISB</b> |  |
| VDE Plus/Minus blade, PM2                     | <b>KL400PM2170ISB</b> |  |

| Accessories            | Part No.   | Page |
|------------------------|------------|------|
| Tool bag, empty        | KL390TL    |      |
| Nm handle 0.6 - 1.5 Nm | KLE3871513 |      |
| Nm handle 1.5 - 3.0 Nm | KLE3883013 |      |
| Nm handle 3.0 - 5.4 Nm | KLE3895413 |      |



## NH-Safety handle with guard

### Characteristics

- Designation 1,000 V
- Acc. to DIN VDE 0680/4
- Made from impregnated leather
- With non-slip and cuff protection
- For NH fuses sizes 00-3

| Item                        | Weight<br>g | Part No.     |
|-----------------------------|-------------|--------------|
| NH-Safety handle with guard | 470         | <b>KL600</b> |



1000V  
IEC 60900

## Electrician's safety helmet

### Characteristics

- Designation 1,000 V
- Acc. to DIN EN 397
- 440 V AC
- Sizes adjustable

| Item                        | Weight<br>g | Part No.         |
|-----------------------------|-------------|------------------|
| Electrician's safety helmet | 370         | <b>KL602GELB</b> |



1000V  
IEC 60900

## Electrician's face protection shield

### Characteristics

- Designation 1,000 V
- Acc. to VDE
- Suitable for helmet KL602GELB

| Item                                 | Weight<br>g | Part No.     |
|--------------------------------------|-------------|--------------|
| Electrician's face protection shield | 195         | <b>KL603</b> |



1000V  
IEC 60900

## Insulating floor mat



### Characteristics

- Tested acc. to DIN 0303, part 21
- Safety mat for safe working with live parts in high voltage areas up to 1,000 Volt
- Penetration resistant up to 14.4 kV/mm (>50 kV/4mm)
- Sure-footed

| Item                 | Dimension<br>mm | Weight<br>g | Part No.          |
|----------------------|-----------------|-------------|-------------------|
| Insulating floor mat | 1000 x 1000 x 4 | 5300        | <b>KL620S1000</b> |

## Rubber cover



### Characteristics

- Tested acc. to DIN VDE 0680, part 1
- Test voltage: 5 kV/1 min.
- Insulating cover
- Penetration resistant
- Upper and lower side flat

| Item                | Dimension<br>mm   | Weight<br>g | Part No.          |
|---------------------|-------------------|-------------|-------------------|
| Rubber cover, small | 500 x 500 x 1,6   | 440         | <b>KL625A500</b>  |
| Rubber cover, large | 1000 x 1000 x 1,6 | 1900        | <b>KL625A1000</b> |

## Plastic clamp



### Characteristics

- To fix rubber cover

| Item                           | Dimension<br>mm | Weight<br>g | Part No.     |
|--------------------------------|-----------------|-------------|--------------|
| Plastic clamp for rubber cover | 150             | 70          | <b>KL628</b> |

## Safety gloves

### Characteristics

- Acc. to DIN EN 60903
- For working in voltage ranges up to 1000 Volt

| Item                   | Dimension<br>mm | Weight<br>g | Part No.       |
|------------------------|-----------------|-------------|----------------|
| Safety gloves, size 9  | Size 09         | 250         | <b>KL60509</b> |
| Safety gloves, size 10 | Size 10         | 250         | <b>KL60510</b> |
| Safety gloves, size 11 | Size 11         | 250         | <b>KL60511</b> |



## Cotton gloves

### Characteristics

- Inner gloves from cotton
- For use with safety gloves, Part No. KL60509 / KL60510

| Item          | Weight<br>g | Part No.      |
|---------------|-------------|---------------|
| Cotton gloves | 50          | <b>KL605U</b> |



Cable knife, straight



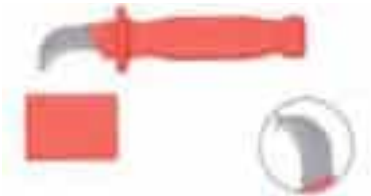
△ 1000V  
IEC 60900

Characteristics

- With straight blade and safety cap
- Blade length: 50 mm

| Item                  | Dimension<br>mm | Weight<br>g | Part No. |
|-----------------------|-----------------|-------------|----------|
| Cable knife, straight | 200             | 105         | KL640GK  |

Cable knife, hooked blade



△ 1000V  
IEC 60900

Characteristics

- With hooked blade and safety cap
- Blade length: 40 mm
- Special blade tip to protect insulation of conductor

| Item                      | Dimension<br>mm | Weight<br>g | Part No. |
|---------------------------|-----------------|-------------|----------|
| Cable knife, hooked blade | 190             | 100         | KL642HK  |

Tweezer



△ 1000V  
IEC 60900

Characteristics

- Straight and pointed tips
- With 2-layer safety insulation
- Non-slip protection

| Item    | Dimension<br>mm | Weight<br>g | Part No. |
|---------|-----------------|-------------|----------|
| Tweezer | 130             | 30          | KL690130 |

Cleaning brush



△ 1000V  
IEC 60900

Characteristics

- Length 400 mm
- Brush width 45 mm
- All-plastic version

| Item           | Weight<br>g | Part No. |
|----------------|-------------|----------|
| Cleaning brush | 75          | KL698    |

**VDE Guide wedge**

| Item        | Part No.    |
|-------------|-------------|
| Guide wedge | <b>K610</b> |


**Fully insulated tool set, 1/2", 20-pieces**
**Characteristics**

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- Vanadium special steel acc. to DIN 7448

**Suitable for**

- General working on live conductors



| Item                                         | Part No.             |      |
|----------------------------------------------|----------------------|------|
| Fully insulated tool set, 1/2", 20-pieces    | <b>KL1300IS12B20</b> |      |
| Scope of supply                              | Part No.             | Page |
| Case KL1300L                                 | KL1300L              |      |
| Ratchet Klemmfix 1/2" drive                  | KL1000IS12           | 477  |
| T-wrench 1/2" drive                          | KL1299IS12           | 477  |
| Extension 1/2" drive, 250 mm                 | KL1290IS12250        | 477  |
| Extension 1/2" drive, 125 mm                 | KL1290IS12125        | 477  |
| Socket 1/2" drive, AF 10 mm                  | KL1240IS1210         | 478  |
| Socket 1/2" drive, AF 11 mm                  | KL1240IS1211         | 478  |
| Socket 1/2" drive, AF 12 mm                  | KL1240IS1212         | 478  |
| Socket 1/2" drive, AF 13 mm                  | KL1240IS1213         | 478  |
| Socket 1/2" drive, AF 14 mm                  | KL1240IS1214         | 478  |
| Socket 1/2" drive, AF 17 mm                  | KL1240IS1217         | 478  |
| Socket 1/2" drive, AF 19 mm                  | KL1240IS1219         | 478  |
| Socket 1/2" drive, AF 22 mm                  | KL1240IS1222         | 478  |
| Socket 1/2" drive, AF 24 mm                  | KL1240IS1224         | 478  |
| Socket 1/2" drive for slotted screws, 5.5 mm | KL1200IS1255         | 479  |
| Socket 1/2" drive for Phillips screws, PH2   | KL1210IS12PH2        | 479  |
| Insert 1/2" drive for Plus/Minus PM2         | KL1230IS12PM2        | 479  |
| Cable knife, straight                        | KL640GK              | 474  |
| VDE Side cutter, 180 mm                      | KL040180IS           | 461  |
| VDE Slotted screwdriver, 3.5 x 0.6 mm        | KL10010035IS         | 464  |
| VDE Slotted screwdriver, 5.5 x 1.0 mm        | KL10012555IS         | 464  |



## Fully insulated open-end spanner



## Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- DIN 7448 from vanadium special steel

## Suitable for

- Hexagonal head screws

| Item                                    | Part No.   |
|-----------------------------------------|------------|
| Fully insulated open-end spanner 6 AF   | KL1100IS6  |
| Fully insulated open-end spanner 7 AF   | KL1100IS7  |
| Fully insulated open-ended spanner 8 AF | KL1100IS8  |
| Fully insulated open-end spanner 10 AF  | KL1100IS10 |
| Fully insulated open-end spanner 11 AF  | KL1100IS11 |
| Fully insulated open-end spanner 12 AF  | KL1100IS12 |
| Fully insulated open-end spanner 13 AF  | KL1100IS13 |
| Fully insulated open-end spanner 17 AF  | KL1100IS17 |
| Fully insulated open-end spanner 19 AF  | KL1100IS19 |
| Fully insulated open-end spanner 22 AF  | KL1100IS22 |

## Torque wrench compact 3/8" and 1/2" drive



## Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- With automatic release
- Ball locking device on the square, pull-off force up to 50 Nm
- Setting of response value using rotating grip
- Quickly read-off the values on the scale
- +/- 4% response accuracy
- Versatile use thanks to small dimensions

| Item                                         | Part No.       |
|----------------------------------------------|----------------|
| Torque wrench compact, 3/8", drive 5 - 25 Nm | KL1000IS38NM25 |
| Torque wrench compact, 1/2", drive 5 - 25 Nm | KL1000IS12NM25 |

## Torque wrench 3/8" and 1/2" drive



## Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- With automatic release
- Ball locking device on the square, pull-off force up to 50 Nm
- Setting of response value using rotating grip
- Clearly readable values on the scale
- +/- 4% response accuracy

| Item                         | Part No.       |
|------------------------------|----------------|
| Torque wrench, 3/8", 2-27 Nm | KL1000IS38NM27 |
| Torque wrench, 3/8", 5-50 Nm | KL1000IS38NM50 |
| Torque wrench, 1/2", 2-27 Nm | KL1000IS12NM27 |
| Torque wrench, 1/2", 5-50 Nm | KL1000IS12NM50 |

## Ratchet Klemmfix 3/8" and 1/2" drive

### Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- Chrome-vanadium steel
- One-hand operation

| Item                        | Part No.          |
|-----------------------------|-------------------|
| Ratchet Klemmfix 3/8" drive | <b>KL1000IS38</b> |
| Ratchet Klemmfix 1/2" drive | <b>KL1000IS12</b> |



△ 1000V  
EC 60900

## T-wrench 3/8" and 1/2" drive

### Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- Chrome-vanadium steel

| Item                | Part No.          |
|---------------------|-------------------|
| T-wrench 3/8" drive | <b>KL1299IS38</b> |
| T-wrench 1/2" drive | <b>KL1299IS12</b> |



△ 1000V  
EC 60900

## Extension 3/8" and 1/2" drive

### Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- Chrome-vanadium steel

| Item                         | Dimension<br>mm | Part No.             |
|------------------------------|-----------------|----------------------|
| Extension 3/8" drive, 125 mm | 125             | <b>KL1290IS38125</b> |
| Extension 3/8" drive, 250 mm | 250             | <b>KL1290IS38250</b> |
| Extension 1/2" drive, 125 mm | 125             | <b>KL1290IS12125</b> |
| Extension 1/2" drive, 250 mm | 250             | <b>KL1290IS12250</b> |



△ 1000V  
EC 60900

## Hexagonal sockets 3/8" and 1/2" drive



1000V  
IEC 60900

## Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- DIN 7448 from vanadium special steel
- For hex. head screws

| Item                        | Part No.     |
|-----------------------------|--------------|
| Socket 3/8" drive, AF 10 mm | KL1240IS3810 |
| Socket 3/8" drive, AF 11 mm | KL1240IS3811 |
| Socket 3/8" drive, AF 12 mm | KL1240IS3812 |
| Socket 3/8" drive, AF 13 mm | KL1240IS3813 |
| Socket 3/8" drive, AF 14 mm | KL1240IS3814 |
| Socket 3/8" drive, AF 17 mm | KL1240IS3817 |
| Socket 3/8" drive, AF 19 mm | KL1240IS3819 |
| Socket 1/2" drive, AF 10 mm | KL1240IS1210 |
| Socket 1/2" drive, AF 11 mm | KL1240IS1211 |
| Socket 1/2" drive, AF 12 mm | KL1240IS1212 |
| Socket 1/2" drive, AF 13 mm | KL1240IS1213 |
| Socket 1/2" drive, AF 14 mm | KL1240IS1214 |
| Socket 1/2" drive, AF 16 mm | KL1240IS1216 |
| Socket 1/2" drive, AF 17 mm | KL1240IS1217 |
| Socket 1/2" drive, AF 19 mm | KL1240IS1219 |
| Socket 1/2" drive, AF 22 mm | KL1240IS1222 |
| Socket 1/2" drive, AF 24 mm | KL1240IS1224 |
| Socket 1/2" drive, AF 27 mm | KL1240IS1227 |

## Allen key sockets 3/8" and 1/2" drive



1000V  
IEC 60900

## Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- DIN 7448 from vanadium special steel

## Suitable for

- Allen key

| Item                                     | Part No.     |
|------------------------------------------|--------------|
| Socket 3/8" drive for Allen key, AF 4 mm | KL1260IS3814 |
| Socket 3/8" drive for Allen key, AF 5 mm | KL1260IS3815 |
| Socket 3/8" drive for Allen key, AF 6 mm | KL1260IS3816 |
| Socket 3/8" drive for Allen key, AF 8 mm | KL1260IS3818 |
| Socket 1/2" drive for Allen key, AF 4 mm | KL1260IS1214 |
| Socket 1/2" drive for Allen key, AF 5 mm | KL1260IS1215 |
| Socket 1/2" drive for Allen key, AF 6 mm | KL1260IS1216 |
| Socket 1/2" drive for Allen key, AF 8 mm | KL1260IS1218 |



## Screwdriver sockets 3/8" and 1/2" drive

### Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- DIN 7448 from vanadium special steel

### Suitable for

- Plus/Minus



| Item                                 | Part No.      |
|--------------------------------------|---------------|
| Socket 3/8" drive for Plus/Minus PM1 | KL1230IS38PM1 |
| Socket 3/8" drive for Plus/Minus PM2 | KL1230IS38PM2 |
| Socket 3/8" drive for Plus/Minus PM3 | KL1230IS38PM3 |
| Insert 1/2" drive for Plus/Minus PM1 | KL1230IS12PM1 |
| Insert 1/2" drive for Plus/Minus PM2 | KL1230IS12PM2 |
| Insert 1/2" drive for Plus/Minus PM3 | KL1230IS12PM3 |

## Screwdriver sockets 3/8" and 1/2" drive, for slotted screws

### Characteristics

- Fully insulated acc. to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- DIN 7448 from vanadium special steel

### Suitable for

- Slotted screws 5.5



| Item                                         | Part No.     |
|----------------------------------------------|--------------|
| Socket 3/8" drive for slotted screws, 5.5 mm | KL1200IS3855 |
| Socket 1/2" drive for slotted screws, 5.5 mm | KL1200IS1255 |

## Screwdriver sockets 3/8" and 1/2" drive for Phillips screws

### Characteristics

- Fully insulated to EN 60900
- 2-colour dipped insulation - outside orange / inside yellow
- DIN 7448 from vanadium special steel

### Suitable for

- Phillips PH 2 screws



| Item                                       | Part No.      |
|--------------------------------------------|---------------|
| Socket 3/8" drive for Phillips screws, PH2 | KL1210IS38PH2 |
| Socket 1/2" drive for Phillips screws, PH2 | KL1210IS12PH2 |

## VDE Tool case, 27-pieces



## Characteristics

- Hard-shell tool case, red
- Equipped with 27 mainly VDE-tested tools to DIN EN 60900

| Item                                                                        | Dimension<br>mm | Weight<br>g | Part No.          |
|-----------------------------------------------------------------------------|-----------------|-------------|-------------------|
| VDE Tool chest, 27-pieces                                                   | 515x420x230     | 9800        | <b>KL880B26IS</b> |
| Scope of supply                                                             |                 |             | Part No. Page     |
| VDE Heavy-duty combination plier, 180 mm                                    |                 |             | KL020180IS 460    |
| VDE Water pump plier, jaw width 50 mm                                       |                 |             | KL070250IS 463    |
| VDE Side cutter, 160 mm                                                     |                 |             | KL040160IS 461    |
| VDE Telephone plier, straight, 205 mm                                       |                 |             | KL050205IS 462    |
| VDE Wire stripper, 160 mm                                                   |                 |             | KL060160IS 463    |
| VDE Cable cutter, 160 mm                                                    |                 |             | KL010160IS 460    |
| VDE Slotted screwdriver, 2.5 x 0.4 mm                                       |                 |             | KL1007525IS 464   |
| VDE Slotted screwdriver, 3.5 x 0.6 mm                                       |                 |             | KL10010035IS 464  |
| VDE Slotted screwdriver, 4.0 x 0.8 mm                                       |                 |             | KL10010040IS 464  |
| VDE Slotted screwdriver, 5.5 x 1.0 mm                                       |                 |             | KL10012555IS 464  |
| VDE Phillips screwdriver, PH1                                               |                 |             | KL110PH1IS 464    |
| VDE Phillips screwdriver, PH2                                               |                 |             | KL110PH2IS 464    |
| VDE Pozidriv screwdriver, PZ1                                               |                 |             | KL120PZ1IS 465    |
| VDE Pozidriv screwdriver, PZ2                                               |                 |             | KL120PZ2IS 465    |
| VDE Plus/Minus screwdriver, Z1                                              |                 |             | KL130PM1IS 465    |
| VDE Plus/Minus screwdriver, Z2                                              |                 |             | KL130PM2IS 465    |
| Voltage tester with heavy duty handle, single-pole,<br>VDE 0680 150V - 250V |                 |             | KL19073IS 466     |
| Cable knife, straight                                                       |                 |             | KL640GK 474       |
| Rubber cover, large                                                         |                 |             | KL625A1000 472    |
| Plastic clamp for rubber cover                                              |                 |             | KL628 472         |
| Safety gloves, size 10                                                      |                 |             | KL60510 473       |
| Cotton gloves                                                               |                 |             | KL605U 473        |
| Tweezer                                                                     |                 |             | KL690130 474      |
| Cleaning brush                                                              |                 |             | KL698 474         |
| Control cabinet spirit level, 200 mm                                        |                 |             | KL420200 501      |
| Automatic VDE wire stripper 0.2 - 6 mm²                                     |                 |             | KL760180IS 464    |
| Tool chest red, empty                                                       |                 |             | KL880L 480        |
| VDE Electrician Heavy-duty side cutter, 200 mm                              |                 |             | KL044200IS 462    |

## Tool chest red, empty



## Characteristics

- Hard shell, red

| Item                  | Dimension<br>mm | Weight<br>g | Part No.      |
|-----------------------|-----------------|-------------|---------------|
| Tool chest red, empty | 515 x 420 x 230 | 4400        | <b>KL880L</b> |



## *Innovative. Functional. And ergonomic.*

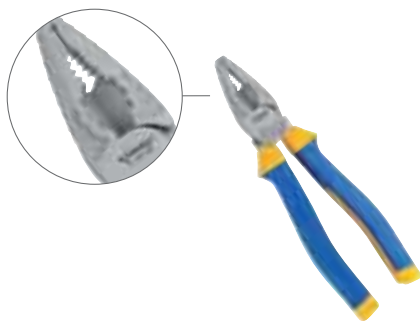
### **Top quality tools made in Germany.**

The Klauke tool range spans standard tools, safety tools, measuring and marking tools.



Pliers and VDE pliers have been granted with the IF Product Design Award.

### **Multi-function tool:** *Holding, cutting and tightening.*



- **Pliers, screwdrivers.**
- **Bits, holders and adapters.**
- **Basic tools, safety tools.**
- **Measuring and marking tools.**

- ▶ Holds flat and round materials.
- ▶ Cuts hard and soft wires.
- ▶ Combi-ring key function 11-17 mm (M8-10).

#### **Benefits:**

- ▶ You need only one tool for various applications.
- ▶ Versatile applications.
- ▶ *More on Page 484.*

## ■ **Special handle** *for grip and cushion.*

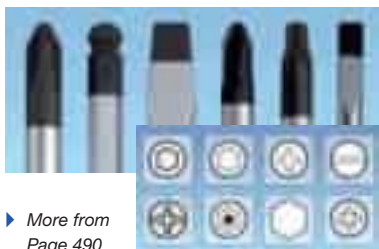
- ▶ Protection by safety cushion at the end of handle.
- ▶ Secure positioning thanks to **non-slip handle material**.
- ▶ Ergonomically-designed handles.

### **Benefits:**

- ▶ The safety cushion protects the pliers from damage even when dropped.
- ▶ Pliers won't slip even when placed on inclines.
- ▶ Specially-designed handles for increased force. Efficiency is also improved.



## ■ **The correct blade** *for every screw.*



▶ *More from  
Page 490.*

- ▶ Available in 8 different shapes.
- ▶ Ergonomically designed two-component handles.
- ▶ All screwdrivers are also available VDE approved.

### **Benefits:**

- ▶ The Klauke range offers **a suitable screwdriver for every screw type.**
- ▶ The two-component handles developed specifically for Klauke tools have a pleasant feel and offer outstanding torque transfer.

## ■ **Ideally integrated into the handle.**

### **Ergonomic design, impact protection and inscription space.**

- ▶ Protection by safety cushion at the end of handle.
- ▶ Inscription space or signature panel on the inside of the handle.
- ▶ Ergonomically-designed handle sleeves.

### **Benefits:**

- ▶ The safety cushion protects the pliers from damage even when dropped.
- ▶ You will find a suitable tool every time.
- ▶ Two component handles have a pleasant feel and offer outstanding torque transfer.



## Cable cutter



## Characteristics

- Adjustable joint
- Cuts fine and superfine stranded copper and alu cable

| Part No.                                     | KL010160            | KL010210            |
|----------------------------------------------|---------------------|---------------------|
| Item                                         | Cable cutter 160 mm | Cable cutter 210 mm |
| Dimension mm                                 | 160                 | 210                 |
| Weight g                                     | 250                 | 335                 |
| Cutting power single and multistranded cable | 16                  | 25                  |

## Heavy duty combination plier



## Characteristics

- With combination spanner from 11 - 17 mm (M8 - M10)
- Holds flat and round material
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL020165                             | KL020180                             | KL020205                             |
|-----------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Item                              | Heavy-duty combination plier, 165 mm | Heavy-duty combination plier, 180 mm | Heavy-duty combination plier, 205 mm |
| Dimension mm                      | 165                                  | 180                                  | 205                                  |
| Weight g                          | 200                                  | 255                                  | 285                                  |
| Cutting power soft wire dia. mm   | 4,0                                  | 5,2                                  | 5,9                                  |
| Cutting power medium wire dia. mm | 3,1                                  | 3,4                                  | 3,8                                  |
| Cutting power hard wire dia. mm   | 2,0                                  | 2,2                                  | 2,5                                  |

## Heavy-duty combination plier, angled



## Characteristics

- 45° angled head
- With combination spanner from 11 - 17 mm (M8 - M10)
- Holds flat and round material
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL026205                                    |
|-----------------------------------|---------------------------------------------|
| Item                              | Heavy-duty combination plier, angled 205 mm |
| Dimension mm                      | 205                                         |
| Weight g                          | 285                                         |
| Cutting power soft wire dia. mm   | 5,9                                         |
| Cutting power medium wire dia. mm | 3,8                                         |
| Cutting power hard wire dia. mm   | 2,5                                         |

## Long flat nose plier

### Characteristics

- With long, flat jaws
- Serrated jaws
- Tool steel drop-forged, oil-hardened

| Part No.     | KL030160                     |
|--------------|------------------------------|
| Item         | Long flat nose plier, 160 mm |
| Dimension mm | 160                          |
| Weight g     | 155                          |



## Long round nose plier

### Characteristics

- With long, round jaws
- Anti-slip, rounded precision tips
- Tool steel drop-forged, oil-hardened

| Part No.     | KL035160                      |
|--------------|-------------------------------|
| Item         | Long round nose plier, 160 mm |
| Dimension mm | 160                           |
| Weight g     | 165                           |



## Side cutters

### Characteristics

- Wave profile for optimized cutting of insulated cables
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                                     | KL040145            | KL040160            | KL040180            |
|----------------------------------------------|---------------------|---------------------|---------------------|
| Item                                         | Side cutter, 145 mm | Side cutter, 160 mm | Side cutter, 180 mm |
| Dimension mm                                 | 145                 | 160                 | 180                 |
| Weight g                                     | 180                 | 210                 | 265                 |
| Cutting power soft wire dia. mm              | 5,0                 | 6,0                 | 7,0                 |
| Cutting power medium wire dia. mm            | 2,5                 | 3,5                 | 4,0                 |
| Cutting power hard wire dia. mm              | 1,7                 | 2,0                 | 2,5                 |
| Cutting power single and multistranded cable | 8,0                 | 11,0                | 13,0                |



## Heavy duty side cutters



## Characteristics

- Wave profile for optimized cutting of insulated cables
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL045180                       | KL045200                       |
|-----------------------------------|--------------------------------|--------------------------------|
| Item                              | Heavy-duty side cutter, 180 mm | Heavy-duty side cutter, 200 mm |
| Dimension mm                      | 180                            | 200                            |
| Weight g                          | 285                            | 310                            |
| Cutting power medium wire dia. mm | 3,7                            | 4,0                            |
| Cutting power hard wire dia. mm   | 2,6                            | 2,8                            |
| Cutting power piano wire dia. mm  | 2,2                            | 2,5                            |

## Telephone pliers, straight



## Characteristics

- Long, straight flat/round jaws
- Serrated jaws (KL050205 only)
- Cutting edge inductive hardened
- With combination spanner from 11 - 17 mm (M8 - M10)
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL050170                         | KL050205                         |
|-----------------------------------|----------------------------------|----------------------------------|
| Item                              | Telephone plier, straight 170 mm | Telephone plier, straight 205 mm |
| Dimension mm                      | 170                              | 205                              |
| Weight g                          | 165                              | 215                              |
| Cutting power soft wire dia. mm   | 2,5                              | 3,9                              |
| Cutting power medium wire dia. mm | 1,6                              | 3,2                              |
| Cutting power hard wire dia. mm   |                                  | 2,2                              |



## Telephone pliers, bent

### Characteristics

- Long, 45° angled, flat/round jaws
- Serrated jaws (KL055205 only)
- Cutting edge inductive hardened
- With combination spanner from 11 - 17 mm (M8 - M10)
- Cuts soft wires, e.g. copper, alu, medium-hard wires e.g. nails, wire nails and hard wires, e.g. wire cable, steel wire

| Part No.                          | KL055170                     | KL055205                     |
|-----------------------------------|------------------------------|------------------------------|
| Item                              | Telephone plier, bent 170 mm | Telephone plier, bent 205 mm |
| Dimension mm                      | 170                          | 205                          |
| Weight g                          | 165                          | 215                          |
| Cutting power soft wire dia. mm   | 2,5                          | 3,9                          |
| Cutting power medium wire dia. mm | 1,6                          | 3,2                          |
| Cutting power hard wire dia. mm   |                              | 2,2                          |



## Wire stripper

### Characteristics

- With opening spring and V-shaped cutting edges
- With adjustment screw for setting the cable diameter
- Stripping range for single and multi-stranded cables 0 to 5.0 mm dia. and 10.0 mm² conductor cross-section

| Part No.     | KL060160              |
|--------------|-----------------------|
| Item         | Wire stripper, 160 mm |
| Dimension mm | 160                   |
| Weight g     | 185                   |



## Water pump plier, jaw width 50 mm (40% above DIN ISO)

### Characteristics

- Jaw width 50 mm (40% above DIN ISO)
- Integrated hand protection
- Ratchet adjustment
- Box joint design
- Double serrated jaws
- Plastic coated handles (KL070250G)
- 2-component handle (KL070250)

| Part No.     | KL070250G                         | KL070250                          |
|--------------|-----------------------------------|-----------------------------------|
| Item         | Water pump plier, jaw width 50 mm | Water pump plier, jaw width 50 mm |
| Dimension mm | 250                               | 250                               |
| Weight g     | 355                               | 395                               |



## Water pump plier



## Characteristics

- Jaw width up to 65 mm (40% above DIN ISO)
- Integrated hand protection
- Push button adjustment for setting quickly and accurately
- Box joint design with wide guide surfaces
- Double serrated jaws
- Teeth additionally inductive hardened
- Plastic coated handles (KL072180G / KL072250G / KL072300G)
- 2-component handle (KL072250)

| Part No.     | KL072180G                         | KL072250G                         | KL072250                          | KL072300G                         |
|--------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Item         | Water pump plier, jaw width 35 mm | Water pump plier, jaw width 50 mm | Water pump plier, jaw width 50 mm | Water pump plier, jaw width 65 mm |
| Dimension mm | 180                               | 250                               | 250                               | 300                               |
| Weight g     | 190                               | 300                               | 350                               | 530                               |

## Waterpump pliers, grooved, jaw width 50 mm



## Characteristics

- Jaw width 50 mm
- Double grooved joint and safety stop
- Optimum pivot point - lower effort
- Non-slip overlay due to matched elastomers
- Plastic coated handles (KL075250G)
- 2-component handle (KL075250)

| Part No.     | KL075250G                                  | KL075250                                   |
|--------------|--------------------------------------------|--------------------------------------------|
| Item         | Waterpump pliers, grooved, jaw width 50 mm | Waterpump pliers, grooved, jaw width 50 mm |
| Dimension mm | 250                                        | 250                                        |
| Weight g     | 390                                        | 433                                        |

## Fitting plier, jaw width 53 mm



## Characteristics

- Parallel and moveable jaws for maximum force
- Large jaw opening adjustable from 0 - 53 mm
- Integrated hand protection
- Push-button adjustment
- Box joint design
- Plastic coated handles

| Part No.     | KL078250G     |
|--------------|---------------|
| Item         | Fitting plier |
| Dimension mm | 250           |
| Weight g     | 375           |

## ESD Electronic side cutters

### Characteristics

- For soft wires to 1.2 mm
- Precision pliers for high precision work
- Double leaf spring with low friction
- Cutting edges additionally induction hardened
- With electrical discharging grips
- Surface resistance amounts 1 to 100 MOhm

| Item                                  | Dimension<br>mm | Weight<br>g | Part No.           |
|---------------------------------------|-----------------|-------------|--------------------|
| Electronic side cutter, with facet    | 115             | 62          | <b>KL040115EL</b>  |
| Electronic side cutter, without facet | 115             | 60          | <b>KL040115ELW</b> |



## ESD Electronic chain nose plier

### Characteristics

- Smooth inside jaws, edges rounded
- With electrical discharging grips
- Surface resistance amounts 1 to 100 MOhm
- Optimised for gripping fine edges or forms of wires

| Item                        | Dimension<br>mm | Weight<br>g | Part No.          |
|-----------------------------|-----------------|-------------|-------------------|
| Electronic chain nose plier | 115             | 64          | <b>KL050115EL</b> |



## Electronic side cutter

### Characteristics

- Clearance angle 21°
- For soft wires to 1.3 mm dia.
- Free from backlash
- With opening spring
- 2-component handle

| Item                                                 | Dimension<br>mm | Weight<br>g | Part No.           |
|------------------------------------------------------|-----------------|-------------|--------------------|
| Electronic side cutter, without wire trapping spring | 128             | 64          | <b>KL040128EL</b>  |
| Electronic side cutter, with wire trapping spring    | 128             | 66          | <b>KL040128ELH</b> |



## Electronic assortment, 7-pieces



## Characteristics

- 2-component handle
- Cross-slotted PH-screws PH000 to PH1
- Cross-slotted PZ-screws PZ0 to PZ1
- Holder with replaceable blades
- Slotted screws 1.5 to 4.0 mm

| Item                            | Weight<br>g | Part No.     |
|---------------------------------|-------------|--------------|
| Electronic assortment, 7-pieces | 161         | <b>KL350</b> |
| Scope of supply                 | Part No.    | Page         |
| Blade 1.5 x 0.25 - 3.0 x 0.5 mm | KLE3501     |              |
| Blade 2.0 x 0.4 - 3.5 x 0.6 mm  | KLE3502     |              |
| Blade 2.5 x 0.4 - 4.0 x 0.8 mm  | KLE3503     |              |
| Blade PH 000 - PH 00            | KLE3504     |              |
| Blade PH 0 - PH 1               | KLE3505     |              |
| Blade PH 0 - PZ 1               | KLE3506     |              |
| Tool holder 95 x 14 mm          | KLE3507     |              |

## Slotted screwdrivers



| Item                       | Dimension<br>mm | Weight<br>g | Part No.          |
|----------------------------|-----------------|-------------|-------------------|
| Slotted screwdriver 2.5 mm | 75 x 2,5 x 0,4  | 26          | <b>KL1007525</b>  |
| Slotted screwdriver 3 mm   | 80 x 3,0 x 0,5  | 28          | <b>KL1008030</b>  |
| Slotted screwdriver 3.5 mm | 100 x 3,5 x 0,6 | 32          | <b>KL10010035</b> |
| Slotted screwdriver 4 mm   | 100 x 4,0 x 0,8 | 45          | <b>KL10010040</b> |
| Slotted screwdriver 5.5 mm | 125 x 5,5 x 1,0 | 71          | <b>KL10012555</b> |
| Slotted screwdriver 6.5 mm | 150 x 6,5 x 1,2 | 89          | <b>KL10015065</b> |
| Slotted screwdriver 8 mm   | 175 x 8,0 x 1,2 | 129         | <b>KL10017580</b> |

## Slotted screwdriver



| Item                                 | Dimension<br>mm | Weight<br>g | Part No.          |
|--------------------------------------|-----------------|-------------|-------------------|
| Slotted screwdriver,<br>5.5 x 1.0 mm | 100 x 5,5 x 1,0 | 74          | <b>KL10510055</b> |
| Slotted screwdriver,<br>6.5 x 1.2 mm | 125 x 6,5 x 1,2 | 100         | <b>KL10512565</b> |
| Slotted screwdriver,<br>8.0 x 1.2 mm | 150 x 8,0 x 1,2 | 162         | <b>KL10515080</b> |

## Phillips screwdrivers

| Item                     | Dimension<br>mm | Weight<br>g | Part No.        |
|--------------------------|-----------------|-------------|-----------------|
| Phillips screwdriver PH1 | 80 x PH 1       | 51          | <b>KL110PH1</b> |
| Phillips screwdriver PH2 | 100 x PH 2      | 79          | <b>KL110PH2</b> |
| Phillips screwdriver PH3 | 150 x PH 3      | 138         | <b>KL110PH3</b> |



## Pozidriv screwdrivers

| Item                     | Dimension<br>mm | Weight<br>g | Part No.        |
|--------------------------|-----------------|-------------|-----------------|
| Pozidriv screwdriver PZ1 | 80 x PZ 1       | 51          | <b>KL120PZ1</b> |
| Pozidriv screwdriver PZ2 | 100 x PZ 2      | 79          | <b>KL120PZ2</b> |
| Pozidriv screwdriver PZ3 | 150 x PZ 3      | 138         | <b>KL120PZ3</b> |



## TORX® TR screwdrivers

| Item                                    | Dimension<br>mm | Weight<br>g | Part No.         |
|-----------------------------------------|-----------------|-------------|------------------|
| TORX® Screwdriver Tamper Resistant TR10 | 100 x TX TR 10  | 46          | <b>KL150TR10</b> |
| TORX® Screwdriver Tamper Resistant TR15 | 100 x TX TR 15  | 48          | <b>KL150TR15</b> |
| TORX® Screwdriver Tamper Resistant TR20 | 100 x TX TR 20  | 69          | <b>KL150TR20</b> |
| TORX® Screwdriver Tamper Resistant TR25 | 100 x TX TR 25  | 69          | <b>KL150TR25</b> |
| TORX® Screwdriver Tamper Resistant TR30 | 115 x TX TR 30  | 97          | <b>KL150TR30</b> |
| TORX® Screwdriver Tamper Resistant TR40 | 125 x TX TR 40  | 129         | <b>KL150TR40</b> |



Ball-point head screwdrivers



| Item                                | Dimension<br>mm | Weight<br>g | Part No.        |
|-------------------------------------|-----------------|-------------|-----------------|
| Ball-point head screwdriver<br>3 mm | 100 x 3,0       | 29          | <b>KL160KI3</b> |
| Ball-point head screwdriver<br>4 mm | 100 x 4,0       | 49          | <b>KL160KI4</b> |
| Ball-point head screwdriver<br>5 mm | 100 x 5,0       | 76          | <b>KL160KI5</b> |
| Ball-point head screwdriver<br>6 mm | 125 x 6,0       | 91          | <b>KL160KI6</b> |
| Ball-point head screwdriver<br>8 mm | 150 x 8,0       | 152         | <b>KL160KI8</b> |

Slotted carburettor screwdriver



| Item                                       | Dimension<br>mm | Weight<br>g | Part No.         |
|--------------------------------------------|-----------------|-------------|------------------|
| Slotted carburettor screwdriver,<br>5.5 mm | 25 x 5,5 x 1,0  | 35          | <b>KL1002555</b> |

Phillips carburettor screwdriver



| Item                                     | Dimension<br>mm | Weight<br>g | Part No.          |
|------------------------------------------|-----------------|-------------|-------------------|
| Phillips carburettor screwdriver,<br>PH1 | 25 x PH 1       | 35          | <b>KL11025PH1</b> |

## Slotted screwdriver bit 1/4", 73 mm

### Characteristics

- Shank 1/4" (6.3) DIN3126

| Item                                   | Dimension<br>mm | Weight<br>g | Number<br>parts | Part No.         |
|----------------------------------------|-----------------|-------------|-----------------|------------------|
| Slotted screwdriver bit 1/4",<br>73 mm | 73 x 0,6 x 3,5  | 16          | 2               | <b>KL2007335</b> |
| Slotted screwdriver bit 1/4",<br>73 mm | 73 x 0,8 x 4,0  | 18          | 2               | <b>KL2007340</b> |
| Slotted screwdriver bit 1/4",<br>73 mm | 73 x 1,0 x 5,5  | 26          | 2               | <b>KL2007355</b> |
| Slotted screwdriver bit 1/4",<br>73 mm | 73 x 1,2 x 6,5  | 34          | 2               | <b>KL2007365</b> |



## Phillips screwdriver bits 1/4", 73 mm

### Characteristics

- Shank 1/4" (6.3) DIN3126

| Item                                        | Dimension<br>mm | Weight<br>g | Number<br>parts | Part No.          |
|---------------------------------------------|-----------------|-------------|-----------------|-------------------|
| Phillips screwdriver bit 1/4",<br>73 mm PH1 | 73 x PH 1       | 22          | 2               | <b>KL21073PH1</b> |
| Phillips screwdriver bit 1/4",<br>73 mm PH2 | 73 x PH 2       | 30          | 2               | <b>KL21073PH2</b> |



## Pozidriv screwdriver bit 1/4", 73 mm

### Characteristics

- Shank 1/4" (6.3) DIN3126

| Item                                        | Dimension<br>mm | Weight<br>g | Number<br>parts | Part No.          |
|---------------------------------------------|-----------------|-------------|-----------------|-------------------|
| Pozidriv screwdriver bit 1/4",<br>73 mm PZ1 | 73 x PZ 1       | 22          | 2               | <b>KL22073PZ1</b> |
| Pozidriv screwdriver bit 1/4",<br>73 mm PZ2 | 73 x PZ 2       | 30          | 2               | <b>KL22073PZ2</b> |



## Plus/Minus screwdriver bit, 1/4", 73 mm



## Characteristics

- Shank 1/4" (6.3) DIN3126

| Item                                       | Dimension<br>mm | Weight<br>g | Number<br>parts | Part No.          |
|--------------------------------------------|-----------------|-------------|-----------------|-------------------|
| Plus/Minus screwdriver bit,<br>1/4", 73 mm | 73 x Z 1        | 20          | 2               | <b>KL23073PM1</b> |
| Plus/Minus screwdriver bit,<br>1/4", 73 mm | 73 x Z 2        | 30          | 2               | <b>KL23073PM2</b> |

## TORX® screwdriver bit, 1/4", 73 mm



## Characteristics

- Shank 1/4" (6.3) DIN3126

| Item                                       | Dimension<br>mm | Weight<br>g | Number<br>parts | Part No.           |
|--------------------------------------------|-----------------|-------------|-----------------|--------------------|
| TORX® screwdriver bit, 1/4",<br>73 mm TX10 | 73 x TX 10      | 22          | 2               | <b>KL25073TX10</b> |
| TORX® screwdriver bit, 1/4",<br>73 mm TX15 | 73 x TX 15      | 22          | 2               | <b>KL25073TX15</b> |
| TORX® screwdriver bit, 1/4",<br>73 mm TX20 | 73 x TX 20      | 25          | 2               | <b>KL25073TX20</b> |
| TORX® screwdriver bit, 1/4",<br>73 mm TX25 | 73 x TX 25      | 25          | 2               | <b>KL25073TX25</b> |
| TORX® screwdriver bit, 1/4",<br>73 mm TX27 | 73 x TX 27      | 25          | 2               | <b>KL25073TX27</b> |
| TORX® Screwdriver bit, 1/4",<br>73 mm TX30 | 73 x TX 30      | 30          | 2               | <b>KL25073TX30</b> |
| TORX® Screwdriver bit, 1/4",<br>73 mm TX40 | 73 x TX 40      | 40          | 2               | <b>KL25073TX40</b> |

## Magnetic bit holder, 1/4", 58 mm



## Characteristics

- Shank 1/4" (6.3) DIN3126
- Strong magnet

| Item                                | Dimension<br>mm | Weight<br>g | Part No.     |
|-------------------------------------|-----------------|-------------|--------------|
| Magnetic bit holder, 1/4",<br>58 mm | 58              | 32          | <b>KL290</b> |



## Mechanical bit holder, 1/4", 52 mm

### Characteristics

- Shank 1/4" (6.3) DIN3126
- With quick-change chuck

| Item                                  | Dimension<br>mm | Weight<br>g | Part No.     |
|---------------------------------------|-----------------|-------------|--------------|
| Mechanical bit holder, 1/4",<br>52 mm | 52              | 30          | <b>KL291</b> |



## Adapter, 1/4", 50 mm

- ▶ Shank E 6.3 and 1/4" drive

### Characteristics

- Shank 1/4" (6.3)

### Suitable for

- Drive for 1/4" socket wrenches

| Item                 | Dimension<br>mm | Weight<br>g | Part No.     |
|----------------------|-----------------|-------------|--------------|
| Adapter, 1/4", 50 mm | 50              | 15          | <b>KL295</b> |



## Adapter, 3/8", 50 mm

### Characteristics

- Shank 3/8" (10)

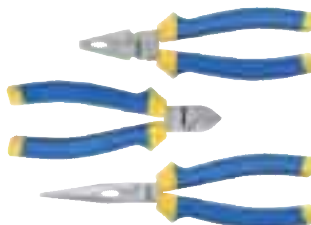
| Item                 | Dimension<br>mm | Weight<br>g | Part No.     |
|----------------------|-----------------|-------------|--------------|
| Adapter, 3/8", 50 mm | 50              | 22          | <b>KL296</b> |



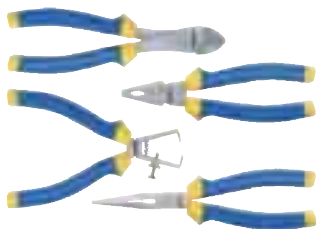
## Plier set, 3-pieces

| Item                | Weight<br>g | Part No.     |
|---------------------|-------------|--------------|
| Plier set, 3-pieces | 790         | <b>KL303</b> |

| Scope of supply                      | Part No. | Page |
|--------------------------------------|----------|------|
| Heavy-duty combination plier, 180 mm | KL020180 | 484  |
| Side cutter, 160 mm                  | KL040160 | 485  |
| Telephone plier, straight 205 mm     | KL050205 | 486  |



## Plier set, 4-pieces



| Item                | Weight<br>g | Part No.     |
|---------------------|-------------|--------------|
| Plier set, 4-pieces | 1050        | <b>KL304</b> |

| Scope of supply                      | Part No. | Page |
|--------------------------------------|----------|------|
| Heavy-duty combination plier, 180 mm | KL020180 | 484  |
| Heavy-duty side cutter, 200 mm       | KL045200 | 486  |
| Telephone plier, straight 205 mm     | KL050205 | 486  |
| Wire stripper, 160 mm                | KL060160 | 487  |

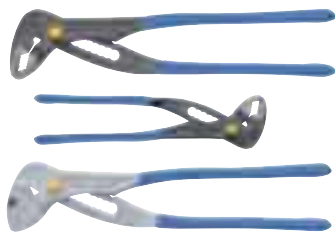
## Plier set, 3-pieces



| Item                | Weight<br>g | Part No.     |
|---------------------|-------------|--------------|
| Plier set, 3-pieces | 1100        | <b>KL310</b> |

| Scope of supply                      | Part No. | Page |
|--------------------------------------|----------|------|
| Heavy-duty combination plier, 180 mm | KL020180 | 484  |
| Heavy-duty side cutter, 200 mm       | KL045200 | 486  |
| Water pump plier, jaw width 50 mm    | KL072250 | 488  |

## Plier set, 3-pieces



| Item                | Weight<br>g | Part No.     |
|---------------------|-------------|--------------|
| Plier set, 3-pieces | 1000        | <b>KL315</b> |

| Scope of supply                   | Part No.  | Page |
|-----------------------------------|-----------|------|
| Fitting plier                     | KL078250G | 488  |
| Water pump plier, jaw width 35 mm | KL072180G | 488  |
| Water pump plier, jaw width 50 mm | KL072250G | 488  |

## Slotted workshop screwdriver set, 3-pieces



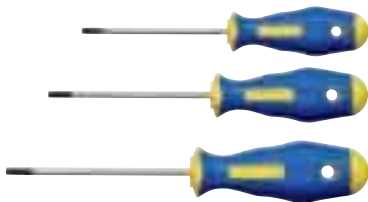
| Item                                       | Weight<br>g | Part No.     |
|--------------------------------------------|-------------|--------------|
| Slotted workshop screwdriver set, 3-pieces | 425         | <b>KL380</b> |

| Scope of supply                   | Part No.   | Page |
|-----------------------------------|------------|------|
| Slotted screwdriver, 5.5 x 1.0 mm | KL10510055 | 490  |
| Slotted screwdriver, 6.5 x 1.2 mm | KL10512565 | 490  |
| Slotted screwdriver, 8.0 x 1.2 mm | KL10515080 | 490  |

**TORX® Screwdriver set, 3-pieces**

| Item                            | Weight<br>g | Part No.     |
|---------------------------------|-------------|--------------|
| TORX® Screwdriver set, 3-pieces | 385         | <b>KL385</b> |

| Scope of supply                         | Part No.  | Page |
|-----------------------------------------|-----------|------|
| TORX® Screwdriver Tamper Resistant TR15 | KL150TR15 | 491  |
| TORX® Screwdriver Tamper Resistant TR20 | KL150TR20 | 491  |
| TORX® Screwdriver Tamper Resistant TR25 | KL150TR25 | 491  |


**Socket bit set 1/4", 28 pieces**
**Characteristics**

- 16 bits: C6.3 x 25mm PH1 / PH2 / PZ1 / PZ2 / PZ3 / SW3 / SW4 / SW5 / SW6 / 3.5 x 0.6 / 5.5 x 0.8 / 6.5 x 1.2 / T15 / T20 / T25 / T30
- 1 Quick-change adapter
- 7 sockets: 5 mm / 5.5 mm / 6 mm / 7 mm / 8 mm / 10 mm / 13 mm
- 1 Adapter 1/4"
- 1 Extension 1/4"
- 1 Extension for sockets
- 1 Fine-toothed professional ratchet
- 1 Screwdriver with innovative T-Smart handle

| Item                           | Weight<br>g | Number parts | Part No.     |      |
|--------------------------------|-------------|--------------|--------------|------|
| Socket bit set 1/4", 28 pieces | 1130        | 28           | <b>KL361</b> |      |
| Scope of supply                |             |              | Part No.     | Page |
| 16-pce. Bit set C 6.3 1/4"     |             |              | KLE3601      |      |
| 7-pce. Socket set 1/4"         |             |              | KLE3602      |      |
| Adapter 1/4" x 25 mm           |             |              | KLE3603      |      |
| Adapter 1/4" x 150 mm          |             |              | KLE3604      |      |
| Extension 75 mm                |             |              | KLE3605      |      |
| Professional ratchet 1/4"      |             |              | KLE3606      |      |
| T-Smart handle 105 x 39 mm     |             |              | KLE3607      |      |


**Allen key set, 7 pieces**
**Characteristics**

- SW 2 / SW 2.5 / SW 3 / SW 4 / SW 5 / SW 6 / SW 8
- In practical plastic holder

| Item                    | Dimension<br>mm | Weight<br>g | Number<br>parts | Part No.     |
|-------------------------|-----------------|-------------|-----------------|--------------|
| Allen key set, 7 pieces | SW 2 - 8        | 171         | 7               | <b>KL370</b> |



## Ball point allen key set, 9 pieces



## Characteristics

- SW 1.5 / SW 2 / SW 2.5 / SW 3 / SW 4 / / SW 5 / SW 6 / SW 8 / SW 10
- In plastic holder

| Item                                  | Dimension<br>mm | Weight<br>g | Number<br>parts | Part No.     |
|---------------------------------------|-----------------|-------------|-----------------|--------------|
| Ball point allen key set,<br>9 pieces | SW 1.5 - 10     | 273         | 9               | <b>KL375</b> |

## Torque-wrench set, 0.6 - 1.5 Nm



## Characteristics

- Torque range from 0.6 - 1.5 Nm
- Easy torque adjustment using an Allen key
- Precise release when reaching the set torque

| Item                                | Weight<br>g | Number parts | Part No.   |      |
|-------------------------------------|-------------|--------------|------------|------|
| Torque-wrench set,<br>0.6 - 1.5 Nm  | 1048        | 14           | KL38715    |      |
| Scope of supply                     |             |              | Part No.   | Page |
| Nm-slotted blade 3.0 x 0.5 x 170 mm |             |              | KLE387158  |      |
| Nm-slotted blade 3.5 x 0.6 x 170 mm |             |              | KLE387159  |      |
| Nm-Phillips blade PH 0 x 170 mm     |             |              | KLE3871510 |      |
| Nm blade PZ 0 x 170 mm              |             |              | KLE3871511 |      |
| Nm-TORX® blade TX 6 x 170 mm        |             |              | KLE387151  |      |
| Nm-TORX® blade TX 7 x 170 mm        |             |              | KLE387152  |      |
| Nm-TORX® blade TX 8 x 170 mm        |             |              | KLE387153  |      |
| Nm-TORX® blade TX IP 7 x 170 mm     |             |              | KLE387155  |      |
| Nm-TORX® blade TX IP 8 x 170 mm     |             |              | KLE387156  |      |
| Nm-TORX® blade TX IP 9 x 170 mm     |             |              | KLE387157  |      |
| Nm blade Z1 x 170 mm                |             |              | KLE3883014 |      |
| Nm blade magnetic 170 mm            |             |              | KLE3871512 |      |
| Nm handle 0.6 - 1.5 Nm              |             |              | KLE3871513 |      |
| Adjusting spanner                   |             |              | KLE3871514 |      |

## Torque-wrench set, 1.5 - 3.0 Nm

### Characteristics

- Torque range from 1.5 - 3.0 Nm
- Easy torque adjustment using an Allen key
- Precise release when reaching the set torque

| Item                                          | Weight<br>g | Number parts | Part No.       |      |
|-----------------------------------------------|-------------|--------------|----------------|------|
| Torque-wrench set,<br>1.5 - 3.0 Nm, 14 pieces | 1066        | 14           | <b>KL38830</b> |      |
| Scope of supply                               |             |              | Part No.       | Page |
| Nm-slotted blade 4.0 x 0.8 x 170 mm           |             |              | KLE388301      |      |
| Nm-Phillips blade PH 1 x 170 mm               |             |              | KLE388302      |      |
| Nm-Phillips blade PH 2 x 170 mm               |             |              | KLE388303      |      |
| Nm blade PZ 1 x 170 mm                        |             |              | KLE388304      |      |
| Nm blade PZ 2 x 170 mm                        |             |              | KLE388305      |      |
| Nm-TORX® blade TX 10 x 170 mm                 |             |              | KLE388307      |      |
| Nm-TORX® blade TX 15 x 170 mm                 |             |              | KLE388308      |      |
| Nm-TORX® blade TX IP 10 x 170 mm              |             |              | KLE3883010     |      |
| Nm-TORX® blade TX IP 15 x 170 mm              |             |              | KLE3883011     |      |
| Nm blade Z1 x 170 mm                          |             |              | KLE3883014     |      |
| Nm blade Z2 x 170 mm                          |             |              | KLE3883015     |      |
| Nm blade magnetic 170 mm                      |             |              | KLE3883012     |      |
| Nm handle 1.5 - 3.0 Nm                        |             |              | KLE3883013     |      |
| Adjusting spanner                             |             |              | KLE3871514     |      |



## Torque-wrench set, 3.0 - 5.4 Nm

### Characteristics

- Torque range from 3.0 - 5.4 Nm
- Easy torque adjustment using an Allen key
- Precise release when reaching the set torque

| Item                                | Weight<br>g | Number parts | Part No.       |      |
|-------------------------------------|-------------|--------------|----------------|------|
| Torque-wrench set,<br>3.0 - 5.4 Nm  | 1066        | 14           | <b>KL38954</b> |      |
| Scope of supply                     |             |              | Part No.       | Page |
| Nm-slotted blade 4.0 x 0.8 x 170 mm |             |              | KLE388301      |      |
| Nm-Phillips blade PH 2 x 170 mm     |             |              | KLE388303      |      |
| Nm-Phillips blade PH 1 x 170 mm     |             |              | KLE388302      |      |
| Nm blade PZ 1 x 170 mm              |             |              | KLE388304      |      |
| Nm blade PZ 2 x 170 mm              |             |              | KLE388305      |      |
| Nm-TORX® blade TX 15 x 170 mm       |             |              | KLE388308      |      |
| Nm-TORX® blade TX 20 x 170 mm       |             |              | KLE389541      |      |
| Nm-TORX® blade TX 25 x 170 mm       |             |              | KLE389542      |      |
| Nm-TORX® blade TX IP 10 x 170 mm    |             |              | KLE3883010     |      |
| Nm-TORX® blade TX IP 15 x 170 mm    |             |              | KLE3883011     |      |
| Nm blade Z2 x 170 mm                |             |              | KLE3883015     |      |
| Nm blade magnetic 170 mm            |             |              | KLE3883012     |      |
| Nm handle 3.0 - 5.4 Nm              |             |              | KLE3895413     |      |
| Adjusting spanner                   |             |              | KLE3871514     |      |



Bit set, 6 pieces, 1/4", 73 mm



Characteristics

- Shank 1/4" (6.3) DIN3126
- KL330: 3.0 x 0.5 mm / 3.5 x 0.6 mm / 4.0 x 0.8 mm / 5.5 x 1.0 mm / PH 1 / PH 2
- KL331: PH 1 / PH 2 / PH 3 / PZ1 / PZ2 / PZ3
- KL335: TX10 / TX15 / TX20 / TX25 / TX30 / TX40

| Item                       | Blade length mm | Weight g | Number parts | Part No. |
|----------------------------|-----------------|----------|--------------|----------|
| Bit set, 1/4", 73 mm       | 73              | 120      | 6            | KL330    |
| Bit set, 1/4", 73 mm       | 73              | 120      | 6            | KL331    |
| TORX® bit set, 1/4", 73 mm | 73              | 120      | 6            | KL335    |

Bit box Swift, 7 pieces, 1/4", 25 mm



Characteristics

- Shank 1/4" (6.3) DIN3126
- In practical holder
- Incl. magnetic holder
- KL340: 1.0 x 5.5 mm / 1.2 x 6.5 mm / PZ 1 / PZ 2 / PH 1 / PH 2
- KL345: TX10 / TX15 / TX20 / TX25 / TX30 / TX40

| Item                             | Blade length mm | Weight g | Number parts | Part No. |
|----------------------------------|-----------------|----------|--------------|----------|
| Bit box Swift, 1/4", 25 mm       | 25              | 75       | 7            | KL340    |
| TORX® bit box Swift, 1/4", 25 mm | 25              | 75       | 7            | KL345    |

Combination spanner set, 12 pieces



Characteristics

- Width across flats SW 8/9/10/11/12/13/14/15/16/17/19/22 mm
- Material: Chromium-Vanadium
- Surface: chromed

| Item                               | Dimension mm | Weight g | Part No. |
|------------------------------------|--------------|----------|----------|
| Combination spanner set, 12 pieces | SW 8 - 22    | 1055     | KL365    |

## Control cabinet spirit level, 200 mm

### Characteristics

- With horizontal, vertical and 45° level

| Item                                    | Dimension<br>mm | Weight<br>g | Part No.        |
|-----------------------------------------|-----------------|-------------|-----------------|
| Control cabinet spirit level,<br>200 mm | 200x42x17       | 65          | <b>KL420200</b> |



## Aluminum spirit levels

### Characteristics

- With vertical and horizontal level

| Item                          | Dimension<br>mm | Weight<br>g | Part No.        |
|-------------------------------|-----------------|-------------|-----------------|
| Aluminum spirit level, 400 mm | 400 x 40 x 15   | 210         | <b>KL425400</b> |
| Aluminum spirit level, 600 mm | 600 x 40 x 15   | 305         | <b>KL425600</b> |



## Folding rule, 2 m

### Characteristics

- White/yellow
- No. of links 10

| Item              | Weight<br>g | Part No.     |
|-------------------|-------------|--------------|
| Folding rule, 2 m | 126         | <b>KL402</b> |



## Measuring tape, 3 m

### Characteristics

- With 3 functions: Length, inside dimension and circles

| Item                | Weight<br>g | Part No.     |
|---------------------|-------------|--------------|
| Measuring tape, 3 m | 124         | <b>KL403</b> |



## Carpenter's pencil



## Characteristics

- Oval shape
- Pointed

| Item               | Weight<br>g | Part No.     |
|--------------------|-------------|--------------|
| Carpenter's pencil | 10          | <b>KL449</b> |

## Marking pen



## Characteristics

- Multimark permanent marker, black
- Fine tip 0.6 mm

| Item        | Weight<br>g | Part No.      |
|-------------|-------------|---------------|
| Marking pen | 10          | <b>KL440F</b> |

## Chalk for chalk lines



## Characteristics

- 100 g bottle

| Item                        | Weight<br>g | Part No.         |
|-----------------------------|-------------|------------------|
| Chalk for chalk lines, red  | 100         | <b>KL451ROT</b>  |
| Chalk for chalk lines, blue | 100         | <b>KL451BLAU</b> |

## Chalk line



## Characteristics

- Cord length: 15 m
- Allows simple marking of lines when laying conductors

| Item       | Weight<br>g | Part No.     |
|------------|-------------|--------------|
| Chalk line | 380         | <b>KL450</b> |

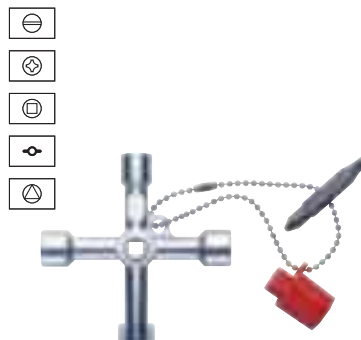


## Control cabinet key

### Characteristics

- With chain and adapter and reversible bit 1/4"
- Square socket 5, 6 and 7 - 8 mm
- Triangular 9 mm
- Double pin keys 3 - 5 mm
- Bit PH2 and slotted 1.0 - 7 mm
- Radiator air venting (5 mm square drive) in centre

| Item                | Weight<br>g | Part No.     |
|---------------------|-------------|--------------|
| Control cabinet key | 75          | <b>KL500</b> |



## Universal cabinet key, Subkey Electro

### Characteristics

- 30% lower in weight and simplified opening mechanism
- Square socket 5, 6 and 7 - 8 mm
- Triangular 9 mm
- Double pin keys 3 - 5 mm
- Including 1/4" drive and 2 double bits
- Radiator air venting (5 mm square drive) at pin head
- Bit slotted 1, 2 x 7 mm, PH2

| Item                                  | Dimension<br>mm | Weight<br>g | Part No.     |
|---------------------------------------|-----------------|-------------|--------------|
| Universal cabinet key, subkey Electro | 145             | 120         | <b>KL510</b> |

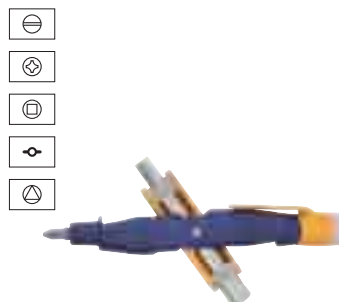


## Universal cabinet key - SuBMaVo

### Characteristics

- Incl. contact free voltage finder for secure detection of voltages from 50-600V on cables, sockets, lamps, etc.
- Integrated magnet field tester for contact free detection of permanent magnets and magnetic fields
- Double swivel lock with 4 different cabinet key options
- Square socket 6, 7 - 8 mm
- Triangular 9 mm
- Double pin keys 3 - 5 mm
- Bit slotted 1.2 - 7 mm, PH2

| Item                            | Weight<br>g | Part No.     |
|---------------------------------|-------------|--------------|
| Universal cabinet key - SuBMaVo | 105         | <b>KL520</b> |



## Engineer's hammer



### Characteristics

- Steel-forged head
- Ground finish
- With protective nylon shroud

| Item                     | Dimension<br>mm | Weight<br>g | Part No.        |
|--------------------------|-----------------|-------------|-----------------|
| Engineer's hammer, 300 g | 370             | 300         | <b>KL580300</b> |
| Engineer's hammer, 500 g | 610             | 500         | <b>KL580500</b> |

## Sledge hammer



### Characteristics

- Steel-forged head
- Ground finish
- With protective nylon shroud

| Item                  | Dimension<br>mm | Weight<br>g | Part No.         |
|-----------------------|-----------------|-------------|------------------|
| Sledge hammer, 1000 g | 1150            | 1000        | <b>KL5821000</b> |
| Sledge hammer, 1250 g | 1400            | 1250        | <b>KL5821250</b> |

## Jointing chisel



### Characteristics

- Chrome-vanadium steel, air-hardened
- Safety head, annealed

| Item            | Dimension<br>mm | Weight<br>g | Part No.        |
|-----------------|-----------------|-------------|-----------------|
| Jointing chisel | 230 x 26 x 7    | 250         | <b>KL584230</b> |

## Electrician's chisel



### Characteristics

- Chrome-vanadium steel, air-hardened
- Safety head, annealed

| Item                         | Dimension<br>mm | Weight<br>g | Part No.        |
|------------------------------|-----------------|-------------|-----------------|
| Electrician's chisel, 200 mm | 200             | 90          | <b>KL585200</b> |
| Electrician's chisel, 250 mm | 250             | 120         | <b>KL585250</b> |

## Safety handle for jointing chisel

### Suitable for

- Jointing chisel, part no. KL584230

| Item                              | Weight<br>g | Part No.     |
|-----------------------------------|-------------|--------------|
| Safety handle for jointing chisel | 110         | <b>KL586</b> |



## Electrician's knife

### Characteristics

- Hinged, with plastic handle

| Item                | Dimension<br>mm | Weight<br>g | Part No.     |
|---------------------|-----------------|-------------|--------------|
| Electrician's knife | 80              | 115         | <b>KL540</b> |



## Hand saw

### Characteristics

- With fixed wooden handle

| Item                        | Dimension<br>mm | Weight<br>g | Part No.       |
|-----------------------------|-----------------|-------------|----------------|
| Hand saw                    | 290             | 95          | <b>KL559</b>   |
| Metal saw blades, 12 pieces | 150             | 2           | <b>KL550ES</b> |



## Universal saw

### Characteristics

- With fibreglass reinforced plastic handle

| Item                        | Dimension<br>mm | Weight<br>g | Part No.       |
|-----------------------------|-----------------|-------------|----------------|
| Universal saw               | 250             | 170         | <b>KL550</b>   |
| Metal saw blades, 12 pieces | 150             | 2           | <b>KL550ES</b> |



## Combination scissors



## Characteristics

- Serrated cutting edges
- With safety lock
- Cuts e.g. round and flat material from copper, aluminum, plastic, paper, cardboard, leather

| Item                 | Dimension<br>mm | Weight<br>g | Part No.     |
|----------------------|-----------------|-------------|--------------|
| Combination scissors | 190             | 100         | <b>KL545</b> |

## Universal knife



## Characteristics

- With adjustable and replaceable blades

| Item                                     | Weight<br>g | Dimension<br>mm | Part No.       |
|------------------------------------------|-------------|-----------------|----------------|
| Universal knife                          | 305         |                 | <b>KL542</b>   |
| Replacement blade<br>for universal knife | 8           | 60x19x0,5       | <b>KL542ES</b> |

## Cutter knife



## Characteristics

- Knife with knock-off blades, all 9 mm

| Item                                  | Dimension<br>mm | Weight<br>g | Part No.       |
|---------------------------------------|-----------------|-------------|----------------|
| Cutter knife                          | 9               | 45          | <b>KL544</b>   |
| Replacement blade<br>for Cutter knife | 9               | 5           | <b>KL544ES</b> |

## Safety glasses uvex i-vo in microfibre bag

### Characteristics

- Duo component technology with soft components for the sensitive zones (nose, forehead, ears) giving optimum and long-term wearing comfort
- Individual earpiece length adjustment
- Individual incline setting
- Clear lens for permanent anti-fog inside, extremely scratch-resistant outside
- Sun protection lens extremely scratch-resistant on both sides
- Easy and quick replacement of the sunglasses' lens
- 100 % UV protection
- EN 166
- Elegant microfibre pouch, also suitable for cleaning the glasses



| Item                                         | Weight<br>g | Part No.      |
|----------------------------------------------|-------------|---------------|
| Safety glasses uvex i-vo in microfibre bag   | 33          | <b>KL604</b>  |
| Sun protection lens for safety glasses KL604 | 23          | <b>KL604S</b> |

## L-BOXX with basic equipment for electrician's, 18-pieces

### Characteristics

- L-BOXX from shock and impact resistant ABS plastic, loadable to 100 kg
- For integration in TÜV-approved in-vehicle equipment systems
- Stackable L-BOXXs with Easy-Click system



| Item                                                                     | Dimension<br>mm     | Part No.         |
|--------------------------------------------------------------------------|---------------------|------------------|
| L-BOXX with basic equipment for electrician's, 18-pieces                 | 442x357x151 (B/T/H) | <b>LBOXXKL18</b> |
| Scope of supply                                                          | Part No.            | Page             |
| L-BOXX with front handle (W/D/H: 442 x 357 x 151 mm)                     | LBOXX136LFG         |                  |
| VDE Telephone plier, straight, 205 mm                                    | KL050205IS          | 462              |
| VDE Heavy-duty combination plier, 180 mm                                 | KL020180IS          | 460              |
| VDE Side cutter, 160 mm                                                  | KL040160IS          | 461              |
| VDE Cable cutter, 160 mm                                                 | KL010160IS          | 460              |
| Automatic VDE wire stripper 0.2 - 6 mm²                                  | KL760180IS          | 464              |
| VDE Water pump plier, jaw width 50 mm                                    | KL070250IS          | 463              |
| Measuring tape, 3 m                                                      | KL403               | 501              |
| VDE Slotted screwdriver, 4.0 x 0.8 mm                                    | KL10010040IS        | 464              |
| VDE Slotted screwdriver, 5.5 x 1.0 mm                                    | KL10012555IS        | 464              |
| VDE Plus/Minus screwdriver, Z1                                           | KL130PM1IS          | 465              |
| VDE Plus/Minus screwdriver, Z2                                           | KL130PM2IS          | 465              |
| VDE Phillips screwdriver, PH1                                            | KL110PH1IS          | 464              |
| VDE Phillips screwdriver, PH2                                            | KL110PH2IS          | 464              |
| Voltage tester with heavy duty handle, single-pole, VDE 0680 150V - 250V | KL19073IS           | 466              |
| DM-45 Digital multimeter 600 V AC/DC with temperature measurement        | 52059477            | 625              |
| GT-85NE Bipolar voltage tester with LCD display                          | 52049407            | 619              |
| Allen key set, 7 pieces                                                  | KL370               | 497              |
| Cable knife, hooked blade                                                | KL745HK             | 521              |

## Tool case for electricians, small



| Item                                                                     | Dimension<br>mm | Weight<br>kg | Part No.       |      |
|--------------------------------------------------------------------------|-----------------|--------------|----------------|------|
| Tool case for electricians, small                                        | 495 x 410 x 175 | 5,7          | <b>KL850BS</b> |      |
| Scope of supply                                                          |                 |              | Part No.       | Page |
| Voltage tester with heavy duty handle, single-pole, VDE 0680 150V - 250V |                 |              | KL19073IS      | 466  |
| VDE Slotted screwdriver, 4,0 x 0.8 mm                                    |                 |              | KL10010040IS   | 464  |
| VDE Slotted screwdriver, 5,5 x 1.0 mm                                    |                 |              | KL10012555IS   | 464  |
| VDE Phillips screwdriver, PH1                                            |                 |              | KL110PH1IS     | 464  |
| VDE Phillips screwdriver, PH2                                            |                 |              | KL110PH2IS     | 464  |
| VDE Plus/Minus screwdriver, Z1                                           |                 |              | KL130PM1IS     | 465  |
| VDE Plus/Minus screwdriver, Z2                                           |                 |              | KL130PM2IS     | 465  |
| VDE Side cutter, 160 mm                                                  |                 |              | KL040160IS     | 461  |
| VDE Telephone plier, straight, 205 mm                                    |                 |              | KL050205IS     | 462  |
| Carpenter's pencil                                                       |                 |              | KL449          | 502  |
| Folding rule, 2 m                                                        |                 |              | KL402          | 501  |
| Control cabinet key                                                      |                 |              | KL500          | 503  |
| Hard shell case for KL850BS                                              |                 |              | KL850L         | 512  |

## Tool case for electricians, medium



| Item                                                                     | Dimension<br>mm | Weight<br>kg | Part No.       |      |
|--------------------------------------------------------------------------|-----------------|--------------|----------------|------|
| Tool case for electricians, medium                                       | 495 x 420 x 200 | 6,0          | <b>KL860BM</b> |      |
| Scope of supply                                                          |                 |              | Part No.       | Page |
| Voltage tester with heavy duty handle, single-pole, VDE 0680 150V - 250V |                 |              | KL19073IS      | 466  |
| VDE Slotted screwdriver, 3,5 x 0.6 mm                                    |                 |              | KL10010035IS   | 464  |
| VDE Slotted screwdriver, 4,0 x 0.8 mm                                    |                 |              | KL10010040IS   | 464  |
| VDE Slotted screwdriver, 5,5 x 1.0 mm                                    |                 |              | KL10012555IS   | 464  |
| VDE Phillips screwdriver, PH1                                            |                 |              | KL110PH1IS     | 464  |
| VDE Phillips screwdriver, PH2                                            |                 |              | KL110PH2IS     | 464  |
| VDE Pozidriv screwdriver, PZ1                                            |                 |              | KL120PZ1IS     | 465  |
| VDE Pozidriv screwdriver, PZ2                                            |                 |              | KL120PZ2IS     | 465  |
| VDE Plus/Minus screwdriver, Z1                                           |                 |              | KL130PM1IS     | 465  |
| VDE Plus/Minus screwdriver, Z2                                           |                 |              | KL130PM2IS     | 465  |
| VDE Side cutter, 160 mm                                                  |                 |              | KL040160IS     | 461  |
| VDE Heavy-duty combination plier, 180 mm                                 |                 |              | KL020180IS     | 460  |
| VDE Telephone plier, straight, 205 mm                                    |                 |              | KL050205IS     | 462  |
| VDE Wire stripper, 160 mm                                                |                 |              | KL060160IS     | 463  |
| VDE Cable cutter, 160 mm                                                 |                 |              | KL010160IS     | 460  |
| Carpenter's pencil                                                       |                 |              | KL449          | 502  |
| Folding rule, 2 m                                                        |                 |              | KL402          | 501  |
| Control cabinet spirit level, 200 mm                                     |                 |              | KL420200       | 501  |
| Hand saw                                                                 |                 |              | KL559          | 505  |
| Engineer's hammer, 300 g                                                 |                 |              | KL580300       | 504  |
| Electrician's chisel, 250 mm                                             |                 |              | KL585250       | 504  |
| Allen key set, 7 pieces                                                  |                 |              | KL370          | 497  |
| Bit box Swift, 1/4", 25 mm                                               |                 |              | KL340          | 500  |
| Cable knife, hooked blade                                                |                 |              | KL745HK        | 521  |
| Control cabinet key                                                      |                 |              | KL500          | 503  |
| KL860L hard - shell case for KL860BM and KL870BL                         |                 |              | KL860L         | 512  |

**Tool case for electricians, large**

| Item                              | Dimension<br>mm | Part No.       |
|-----------------------------------|-----------------|----------------|
| Tool case for electricians, large | 495 x 420 x 200 | <b>KL870BL</b> |



| Scope of supply                                                          | Part No.     | Page |
|--------------------------------------------------------------------------|--------------|------|
| Voltage tester with heavy duty handle, single-pole, VDE 0680 150V - 250V | KL19073IS    | 466  |
| VDE Slotted screwdriver, 3.5 x 0.6 mm                                    | KL10010035IS | 464  |
| VDE Slotted screwdriver, 4.0 x 0.8 mm                                    | KL10010040IS | 464  |
| VDE Slotted screwdriver, 5.5 x 1.0 mm                                    | KL10012555IS | 464  |
| VDE Slotted screwdriver, 6.5 x 1.2 mm                                    | KL10015065IS | 464  |
| VDE Phillips screwdriver, PH1                                            | KL110PH1IS   | 464  |
| VDE Phillips screwdriver, PH2                                            | KL110PH2IS   | 464  |
| VDE Pozidriv screwdriver, PZ1                                            | KL120PZ1IS   | 465  |
| VDE Pozidriv screwdriver, PZ2                                            | KL120PZ2IS   | 465  |
| VDE Plus/Minus screwdriver, Z1                                           | KL130PM1IS   | 465  |
| VDE Plus/Minus screwdriver, Z2                                           | KL130PM2IS   | 465  |
| VDE TORX® screwdriver TX 15                                              | KL150TX15IS  | 465  |
| VDE TORX® screwdriver TX 20                                              | KL150TX20IS  | 465  |
| VDE TORX® screwdriver TX 25                                              | KL150TX25IS  | 465  |
| VDE TORX® screwdriver TX 30                                              | KL150TX30IS  | 465  |
| VDE Side cutter, 160 mm                                                  | KL040160IS   | 461  |
| VDE Heavy-duty combination plier, 180 mm                                 | KL020180IS   | 460  |
| VDE Water pump plier, jaw width 50 mm                                    | KL070250IS   | 463  |
| VDE Telephone plier, straight, 205 mm                                    | KL050205IS   | 462  |
| Automatic VDE wire stripper 0.2 - 6 mm²                                  | KL760180IS   | 464  |
| VDE Cable cutter, 210 mm                                                 | KL010210IS   | 460  |
| Carpenter's pencil                                                       | KL449        | 502  |
| Folding rule, 2 m                                                        | KL402        | 501  |
| Cutter knife                                                             | KL544        | 506  |
| Aluminum spirit level, 400 mm                                            | KL425400     | 501  |
| Universal saw                                                            | KL550        | 505  |
| Ball point allen key set, 9 pieces                                       | KL375        | 498  |
| Mechanical bit holder, 1/4", 52 mm                                       | KL291        | 495  |
| Bit set, 1/4", 73 mm                                                     | KL331        | 500  |
| Cable knife, hooked blade                                                | KL745HK      | 521  |
| Round cable stripper 8 - 13mm²                                           | KL710        | 521  |
| Combination spanner set, 12 pieces                                       | KL365        | 500  |
| Control cabinet key                                                      | KL500        | 503  |
| KL860L hard – shell case for KL860BM and KL870BL                         | KL860L       | 512  |



## Professional roller trolley, 88 pieces



## Characteristics

- With 4-section telescopic handle, up to 1050 mm
- Document compartment in lid
- Double aluminum frame
- Large rubber casters
- Case shell from non-breakable X-ABS
- Loads up to 40 kg
- Hinges for case lid lock

| Item                                                                        | Dimension<br>mm | Weight<br>g | Part No.         |      |
|-----------------------------------------------------------------------------|-----------------|-------------|------------------|------|
| Professional roller trolley,<br>88 pieces                                   | 470x210x355     | 15500       | <b>KL890TB88</b> |      |
| Scope of supply                                                             |                 |             | Part No.         | Page |
| Professional roller trolley, empty                                          |                 |             | KL890TL          | 511  |
| VDE Heavy-duty combination plier, 180 mm                                    |                 |             | KL020180IS       | 460  |
| VDE Telephone plier, straight, 205 mm                                       |                 |             | KL050205IS       | 462  |
| VDE Electrician Heavy-duty side cutter, 200 mm                              |                 |             | KL044200IS       | 462  |
| VDE Wire stripper, 160 mm                                                   |                 |             | KL060160IS       | 463  |
| VDE Slotted screwdriver, 2.5 x 0.4 mm                                       |                 |             | KL1007525IS      | 464  |
| VDE Slotted screwdriver, 3.5 x 0.6 mm                                       |                 |             | KL10010035IS     | 464  |
| VDE Slotted screwdriver, 4.0 x 0.8 mm                                       |                 |             | KL10010040IS     | 464  |
| VDE Slotted screwdriver, 5.5 x 1.0 mm                                       |                 |             | KL10012555IS     | 464  |
| VDE Phillips screwdriver, PH1                                               |                 |             | KL110PH1IS       | 464  |
| VDE Phillips screwdriver, PH2                                               |                 |             | KL110PH2IS       | 464  |
| VDE Pozidriv screwdriver, PZ1                                               |                 |             | KL120PZ1IS       | 465  |
| VDE Pozidriv screwdriver, PZ2                                               |                 |             | KL120PZ2IS       | 465  |
| Voltage tester with heavy duty handle, single-pole,<br>VDE 0680 150V - 250V |                 |             | KL19073IS        | 466  |
| VDE Plus/Minus screwdriver, Z1                                              |                 |             | KL130PM1IS       | 465  |
| VDE Plus/Minus screwdriver, Z2                                              |                 |             | KL130PM2IS       | 465  |
| VDE Cable cutter, 210 mm                                                    |                 |             | KL010210IS       | 460  |
| Water pump plier, jaw width 50 mm                                           |                 |             | KL070250         | 487  |
| Bit set, 1/4", 73 mm                                                        |                 |             | KL330            | 500  |
| Wire stripper for flexible and solid conductors                             |                 |             | KL760180         | 516  |
| Combination spanner set, 12 pieces                                          |                 |             | KL365            | 500  |
| Socket bit set 1/4", 28 pieces                                              |                 |             | KL361            | 497  |
| Universal cabinet key, subkey Electro                                       |                 |             | KL510            | 503  |
| Universal saw                                                               |                 |             | KL550            | 505  |
| Crimping tool with interchangeable dies                                     |                 |             | K507             | 258  |
| Folding rule, 2 m                                                           |                 |             | KL402            | 501  |
| Carpenter's pencil                                                          |                 |             | KL449            | 502  |
| Cable knife, hooked blade                                                   |                 |             | KL745HK          | 521  |
| Round cable stripper 8 - 13mm <sup>2</sup>                                  |                 |             | KL710            | 521  |
| Allen key set, 7 pieces                                                     |                 |             | KL370            | 497  |
| Engineer's hammer, 300 g                                                    |                 |             | KL580300         | 504  |
| Safety glasses uvex i-vo in microfibre bag                                  |                 |             | KL604            | 507  |
| Marking pen                                                                 |                 |             | KL440F           | 502  |
| GT-85NE Bipolar voltage tester with LCD display                             |                 |             | 52049407         | 619  |
| Kwik Stepper™ step bit with ROTASTOP® shaft ISO 12 - 40 mm                  |                 |             | 50069888         | 579  |
| NETcat® Micro NC-100 + 200EP                                                |                 |             | NC100EP          | 657  |
| CSJ-100 Jaw meter, open                                                     |                 |             | 52020887         | 644  |
| NETcat® Micro NC-100                                                        |                 |             | 52024541         | 657  |
| TC-20 Nylon carrying case with carrying strap for measuring instruments     |                 |             | 50075357         | 633  |



## Engineers professional case, 15-pieces

► Engineers basic equipment, mainly with VDE tools

### Characteristics

- Technicians Notebook tool bag
- Material: hard-wearing nylon
- 90° folding-out front pocket
- High-quality zipper
- Spray-water protected floor
- Each side pocket has a zipper
- Adjustable carrying belt with quick-release fastener and shoulder pad
- Twin fixed carrying handle
- Compartment for business cards



| Part No.                                                                 |              |      |
|--------------------------------------------------------------------------|--------------|------|
| Scope of supply                                                          | Part No.     | Page |
| Technicians bag, empty                                                   | KL905L       | 512  |
| VDE Phillips screwdriver, PH1                                            | KL110PH1IS   | 464  |
| VDE Phillips screwdriver, PH2                                            | KL110PH2IS   | 464  |
| VDE Slotted screwdriver, 2.5 x 0.4 mm                                    | KL1007525IS  | 464  |
| VDE Slotted screwdriver, 4.0 x 0.8 mm                                    | KL10010040IS | 464  |
| VDE Slotted screwdriver, 5.5 x 1.0 mm                                    | KL10012555IS | 464  |
| Voltage tester with heavy duty handle, single-pole, VDE 0680 150V - 250V | KL19073IS    | 466  |
| VDE Plus/Minus screwdriver, Z1                                           | KL130PM1IS   | 465  |
| VDE Plus/Minus screwdriver, Z2                                           | KL130PM2IS   | 465  |
| Cable knife, hooked blade                                                | KL745HK      | 521  |
| VDE Telephone plier, straight, 205 mm                                    | KL050205IS   | 462  |
| VDE Electrician Heavy-duty side cutter, 200 mm                           | KL044200IS   | 462  |
| Round cable stripper 8 - 13mm <sup>2</sup>                               | KL710        | 521  |
| VDE Heavy-duty combination plier, 165 mm                                 | KL020165IS   | 460  |
| Measuring tape, 3 m                                                      | KL403        | 501  |

## Professional roller trolley, empty

### Characteristics

- With 4-section telescopic handle, up to 1050 mm
- Document compartment in lid
- Double aluminum frame
- Large rubber casters
- Case shell from non-breakable X-ABS
- 2 compartments for business cards
- Two straps for writing instruments

| Item                               | Dimension mm | Weight g | Part No.       |
|------------------------------------|--------------|----------|----------------|
| Professional roller trolley, empty | 470x210x355  | 6600     | <b>KL890TL</b> |



## KL 860L Hard-shell case, empty



## Characteristics

- Max. load capacity: 30 kg – Volume 32L
- Robust aluminum frame with abutting edge
- Case shell made of impact resistant ABS material
- Document compartment
- Variable bottom shell with customized sections

| Item                                                | Dimension<br>mm | Weight<br>kg | Part No.      |
|-----------------------------------------------------|-----------------|--------------|---------------|
| KL860L hard – shell case for<br>KL860BM and KL870BL | 495 x 420 x 200 | 6.0          | <b>KL860L</b> |

## KL850L Hard – shell case, empty



## Characteristics

- Max. load capacity: 25 kg – Volume 26L
- Case shell made of impact resistant ABS material
- Robust aluminum frame with abutting edge
- Document compartment
- Variable bottom shell with customized sections

| Item                        | Dimension<br>mm | Weight<br>kg | Part No.      |
|-----------------------------|-----------------|--------------|---------------|
| Hard shell case for KL850BS | 495 x 410 x 175 | 5.7          | <b>KL850L</b> |

## Profi-installer's pocket



## Characteristics

- Robust design with plastic guide rails, metal rods and sponge rubber handle
- Adjustable carrying bag with shoulder pad
- Outside section: 1 large lockable pocket with 2 boxes for small parts, 9 pockets, 2 Velcro strips for spirit levels etc., inside section: 3 compartments, 14 straps

| Dimension<br>mm | Weight<br>g | Part No.      |
|-----------------|-------------|---------------|
| 350 x 200 x 200 | 2600        | <b>KL920L</b> |

## Technicians bag, empty



## Characteristics

- Material: hard-wearing nylon, spray-water protected floor
- 90% folding front bag, lateral bags with zip
- Twin fixed carrying handle
- Adjustable carrying strap with fastener and shoulder rest
- Protected laptop compartment
- Compartment for business cards
- High-quality zipper

| Item                   | Dimension<br>mm | Weight<br>g | Part No.      |
|------------------------|-----------------|-------------|---------------|
| Technicians bag, empty | 330 x 440 x 200 | 2600        | <b>KL905L</b> |

## Tool wallet, Nylon, empty

### Characteristics

- Material: Polytex
- Room for up 11 tools

| Item                      | Dimension<br>mm | Weight<br>g | Part No.      |
|---------------------------|-----------------|-------------|---------------|
| Tool wallet, Nylon, empty | 200x200x50      | 100         | <b>KL910L</b> |



## Insulation easily removed.

### Stripping tools for professional use.

Thousands of conductors are stripped every day. Mostly using professional tools. But also often in a hurry using a sharp blade. A standard action for many craftsmen but with potential serious consequences for electrical connections: Conductors and insulation are damaged or specified stripping lengths are not respected - the connections no longer meet requirements.

The use of professional stripping tools prevents such mistakes. Procedures can be standardised. The quality of connections remains consistent. Klauke stripping tools are designed for professional use and are set apart by their extremely long service life.



*Standardised stripping ...*

- Automatic wire stripping tools.
- For stripping ranges from 0.02 mm<sup>2</sup> to 25 mm<sup>2</sup>.
- Also one-hand operation for larger cross sections.



*.....by simple adjustment of the tools.*

## ■ Ergonomically-designed handle and interchangeable blade cassettes: K 432.



### ► Ergonomically-designed rubber-coated handles.

- Made from fibreglass reinforced special plastic.
- Automatic adjustment of the cable cross-section.
- Interchangeable blade cassettes for flexible and solid conductors, and also for PVC and PTFE insulation.

### Your benefits:

- The ergonomically-designed rubber coated handles guarantee convenient, user-friendly operation.
- The fibreglass reinforced special plastic guarantees maximum durability.
- Highly flexible thanks to interchangeable blade cassettes.



## ■ KL 765 PV: Solar cables easily processed.

- For stripping all standard flexible cables from 1.5 to 6.0 mm<sup>2</sup> in the solar technology sector.
- 5-fold adjustable fine setting.
- With integrated side cutter.

### Your benefits:

- **Just with one tool for processing practically every cable in the solar technology sector.**
- Simple stripping - even with multi-layer insulation.
- Cables up to 3.0 mm dia.



## ■ Stripping V-shapes with KL 760180.



- For flexible and solid conductors from 0.2 mm<sup>2</sup> to 6 mm<sup>2</sup>.
- Adjustable length stop from 5 mm to 12 mm.

### Your benefits:

- **The V-shaped blade enables precise stripping of flexible conductors.**
- The required stripping length can be set precisely - also to individual requirements.
- Type for working under live voltage: KL760180IS.



Automatic stripping tool, 0.02 - 10 mm<sup>2</sup>

## Characteristics

- Self – regulating cutting and stripping tool for standard flexible cables and conductors from 0.02 - 10.0 mm<sup>2</sup> and solid conductors up to 1.5 mm<sup>2</sup>
- Easily replaceable blade system
- Precise adjustability for stripping of thin insulations without damaging the conductor
- Integrated side cutter

| Item                                                          | Stripping range<br>mm <sup>2</sup> | Weight<br>g | Part No.      |
|---------------------------------------------------------------|------------------------------------|-------------|---------------|
| Automatic wire stripping tool K43/2                           | 0.02-10                            | 140         | <b>K432</b>   |
| <b>NEW</b> Automatic wire stripping tool K43/2-90, 90° angled | 0.02-10                            | 140         | <b>K43290</b> |

| Accessories                                                                                                                                             | Part No. | Page |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|
| Interchangeable cassette, black, for wire-stripping tool K432 0.02 - 10 mm <sup>2</sup> flexible conductors and to 1.5 mm <sup>2</sup> solid conductors | K432E    |      |
| Interchangeable cassette, blue, for wire-stripping tool K432 for PTFE insulated conductors 0.1 - 4 mm <sup>2</sup>                                      | K432E2   |      |
| Interchangeable cassette, red, for wire-stripping tool K432 / 4 - 16 mm <sup>2</sup>                                                                    | K432E3   |      |

K 44 Automatic wire stripper, 1 - 25 mm<sup>2</sup>

## Characteristics

- Stripping length up to 22 mm
- With adjustable stop

| Item                                         | Stripping range<br>mm <sup>2</sup> | Weight<br>g | Part No.   |
|----------------------------------------------|------------------------------------|-------------|------------|
| Automatic wire stripper with adjustable stop | 1-25                               | 680         | <b>K44</b> |

Wire stripper, 0.2 – 6 mm<sup>2</sup>

## Characteristics

- For all standard flexible and solid conductors from 0.2 - 6 mm<sup>2</sup>
- Adjustable length stop from 5 – 12 mm
- Integrated easy to reach side cutter up to max. 2 mm dia.

| Item                                            | Dimension<br>mm | Stripping range<br>mm <sup>2</sup> | Weight<br>g | Part No.        |
|-------------------------------------------------|-----------------|------------------------------------|-------------|-----------------|
| Wire stripper for flexible and solid conductors | 180             | 0,2 - 6                            | 130         | <b>KL760180</b> |

## Wire stripper for round and flat cables

### Characteristics

- Fine adjustment (5-way) on various cable types and cable diameters
- Optical length dimension 8-24 mm (5/16 - 1 inch)
- Integrated side cutter up to max. 3 mm dia.

### Suitable for

- Flat cable: baring and stripping 2 core PVC-insulated flat cables from 0.75 - 1.5 mm<sup>2</sup>
- Round cable: baring and stripping flexible cables in the range 0.5 - 16 mm<sup>2</sup> (20-6 AWG), solid conductors 0.5 - 10 mm<sup>2</sup> (20-8 AWG)

| Item                                    | Dimension mm | Stripping range mm <sup>2</sup> | Weight g | Part No.          |
|-----------------------------------------|--------------|---------------------------------|----------|-------------------|
| Wire stripper for round and flat cables | 180          | 0,5 - 16                        | 205      | <b>KL765FR215</b> |



## Automatic wire-stripping tool for round cables used in solar technology

### Characteristics

- Fine adjustment (5-way) on various cable types and cable diameters
- Integrated side cutter up to max. 3 mm dia.
- Optical length dimension 8 - 24 mm (5/16 - 1 inch)

### Suitable for

- Baring and stripping of all standard, flexible cables from 1.5 mm<sup>2</sup> - 6.0 mm<sup>2</sup> (15-9 AWG) used in solar technology

| Item                                                                                             | Dimension mm | Stripping range mm <sup>2</sup> | Weight g | Part No.       |
|--------------------------------------------------------------------------------------------------|--------------|---------------------------------|----------|----------------|
| Automatic wire-stripping tool for round cables used in solar technology, 1.5 - 6 mm <sup>2</sup> | 180          | 1,5 - 6                         | 205      | <b>KL765PV</b> |



## Cables stripped *quickly and easily.*

**Stripping tools for round, moisture-proof and coaxial cables.**

Round, moisture-proof and coaxial cables often get stripped using knives. Certainly a quick way, but is it also an effective one? The insulation of the individual wires can get damaged. The risk of injury is high. And in terms of precision, the cuts are anything but exemplary.

Klauke's special stripping tools eliminate these problems. You can strip a cable in just one action. Very fast. Very simple. And very safe.



*Stripping and splitting in one operation.*

- Stripping tools for round and moisture-proof cables.
- Wire stripper for coaxial cables.
- Up to 40 mm dia.







## ■ *E400: for cables up to 40 mm dia.*

- ▶ **Interchangeable hooks** for diameters from 6 mm to 25 mm and 20 mm to 40 mm.
- ▶ Blade always rebounds to its original position.
- ▶ Also suitable for window cuts.

### **Your benefits:**

- ▶ High flexibility due to a broad range of cable diameters.
- ▶ No damage to cutting blade, highly durable.
- ▶ Time saved, as window cuts for tap conductors can be made quickly and precisely.

## ■ *Stepless for diameters from 4 mm to 28 mm: KL 745 HK.*

- ▶ Stepless adjustment of cutting depth.
- ▶ For all standard round cables from 4 mm to 28 mm diameters.
- ▶ Removable reducing adapter of extremely wear-resistant plastic.
- ▶ With hook blade.

### **Your benefits:**

- ▶ No damage to the inner conductors.
- ▶ One tool **for virtually all standard cables** in building installation and in switch board construction.



## ■ *Short and flush wire stripping: KL 710.*

- ▶ For round and moisture-proof cables from 8 mm to 13 mm diameters.
- ▶ For flush stripping even **in tight areas**.
- ▶ No need to adjust cutting depth.

### **Your benefits:**

- ▶ One tool allows fast, flush stripping of a wide range of cables in ceilings or walls, and also in junction or distribution boxes and switch cabinets.



## K 400 Professional wire stripping tool 4.5 - 40 mm



## Characteristics

- Max. cutting depth of the knife: 4.5 mm
- Max. stripping diameter: 21 mm (small hook)
- Max. stripping diameter: 40 mm (large hook)
- Replaceable stop hooks

| Item                                               | Dimension<br>mm | Weight<br>g | Part No.    |
|----------------------------------------------------|-----------------|-------------|-------------|
| K 400 Professional wire stripping tool 4.5 - 40 mm | 200 x 93 x 33   | 120         | <b>K400</b> |

| Accessories                                            | Part No. | Page |
|--------------------------------------------------------|----------|------|
| K 400E Replacement blade for wire stripping tool K 400 | K400E    |      |

## Electrician's knife, without blade



## Characteristics

- Precise, fast and safe baring of all standard round cables
- Beschädigung der inneren Leiter ist durch stufenlose Einstellung der Schnittiefe ausgeschlossen
- Self-rotating blade for circular and longitudinal cut

| Item                                              | Dimension<br>mm | Weight<br>g | Part No.        |
|---------------------------------------------------|-----------------|-------------|-----------------|
| Electrician's knife, without blade 4 - 16 mm dia. | 4 - 16          | 70          | <b>KL740416</b> |
| Electrician's knife, without blade 8 - 28 mm dia. | 8 - 28          | 70          | <b>KL740828</b> |

| Accessories                                                 | Part No. | Page |
|-------------------------------------------------------------|----------|------|
| Replacement blade for electrician's knife with hooked blade | KL749ES  |      |

## Electrician's knife with straight blade



## Characteristics

- Precise, fast and safe stripping of all standard round cables from 4 - 28 mm dia.
- Including protective cover for the blade
- Removable plastic reducing inset made from highly wear resistant plastic (POM)
- Damage of inner conductors is excluded thanks to infinitely adjustable cutting depth
- Self-rotating blade for circular and longitudinal cut

| Item                                    | Dimension<br>mm | Weight<br>g | Part No.       |
|-----------------------------------------|-----------------|-------------|----------------|
| Electrician's knife with straight blade | 4 - 28          | 80          | <b>KL745GK</b> |

| Accessories                                                 | Part No. | Page |
|-------------------------------------------------------------|----------|------|
| Replacement blade for electrician's knife with hooked blade | KL749ES  |      |

## Cable knife, hooked blade

### Characteristics

- Precise, fast and safe stripping of all standard round cables from 4 - 28 mm dia.
- Including protective cover for the blade
- Removable plastic reducing inset made from highly wear resistant plastic (POM)
- Damage of inner conductors is excluded thanks to infinitely adjustable cutting depth
- Self-rotating blade for circular and longitudinal cut



| Item                      | Dimension<br>mm | Weight<br>g | Part No.       |
|---------------------------|-----------------|-------------|----------------|
| Cable knife, hooked blade | 4 - 28          | 80          | <b>KL745HK</b> |

| Accessories                                                 | Part No. | Page |
|-------------------------------------------------------------|----------|------|
| Replacement blade for electrician's knife with hooked blade | KL749ES  |      |

## Round cable stripper 8 - 13mm<sup>2</sup>

### Characteristics

- Simple stripping even in hard-to-reach areas, e.g. ceiling and walls, junction and distribution boxes, switch cabinets etc.
- Strips round and moist room cables from 8 - 13 mm dia.  
(e.g. NYM 3 x 1.5 mm<sup>2</sup> to 5 x 2.5 mm<sup>2</sup>)
- No need to adjust the cutting depth



| Item                                       | Dimension<br>mm | Weight<br>g | Part No.     |
|--------------------------------------------|-----------------|-------------|--------------|
| Round cable stripper 8 - 13mm <sup>2</sup> | 8 - 13          | 43          | <b>KL710</b> |

## Multi stripper

### Characteristics

- Universal stripping tool with the following functions: stripping, round cut, longitudinal cut, cutting



| Item           | Dimension<br>mm | Weight<br>g | Part No.     |
|----------------|-----------------|-------------|--------------|
| Multi stripper | 8 - 13          | 77          | <b>KL730</b> |

## Photovoltaic stripper

### Characteristics

- For all standard PV cables to 8.5 mm
- Replaceable blade system
- Protected blade
- Simple handling
- Fixed stripping from 8.5 mm
- Stripping of photovoltaic cables 2.5 - 6 mm<sup>2</sup>
- Compact design



| Item                  | Dimension<br>mm | Weight<br>g | Part No.       |
|-----------------------|-----------------|-------------|----------------|
| Photovoltaic stripper | 8,5             | 40          | <b>KL735PV</b> |

# **Professional processing of** *coax and twisted-pair cables.*

## **Tools for communication technology.**

Our range offers quality professional tools for preparing coaxial cables and data lines. Procedures can be standardised. The quality of connections or joints is improved, faults are avoided and complaints are eliminated.

The tools come either individually for retrofitting or in complete sets. Everything you need for dressing coaxial cables and data lines is to hand with just one grip.



*Quick and easy cable dressing with Greenlee professional tools.*

- Wire cutters for cross-sections up to 10 mm<sup>2</sup>.
- Stripping tools for two and three-stage stripping.
- Crimping tool for BNC, F and F compression plugs.



## Coax stripper

### Characteristics

- No need to adjust the cutting depth
- Gradual stripping of all standard coaxial cables (e.g. antenna and transmission cables) 4.8 - 7.5 mm outside diameter

### Suitable for

- Flexible cables, e.g. 3 x 0.75 mm², 10 mm² and 16 mm²



| Item          | Part No.     |
|---------------|--------------|
| Coax stripper | <b>KL720</b> |

## Kwik Stripper Coax wire stripper - 2 stage

- ▶ Pre-set for 3 different cable types

### Characteristics

- Removes braiding and insulator to 6.4 mm
- Dresses coaxial cable types RG58, RG59, RG62 and RG6 and many more
- Blade adjustable to cutting depth
- Quick and simple interchangeable blade holder
- Frame takes only 2-stage holders

| Item                                       | Part No.        |
|--------------------------------------------|-----------------|
| Kwik Stripper Coax wire stripper - 2 stage | <b>50455761</b> |

| Accessories            | Part No. | Page |
|------------------------|----------|------|
| Spare holder - 2 stage | 50450409 |      |



## Kwik Stripper Coax wire stripper - 3 stage

- ▶ Pre-set for 3 different cable types

### Characteristics

- Dresses coaxial cable types RG58, RG59, RG62 and RG6 and many more
- Blade adjustable to cutting depth
- Quick and simple interchangeable blade holder
- The frame takes both 2 and 3 stage holders

| Item                                       | Part No.        |
|--------------------------------------------|-----------------|
| Kwik Stripper Coax wire stripper - 3 stage | <b>50455770</b> |

| Accessories            | Part No. | Page |
|------------------------|----------|------|
| Spare holder - 3 stage | 50450395 |      |
| Spare holder - 2 stage | 50450409 |      |



Crimping tool for XFC F-type compression plugs



Characteristics

- Special crimping tool for weather-resistant F-type compression plug
- Ergonomic handles
- Adjustable to all makes of compression plug
- Dual protection with external sleeve and internal O-ring
- Sleeves colour-coded for simple identification
- Simple processing with practically all compression tools
- Less effort than traditional hex-crimping

| Item                                            | Part No. |
|-------------------------------------------------|----------|
| Crimping tool for XFCX F-type compression plugs | 50608073 |

| Accessories                       | Part No. | Page |
|-----------------------------------|----------|------|
| XFC Plug for RG6, 50 piece, black | 50125869 |      |
| XFC Plug for RG6, 50 piece, red   | 50125940 |      |

DN-AW3 wire stripping tool, 2.5 - 11 mm



Characteristics

- For stripping copper and optical fibre cables, such as signal -, telephone-, AV-, control- and data transmission cables
- 9 adjustable cutting depths
- Cable capacity: 2.5 - 11 mm diameter
- Insulation thickness: up to 1 mm
- Interchangeable blade holder
- Includes cassette with spare blade

| Item                                     | Part No. |
|------------------------------------------|----------|
| DN-AW3 wire stripping tool, 2.5 - 11 mm² | DNAW3    |

| Accessories             | Part No. | Page |
|-------------------------|----------|------|
| Spare holder for DN-AW3 | DNAW3M   |      |

## Ratchet crimping tool for telephone lines

### Characteristics

- Integrated cutting and stripping tool for ribbon cable
- The full radius ratchet mechanism permits consistent terminations with each operation
- Straight access guarantees consistent crimp connection
- Ergonomic handle provides user comfort

### Suitable for

- Modular connectors of type RJ10 4P4C, RJ11 6P4C, RJ12 6P6C and RJ45 8P8C



| Item                                      | Part No.        |
|-------------------------------------------|-----------------|
| Ratchet crimping tool for telephone lines | <b>50455753</b> |





” *Punching tools from Greenlee:  
We accept no compromise when  
it comes to function, quality and  
durability.*“

Mohammed Benali,  
Product Management



**Round and special shape punches**
**528**

|                                                |     |
|------------------------------------------------|-----|
| Standard punch systems                         | 530 |
| SLUG-BUSTER® punch systems                     | 532 |
| SLUG-SPLITTER® punch systems (stainless steel) | 533 |
| SPEED PUNCH™ Knockout-System                   | 534 |
| Special shape punches                          | 536 |

**Punching tools and sets**
**544**

|                                              |     |
|----------------------------------------------|-----|
| Speed Nut                                    | 546 |
| Mechanical and hydraulic punching tools      | 546 |
| Slug Buster® punch set                       | 556 |
| Speed Punch™ set                             | 558 |
| SLUG-SPLITTER® punch set                     | 559 |
| Slug Buster® hand hydraulic punch driver set | 560 |

**Hole saws**
**566**

|                          |     |
|--------------------------|-----|
| HSS bi-metal hole saws   | 568 |
| Carbide-tipped hole saws | 572 |

**Bits and step bits**
**576**


## *Die-free after every punch!*

### **Efficient punching with Speed Punch™, Slug Buster® and Slug Splitter®.**

Greenlee punching tools are set apart by technical innovations and high quality. Extremely simple handling and fast operations are a matter of course.

The Speed Punch™, Slug Buster® and standard tools are suitable for punching steel, aluminum and plastic. The Slug Splitter® range is also suitable for stainless steel.



*Fix the die and  
start punching.*



- For holes from 12.5 mm to 143.7 mm.
- For sheet metal up to 3.5 mm thickness.
- Extremely high capacity and long durability.
- For hydraulic and manual operation.

## ■ Efficient punching and splitting: *Slug Buster® and Slug Splitter®.*

- ▶ Patented punching profile **splits the slugs into two halves..**
- ▶ Innovative cutting edge shape reduces effort.

### Benefits:

- ▶ The slugs fall free from the die, saving you time.
- ▶ Increased efficiency due to fast operations for little effort.
- ▶ Prolonged service life.



▶ *More from Page 532.*



## ■ Fits any tool:

*Greenlee tools are compatible.*

- ▶ All **punching tools are compatible** and can be used with drivers from other manufacturers.

### Benefits:

- ▶ The investment framework remains manageable.

## ■ Fast. Faster



- ▶ Up to 3-times faster than conventional punching tools.
- ▶ Compatible with all Greenlee hand-operated and battery powered hydraulic tools.

### Benefits:

- ▶ Saves a lot of time, as there is no need to screw and unscrew the counter nut.
- ▶ In combination with the LS50-L FLEX battery powered hydraulic punch, the best possible solution for speed and performance.

## ■ Our punching tools at a glance:

|                   | Mild steel/<br>Aluminum/<br>Plastic | V2A | Self-centring | Splits the<br>slugs | Manual | Hydraulic | Dimensions<br>in mm | Material<br>thickness |
|-------------------|-------------------------------------|-----|---------------|---------------------|--------|-----------|---------------------|-----------------------|
| Standard          | ✓                                   |     |               |                     | ✓      | ✓         | 12.5 – 143.7        | <=3 mm                |
| Slug Buster®      | ✓                                   |     |               | ✓                   | ✓      | ✓         | 12.5 – 64           | <=3 mm                |
| Slug Splitter®    | ✓                                   | ✓   |               | ✓                   |        | ✓         | 15.2 – 64           | <=3.5 mm              |
| Slug Splitter SC™ | ✓                                   | ✓   | ✓             | ✓                   |        | ✓         | 22.5 – 61.5         | <=3.5 mm              |
| Speed Punch™      | ✓                                   |     |               | ✓                   |        | ✓         | 16 – 63             | <=3.5 mm              |

### Standard punch systems



► Ball bearing draw stud for easy manual operation

#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Manual and hydraulic

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183  
Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

#### Scope of supply

- Complete system consisting of punch, die and draw stud for manual operation

#### Order info

- \*50042181 Draw stud without ball-bearing

| Punch size     |               |        | Max. Material thickness | Complete Unit | Individual parts for manual operation                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Draw studs + accessories for hydraulic units                                      |                                                                                   |            |          |             |
|----------------|---------------|--------|-------------------------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------|----------|-------------|
| True dimension | Standard size |        |                         |               |  |  |  |  |  |  |  | Draw studs |          | Accessories |
|                | mm            | Pg     | ISO                     | mm (St37)     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Part No.   | Punch    | Die         |
| 12.7           | Pg 7          |        | 1.5                     | 50024086      | 50069969                                                                          | 50042351                                                                          | 50042181*                                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |            |          |             |
| 14.3           |               |        | 1.5                     | 50024337      | 50042300                                                                          | 50042297                                                                          | 50042181*                                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |            |          |             |
| 15.2           | Pg 9          |        | 2.0                     | 50211153      | 50213164                                                                          | 50320025                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |            |          |             |
| 15.9           |               |        | 1.5                     | 50024094      | 50042238                                                                          | 50042246                                                                          | 50042181                                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |            |          | 50339672    |
| 16.2           | ISO 16        |        | 2.0                     | 50351923      | 50351931                                                                          | 50351621                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430                                                                          | 51300430   |          | 50339672    |
| 18.6           |               |        | 2.0                     | 50188860      | 50177001                                                                          | 50320033                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430                                                                          | 51300430   |          | 50339672    |
| 19.1           | Pg 13         | ISO 20 | 2.0                     | 50206672      | 50039989                                                                          | 50039997                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430                                                                          | 51300430   |          | 50339672    |
| 20.4           |               |        |                         | 2.0           | 50188879                                                                          | 50176978                                                                          | 50320041                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430   | 51300430 |             |
| 20.6           | Pg 16         |        | 2.0                     | 50206680      | 50042262                                                                          | 50042254                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430                                                                          | 51300430   |          | 50339672    |
| 22.5           |               |        |                         | 3.5           | 50225634                                                                          | 51040060                                                                          | 51147220                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430   | 51300430 |             |
| 23.8           | ISO 25        |        | 2.0                     | 50253417      | 50042386                                                                          | 50042378                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430                                                                          | 51300430   |          | 50339672    |
| 25.4           |               |        |                         | 2.0           | 50206702                                                                          | 50039865                                                                          | 50351648                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430   | 51300430 |             |
| 27.0           | Pg 21         |        | 2.0                     | 50253425      | 50042408                                                                          | 50042424                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430                                                                          | 51300430   |          | 50339672    |
| 28.3           |               |        |                         | 3.5           | 50225642                                                                          | 51040080                                                                          | 51069720                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430   | 51300430 |             |
| 28.3           | Pg 21         |        | 2.0                     | 50369105      | 50368826                                                                          | 50320068                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430                                                                          | 51300430   |          | 50339672    |
| 28.6           |               |        |                         | 2.0           | 50206710                                                                          | 50039903                                                                          | 50039911                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430   | 51300430 |             |
| 30.5           | Pg 32         |        | 1.5                     | 50365061      | 50362828                                                                          | 50362798                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430                                                                          | 51300430   |          | 50339672    |
| 31.8           |               |        |                         | 1.5           | 50206737                                                                          | 50040022                                                                          | 50040030                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 51300430   | 51300430 |             |
| 32.5           | Pg 29         |        | 3.5                     | 50244760      | 50244590                                                                          | 50351680                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721                                                                          | 50318721   |          | 50339672    |
| 33.4           |               |        |                         | 1.5           | 50253441                                                                          | 50065874                                                                          | 50065866                                                                          | 50000420                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721   | 50318721 |             |
| 34.6           | ISO 40        |        | 3.5                     | 50225650      | 50040103                                                                          | 50040111                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721                                                                          | 50318721   |          | 50339672    |
| 34.9           |               |        |                         | 3.5           | 50254278                                                                          | 50047345                                                                          | 50047353                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721   | 50318721 |             |
| 37.0           | Pg 29         |        | 3.5                     | 50188909      | 50183311                                                                          | 50320084                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721                                                                          | 50318721   |          | 50339672    |
| 38.1           |               |        |                         | 3.5           | 50254286                                                                          | 50047361                                                                          | 50070444                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721   | 50318721 |             |
| 40.5           | ISO 40        |        | 3.5                     | 50244779      | 50244620                                                                          | 50351591                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721                                                                          | 50318721   |          | 50339672    |
| 41.3           |               |        |                         | 3.5           | 50253492                                                                          | 50042513                                                                          | 50042505                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721   | 50318721 |             |
| 43.2           |               |        | 3.5                     | 50225669      | 51069740                                                                          | 50040138                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721                                                                          | 50318721   |          | 50339672    |
| 44.5           |               |        |                         | 3.5           | 50253506                                                                          | 50042572                                                                          | 50042564                                                                          | 50040405                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721   | 50318721 |             |
| 47.0           |               |        | 3.5                     | 50188917      | 50176870                                                                          | 50320092                                                                          | 50040421                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721                                                                          | 50318721   |          | 50339672    |
| 47.6           |               |        |                         | 3.5           | 50253514                                                                          | 50042483                                                                          | 50042491                                                                          | 50040421                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721   | 50318721 |             |
| 49.6           |               |        | 3.5                     | 50225677      | 50069780                                                                          | 50040618                                                                          | 50040421                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721                                                                          | 50318721   |          | 50339672    |
| 50.8           |               |        |                         | 3.5           | 50206761                                                                          | 50042327                                                                          | 50351613                                                                          | 50040421                                                                          |                                                                                   |                                                                                   |                                                                                   | 50318721   | 50318721 |             |

| Punch size     |               |        | Max. Material thickness | Complete Unit | Individual parts for manual operation                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Draw studs + accessories for hydraulic units                                      |                                         |                                                                                   |                                                                                   |                                                                                   |
|----------------|---------------|--------|-------------------------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| True dimension | Standard size |        |                         |               |  |  |  |  |  |  | Draw studs                              |                                                                                   |                                                                                   | Accessories                                                                       |
|                |               |        |                         |               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                         |  |  |  |
| mm             | Pg            | ISO    | mm (S137)               | Part No.      | Punch                                                                             | Die                                                                               | Draw stud with ball bearing                                                       | Ball bearing nut                                                                  | Spacer                                                                            | Hand hydraulic 7804E 7904E                                                        | Battery f. powered LS 50 L FLEX LS 60 L | Hydr. pump 50159062 50250973                                                      | Adapter sleeves 19.0 / 28.6                                                       |                                                                                   |
| 54.0           | Pg 42         |        | 3.5                     | 50206788      | 50042459                                                                          | 50361732                                                                          | 50040421                                                                          |                                                                                   |                                                                                   | 50318721                                                                          | 50318721                                |                                                                                   |                                                                                   |                                                                                   |
| 57.2           |               |        | 3.5                     | 50253603      | 50040588                                                                          | 50040596                                                                          | 50040421                                                                          |                                                                                   |                                                                                   | 50318721                                                                          | 50318721                                |                                                                                   |                                                                                   |                                                                                   |
| 60.0           | Pg 48         |        | 3.5                     | 50188925      | 50176900                                                                          | 50320114                                                                          | 50040421                                                                          |                                                                                   |                                                                                   |                                                                                   |                                         |                                                                                   |                                                                                   |                                                                                   |
| 61.5           |               |        | 3.5                     | 50225685      | 50040626                                                                          | 50040634                                                                          | 50040421                                                                          |                                                                                   |                                                                                   |                                                                                   |                                         |                                                                                   |                                                                                   |                                                                                   |
| 63.5           |               | ISO 63 | 3.5                     | 50206796      | 50042343                                                                          | 50042335                                                                          | 50041886                                                                          |                                                                                   |                                                                                   |                                                                                   |                                         |                                                                                   |                                                                                   |                                                                                   |
| 66.7           |               |        | 3.5                     | 50212141      | 50042521                                                                          | 50069977                                                                          | 50041886                                                                          | 50041878                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 69.9           |               |        | 3.5                     | 50253611      | 50042475                                                                          | 50042467                                                                          | 50041886                                                                          | 50041878                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 70.6           |               |        | 3.5                     | 50253832      | 50024450                                                                          | 50024434                                                                          | 50040421                                                                          | 50041878                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 74.0           |               |        | 3.5                     | 50199757      | 50041754                                                                          | 50041770                                                                          | 50041886                                                                          | 50041878                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 76.2           |               |        | 3.5                     | 50253727      | 50042599                                                                          | 50042580                                                                          | 50041886                                                                          | 50041878                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 79.4           |               |        | 3.5                     | 50254030      | 50063634                                                                          | 50063626                                                                          | 50041886                                                                          | 50041878                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 82.0           |               |        | 3.5                     | 50186353      | 50189050                                                                          | 50189069                                                                          | 50041886                                                                          | 50041878                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 89.8           |               |        | 3.5                     | 50199765      | 50041800                                                                          | 50041835                                                                          | 50041886                                                                          | 50041878                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 95.3           |               |        | 3.5                     | 50212168      | 50052659                                                                          | 50052667                                                                          | 50041886                                                                          | 50041787                                                                          |                                                                                   |                                                                                   | 52045040                                | 52045040                                                                          |                                                                                   |                                                                                   |
| 102.7          |               |        | 3.5                     | 50199773      | 50046535                                                                          | 50046527                                                                          | 50046799                                                                          | 50046853                                                                          | 50046861                                                                          |                                                                                   |                                         | 52045040                                                                          | 50031708                                                                          |                                                                                   |
| 115.4          |               |        | 3.5                     | 50199781      | 50046551                                                                          | 50046543                                                                          | 50046799                                                                          | 50046853                                                                          | 50046861                                                                          |                                                                                   |                                         | 52045040                                                                          | 50031708                                                                          |                                                                                   |
| 120.0          |               |        | 3.5                     | 50215191      | 50214896                                                                          | 50214918                                                                          | 50046799                                                                          | 50046853                                                                          | 50046861                                                                          |                                                                                   |                                         | 52045040                                                                          | 50031708                                                                          |                                                                                   |
| 144.1          |               |        | 3.5                     | 50199803      | 50054473                                                                          | 50054481                                                                          | 50046799                                                                          | 50046853                                                                          | 50046861                                                                          |                                                                                   |                                         | 52045040                                                                          | 50031708                                                                          |                                                                                   |

### SLUG-BUSTER® punch systems



- For quick, clean, effortless and burr-free holes
- Split slugs fall free and can be removed easily

#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Manual and hydraulic

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183
- Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

#### Scope of supply

- Complete system consisting of punch, die and draw stud for manual operation

#### Order info

- \*50042181 Draw stud without ball-bearing

| Punch size     |               |        | Max. Material thickness | Complete Unit                                                                     | Individual parts for manual operation                                             |                                                                                   |                                                                                   |                                                                                   | Draw studs + accessories for hydraulic units                                      |                                                                                   |                             |
|----------------|---------------|--------|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------|
|                |               |        |                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Draw studs                                                                        |                                                                                   | Accessories                 |
| True dimension | Standard size |        |                         |  |  |  |  |  |  |  |                             |
|                | mm            | Pg     | ISO                     | mm (St37)                                                                         | Part No.                                                                          | Punch                                                                             | Die                                                                               | Draw stud with ball bearing                                                       | Hand hydraulic 7804E 7904E                                                        | Battery f. powered punch, pump LS 50 L FLEX LS60 L                                | Adapter sleeves 19.0 / 28.6 |
| 12.5           | Pg 7          | ISO 12 | 1.5                     | 50067273                                                                          | 50067281                                                                          | 50067290                                                                          | 50042181*                                                                         |                                                                                   |                                                                                   |                                                                                   |                             |
| 15.2           | Pg 9          |        | 2.0                     | 50319892                                                                          | 50319698                                                                          | 50320025                                                                          | 50000420                                                                          | 51300430                                                                          | 51300430                                                                          | 50339672                                                                          |                             |
| 16.2           |               | ISO 16 | 2.0                     | 50351770                                                                          | 50351630                                                                          | 50351621                                                                          | 50000420                                                                          | 51300430                                                                          | 51300430                                                                          | 50339672                                                                          |                             |
| 18.6           | Pg 11         |        | 2.0                     | 50319906                                                                          | 50319701                                                                          | 50320033                                                                          | 50000420                                                                          | 51300430                                                                          | 51300430                                                                          | 50339672                                                                          |                             |
| 20.4           | Pg 13         | ISO 20 | 2.0                     | 50319914                                                                          | 50319710                                                                          | 50320041                                                                          | 50000420                                                                          | 51300430                                                                          | 51300430                                                                          | 50339672                                                                          |                             |
| 22.5           | Pg 16         |        | 2.0                     | 50319620                                                                          | 50317563                                                                          | 51147220                                                                          | 50000420                                                                          | 51300430                                                                          | 51300430                                                                          | 50339672                                                                          |                             |
| 25.4           |               | ISO 25 | 2.0                     | 50351788                                                                          | 50351656                                                                          | 50351648                                                                          | 50000420                                                                          | 51300430                                                                          | 51300430                                                                          | 50339672                                                                          |                             |
| 28.3           | Pg 21         |        | 3.0                     | 50319639                                                                          | 50317571                                                                          | 50069721                                                                          | 50040405                                                                          | 50318721                                                                          | 52045040                                                                          | 50339672                                                                          |                             |
| 28.3           | Pg 21         |        | 2.0                     | 50319930                                                                          | 50319736                                                                          | 50320068                                                                          | 50000420                                                                          | 51300430                                                                          | 51300430                                                                          | 50339672                                                                          |                             |
| 30.5           |               |        | 2.0                     | 50365088                                                                          | 50362844                                                                          | 50362798                                                                          | 50000420                                                                          | 51300430                                                                          | 51300430                                                                          | 50339672                                                                          |                             |
| 30.5           |               |        | 3.5                     | 50602462                                                                          | 50602373                                                                          | 50362780                                                                          | 50040405                                                                          | 50318721                                                                          | 52045040                                                                          | 50339672                                                                          |                             |
| 32.5           |               | ISO 32 | 3.5                     | 50351796                                                                          | 50351699                                                                          | 50351680                                                                          | 50040405                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 34.6           |               |        | 3.5                     | 50319647                                                                          | 50317580                                                                          | 50040111                                                                          | 50040405                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 37.0           | Pg 29         |        | 3.5                     | 50319957                                                                          | 50319752                                                                          | 50320084                                                                          | 50040405                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 40.5           |               | ISO 40 | 3.5                     | 50351800                                                                          | 50351583                                                                          | 50351591                                                                          | 50040405                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 43.2           |               |        | 3.5                     | 50319655                                                                          | 50317598                                                                          | 50040138                                                                          | 50040405                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 47.0           | Pg 36         |        | 3.5                     | 50319965                                                                          | 50319760                                                                          | 50320092                                                                          | 50040421                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 49.6           |               |        | 3.5                     | 50319663                                                                          | 50317601                                                                          | 50040618                                                                          | 50040421                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 50.8           |               | ISO 50 | 3.5                     | 50351818                                                                          | 50351605                                                                          | 50351613                                                                          | 50040421                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 54.0           | Pg 42         |        | 3.5                     | 50361716                                                                          | 50361724                                                                          | 50361732                                                                          | 50040421                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 60.0           | Pg 48         |        | 3.5                     | 50319981                                                                          | 50319787                                                                          | 50320114                                                                          | 50040421                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 61.5           |               |        | 3.5                     | 50319671                                                                          | 50317610                                                                          | 50040634                                                                          | 50040421                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |
| 64.0           |               | ISO 63 | 3.5                     | 50351826                                                                          | 50351672                                                                          | 50351664                                                                          | 50040421                                                                          | 50318721                                                                          | 52045040                                                                          |                                                                                   |                             |

## SLUG-SPLITTER® punch systems (stainless steel)

- ▶ Heavy-duty dies and stainless steel draw studs for longer life
- ▶ Unique punch profile also splits slugs for easier slug removal

### Suitable for

- Stainless steel (V2A), mild steel (St37), plastic and aluminum up to 3.5 mm thick

### Operation

- Hydraulic

### Predrilling

- Draw stud 11.1 mm dia., pilot drill 12.7 mm dia. 50344102
- Draw stud 19.0 mm dia., pilot drill 20.5 mm dia. 50344030

### Scope of supply

- Heavy duty punch unit including punch and die

### Order info

- \* Slug Splitter SC® - self-centring



| Item                                               | Punch size     |               |        | Max. Material thick-ness | Punch and die | Individual parts                                                                  |                                                                                   | Draw studs                      |
|----------------------------------------------------|----------------|---------------|--------|--------------------------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------|
|                                                    | True dimension | Standard size |        |                          |               |  |  |                                 |
| Item                                               | mm             | Pg            | ISO    | mm (V2A)                 | Part No.      | Punch                                                                             | Die                                                                               | Pump, hand- and battery powered |
| SLUG-SPLITTER® punch set (stainless steel) 15.2 mm | 15.2           | Pg 9          |        | 2.5                      | 50069519      | 50311174                                                                          | 50311263                                                                          | 50294512                        |
| SLUG-SPLITTER® punch set (stainless steel) 16.2 mm | 16.2           |               | ISO 16 | 2.5                      | 50069527      | 50045997                                                                          | 50045989                                                                          | 50294512                        |
| SLUG-SPLITTER® punch set (stainless steel) 18.6 mm | 18.6           | Pg 11         |        | 2.5                      | 50069535      | 50311190                                                                          | 50311280                                                                          | 50294512                        |
| SLUG-SPLITTER® punch set (stainless steel) 20.4 mm | 20.4           | Pg 13         | ISO 20 | 2.5                      | 50069543      | 50311204                                                                          | 50311298                                                                          | 50294512                        |
| SLUG-SPLITTER® punch set (stainless steel) 22.5 mm | 22.5           | Pg 16         |        | 3.5                      | 50069551*     | 50281542*                                                                         | 50281550*                                                                         | 50294512                        |
| SLUG-SPLITTER® punch set (stainless steel) 25.4 mm | 25.4           |               | ISO 25 | 3.5                      | 50069560      | 50046020                                                                          | 50046012                                                                          | 50294512                        |
| SLUG-SPLITTER® punch set (stainless steel) 28.3 mm | 28.3           | Pg 21         |        | 3.5                      | 50069578*     | 50281569*                                                                         | 50281577*                                                                         | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 30.5 mm | 30.5           |               |        | 3.5                      | 50069586      | 50364901                                                                          | 50364898                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 32.5 mm | 32.5           |               | ISO 32 | 3.5                      | 50069594      | 50046055                                                                          | 50046039                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 34.6 mm | 34.6           |               |        | 3.5                      |               | 50281585*                                                                         | 50281593*                                                                         | 59294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 37 mm   | 37.0           | Pg 29         |        | 3.5                      | 50069608      | 50311220                                                                          | 50311352                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 40.5 mm | 40.5           |               | ISO 40 | 3.5                      | 50069616      | 50046080                                                                          | 50046071                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 43.2 mm | 43.2           |               |        | 3.5                      |               | 50281607*                                                                         | 50281615*                                                                         | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 47 mm   | 47.0           | Pg 36         |        | 3.5                      | 50069624      | 50311239                                                                          | 50311310                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 49.6 mm | 49.6           |               |        | 3.5                      |               | 50281623*                                                                         | 50281631                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 50.8 mm | 50.8           |               | ISO 50 | 3.5                      | 50069632      | 50046110                                                                          | 50046098                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 54 mm   | 54.0           | Pg 42         |        | 3.5                      | 50069640      | 50311247                                                                          | 50311328                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 60 mm   | 60.0           | Pg 48         |        | 3.5                      | 50069659      | 50311255                                                                          | 50311336                                                                          | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 61.5 mm | 61.5           |               |        | 3.5                      |               | 50281658*                                                                         | 50281666*                                                                         | 50294520                        |
| SLUG-SPLITTER® punch set (stainless steel) 64 mm   | 64.0           |               | ISO 63 | 3.5                      | 50069667      | 50046144                                                                          | 50046136                                                                          | 50294520                        |

### SPEED PUNCH™ Knockout-System



- "No-thread" design eliminates cross-threading
- Simple operation and great time saving due to speed lock system

#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- hydraulic

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia.  
Draw stud 19 mm dia., pilot drill 20.5 mm dia.

#### Scope of supply

- Complete system consisting of punch and die

#### Order info

- Speed lock and draw stud not included

| Punch size                                          |                  | Max.<br>Material<br>thickness | Punch and die | Individual parts |          | Speed lock     | Draw stud      |
|-----------------------------------------------------|------------------|-------------------------------|---------------|------------------|----------|----------------|----------------|
| True<br>dimension                                   | Standard<br>size |                               |               |                  |          |                |                |
| mm                                                  | ISO/PG           | mm<br>(St37)                  | Part No.      | Punch            | Die      | (not included) | (not included) |
| 16,2                                                | ISO 16           | 3,5                           | 52055431      | 52066021         | 52066022 | 52066002       | 52066001       |
| 20,4                                                | ISO 20           | 3,5                           | 52055432      | 52066023         | 52066024 | 52066002       | 52066001       |
| 22,5                                                | PG 16            | 3,5                           | 52055433      | 52065998         | 52065999 | 52066002       | 52066001       |
| 25,4                                                | ISO 25           | 3,5                           | 52055434      | 52066025         | 52066026 | 52066002       | 52066001       |
| 32,5                                                | ISO 32           | 3,5                           | 52055435      | 52066027         | 52066028 | 52047817       | 52047818       |
| 40,5                                                | ISO 40           | 3,5                           | 52055436      | 52066029         | 52066030 | 52047817       | 52047818       |
| 50,8                                                | ISO 50           | 3,5                           | 52055437      | 52066031         | 52066032 | 52047817       | 52047818       |
| 64,0                                                | ISO 63           | 3,5                           | 52055438      | 52066033         | 52066034 | 52047817       | 52047818       |
| Scope of supply                                     |                  |                               |               |                  | Part No. | Page           |                |
| Speed lock and draw stud for ISO 16/20/25 und PG 16 |                  |                               |               |                  | 52055439 |                |                |
| Speed lock and draw stud for ISO 32/40/50/63        |                  |                               |               |                  | 52055440 |                |                |



## Draw studs with Manual Drivers

### ► High wear resistance

#### Order info

- To increase the service life, we recommend greasing the draw studs with Greenlee installation paste no. 50115472
- Sizes given are diameter x length
- Subject to tolerance deviations

| Item                                             | Part No. |
|--------------------------------------------------|----------|
| Draw studs for manual operation 28.6 mm x 190 mm | 50046799 |
| Draw studs for manual operation 19.0 mm x 140 mm | 50041886 |
| Draw studs for manual operation 19.0 mm x 75 mm  | 50040421 |
| Draw studs for manual operation Ø 19.0 x 55 mm   | 50040405 |
| Draw studs for manual operation Ø 9.5 x 40 mm    | 50000420 |
| Draw studs for manual operation 6.5 mm x 35 mm   | 50042181 |



## Draw studs for Hydraulic Drivers

#### Order info

- To increase the service life, we recommend greasing the draw studs with Greenlee installation paste no. 50115472
- Sizes given are diameter x length
- Subject to tolerance deviations

| Item                                                                | Part No. |
|---------------------------------------------------------------------|----------|
| Draw stud for punch with hydraulic operation 9.5 x 71 mm            | 51300430 |
| Draw stud for hydraulic operation, Speed Punch 9,5 auf 19 mm, 97 mm | 52066001 |
| Draw stud for hydraulic operation 19.0 x 105 mm                     | 50318721 |
| Draw stud for hydraulic operation, Speed Punch 19,0 x 121 mm        | 52047818 |
| Draw stud for hydraulic operation 11.1 mm to 19 mm x 108 mm         | 50294512 |
| Draw stud for hydraulic operation 9.5 mm to 19 mm x 122 mm          | 52042827 |
| Draw stud for hydraulic operation 19.0 x 137 mm                     | 52045040 |
| Draw stud for hydraulic operation 19 x 140 mm                       | 50294520 |
| Adapter 19.0 x 48 mm with internal thread 6.3 mm                    | 50601148 |
| Adapter 19.0 x 48 mm with internal thread 9.5 mm                    | 50339672 |
| Adapter 19.0 x 48 mm with internal thread 12.7 mm                   | 50601679 |
| Adapter 28.6 x 76 mm                                                | 50031708 |



### Rectangular punches



#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.0 mm thick and V2A 1.5 mm thick
- Punching of burr-free, clean and accurate holes

#### Operation

- Manual and hydraulic

#### Predrilling

- 9.7 mm pilot drill 50360183
- 12.7 mm dia. pilot drill 50344102
- 15.9 mm dia. Pilot drill 50344030
- 30.2 mm dia. Pilot drill 50364146

#### Scope of supply

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut

#### Order info

- \* = only for use with hydraulic punch drivers 50159062, 50250973, L S60L and LS50LFLEX
- \*\* = only for use with hydraulic punch drivers 50159062, 50250973 and LS50LFLEX

| Punch<br>A x B | Max. Material<br>thickness |                   | Complete<br>Unit | Individual parts for manual operation                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Mounting<br>hole-dia. | Adapter for<br>hydr. punch<br>driver |
|----------------|----------------------------|-------------------|------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------|--------------------------------------|
|                |                            |                   |                  |  |  |  |  |  |                       |                                      |
| mm             | mm<br>(St37)               | Operating<br>mode | Part No.         | Punch                                                                             | Die                                                                               | Draw studs                                                                        | Ball bearing<br>nut                                                               | Counter nut                                                                       | mm                    | Part No.                             |
| 11.1 x 22.2    | 1.5                        | Hand/Hydr.        | <b>50600257</b>  | 50600265                                                                          | 50600273                                                                          | 50601156                                                                          | 50601202                                                                          | 50052446                                                                          | 9.7                   | 50601148                             |
| 17.0 x 19.0    | 2.0                        | Hand/Hydr.        | <b>50610281</b>  |                                                                                   | 50600303                                                                          | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 12.7                  | 50339672                             |
| 19.1 x 29.0    | 2.0                        | Hand/Hydr.        | <b>50600311</b>  | 50600320                                                                          | 50600338                                                                          | 50601172                                                                          | 50601652                                                                          | 50602586                                                                          | 15.9                  | 50601679                             |
| 19.1 x 33.3    | 2.0                        | Hand/Hydr.        | <b>50600346</b>  | 50600354                                                                          | 50600362                                                                          | 50601172                                                                          | 50601652                                                                          | 50602586                                                                          | 15.9                  | 50601679                             |
| 21.9 x 25.9    | 2.0                        | Hand/Hydr.        | <b>50600370</b>  | 50600389                                                                          | 50600397                                                                          | 50601172                                                                          | 50601652                                                                          | 50602586                                                                          | 15.9                  | 50601679                             |
| 22.0 x 30.0    | 2.0                        | Hand/Hydr.        | <b>50600400</b>  | 50600419                                                                          | 50600427                                                                          | 50601172                                                                          | 50601652                                                                          | 50602586                                                                          | 15.9                  | 50601679                             |
| 22.0 x 42.0    | 2.0                        | Hand/Hydr.        | <b>50600435</b>  | 50600451                                                                          | 50600460                                                                          | 50601172                                                                          | 50601652                                                                          | 50602586                                                                          | 15.9                  | 50601679                             |
| 25.1 x 29.0    | 2.0                        | Hand/Hydr.        | <b>50600478</b>  | 50600486                                                                          | 50600494                                                                          | 50601172                                                                          | 50601652                                                                          | 50602586                                                                          | 15.9                  | 50601679                             |
| 31.8 x 35.1    | 2.0                        | Hand/Hydr.        | <b>50600508</b>  | 50600516                                                                          | 50600524                                                                          | 50601172                                                                          | 50601652                                                                          | 50602586                                                                          | 15.9                  | 50601679                             |
| 29.0 x 71.0    | 3.0                        | Hydr.             | <b>52045296</b>  |                                                                                   |                                                                                   | 52033836                                                                          |                                                                                   | 52033844                                                                          | 28.6                  |                                      |
| 30.0 x 90.0    | 3.0                        | Hydr.             | <b>52045297</b>  |                                                                                   |                                                                                   | 52045298                                                                          |                                                                                   | 52045300                                                                          | 28.6                  |                                      |
| 33.3 x 66.7    | 3.0                        | Hydr.             | <b>50600532</b>  | 50600540                                                                          | 50600559                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 35.0 x 52.0    | 3.0                        | Hydr.             | <b>50600567</b>  | 50600575                                                                          | 50600583                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 35.0 x 65.0    | 3.0                        | Hydr.             | <b>50600591</b>  | 50600605                                                                          | 50600613                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 35.0 x 82.0    | 2.0                        | Hydr.*            | <b>50600621</b>  | 50600630                                                                          | 50600648                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 35.0 x 112.0   | 2.0                        | Hydr.*            | <b>50600656</b>  | 50600664                                                                          | 50600672                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 46.0 x 92.0    | 3.0                        | Hydr.*            | <b>50600680</b>  | 50600699                                                                          | 50600702                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 57.2 x 88.9    | 3.0                        | Hydr.*            | <b>50600710</b>  | 50600729                                                                          | 50600737                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 68.0 x 138.0   | 2.0                        | Hydr.**           | <b>50600745</b>  | 50600753                                                                          | 50600761                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |

**Square punches**
**Suitable for**

- Mild steel (St37), plastic and aluminum up to 3.0 mm thick and V2A 1.5 mm thick
- Punching of burr-free, clean and accurate holes

**Operation**

- Manual and hydraulic

**Predrilling**

- 9.7 mm pilot drill 50360183
- 12.7 mm dia. pilot drill 50344102
- 15.9 mm dia. Pilot drill 50344030
- 30.2 mm dia. Pilot drill 50364146

**Scope of supply**

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut

**Order info**

- \* = only for use with hydraulic punch drivers 50159062, 50250973, LS60L and LS50LFLEX
- \*\* = only for use with hydraulic punch drivers 50159062 and 50250973



| Punch<br>A x B | Max. Material<br>thickness |                   | Complete<br>Unit | Individual parts for manual operation                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Mounting<br>hole-dia. | Adapter for<br>hydr. punch<br>driver |
|----------------|----------------------------|-------------------|------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------|--------------------------------------|
|                |                            |                   |                  |  |  |  |  |  |                       |                                      |
| mm             | mm<br>(St37)               | Operating<br>mode | Part No.         | Punch                                                                             | Die                                                                               | Draw studs                                                                        | Ball bearing<br>nut                                                               | Counter nut                                                                       | mm                    | Part No.                             |
| 12.7 x 12.7    | 1.5                        | Hand/Hydr.        | <b>50600010</b>  | 50600028                                                                          | 50600036                                                                          | 50601156                                                                          | 50601202                                                                          | 50052446                                                                          | 9.5                   | 50601148                             |
| 15.9 x 15.9    | 2.0                        | Hand/Hydr.        | <b>50610045</b>  |                                                                                   |                                                                                   | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 12.7                  | 50339672                             |
| 19.1 x 19.1    | 2.0                        | Hand/Hydr.        | <b>50610076</b>  | 50600087                                                                          | 50600095                                                                          | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 12.7                  | 50339672                             |
| 22.4 x 22.4    | 2.0                        | Hand/Hydr.        | <b>50610106</b>  |                                                                                   |                                                                                   | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 12.7                  | 50339672                             |
| 24.0 x 24.0    | 2.0                        | Hand/Hydr.        | <b>50610137</b>  | 50600141                                                                          | 50600150                                                                          | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 12.7                  | 50339672                             |
| 25.4 x 25.4    | 2.0                        | Hand/Hydr.        | <b>50600168</b>  | 50600176                                                                          | 50600184                                                                          | 50601172                                                                          | 50601652                                                                          | 50602586                                                                          | 15.9                  | 50601679                             |
| 45.0 x 45.0    | 3.0                        | Hydr.             | <b>50115723</b>  | 50767640                                                                          | 50767657                                                                          | 52033836                                                                          |                                                                                   | 52033844                                                                          | 30.2                  |                                      |
| 46.0 x 46.0    | 3.0                        | Hydr.             | <b>50600192</b>  | 50600206                                                                          | 50600214                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 50.8 x 50.8    | 3.0                        | Hydr.             | <b>50601687</b>  | 50601695                                                                          | 50601709                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 68.0 x 68.0    | 3.0                        | Hydr.             | <b>50601717</b>  | 50601725                                                                          | 50601733                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 92.0 x 92.0    | 3.0                        | Hydr.*            | <b>50601741</b>  | 50601750                                                                          | 50601768                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 104.8 x 104.8  | 2.0                        | Hydr.*            | <b>50601776</b>  | 50601784                                                                          | 50601792                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |
| 138.0 x 138.0  | 2.0                        | Hydr.**           | <b>50602349</b>  | 50600230                                                                          | 50600249                                                                          | 50601180                                                                          |                                                                                   | 50602357                                                                          | 30.2                  |                                      |

### Special square punch with flattened corners



#### Suitable for

- Mild steel (St37), plastic and aluminum up to 2.0 mm thick
- Punching of burr-free, clean and accurate holes

#### Operation

- Manual and hydraulic

#### Predrilling

- 12.7 mm dia. pilot drill 50344102

#### Scope of supply

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut

| Punch<br>A x B | Max.<br>Material<br>thickness |                   | Complete<br>Unit | Individual parts for manual operation                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Mounting<br>hole-dia. | Adapter for<br>hydr. punch<br>driver |
|----------------|-------------------------------|-------------------|------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------|--------------------------------------|
|                |                               |                   |                  |  |  |  |  |  |                       |                                      |
| mm             | mm<br>(St37)                  | Operating<br>mode | Part No.         | Punch                                                                             | Die                                                                               | Draw studs                                                                        | Ball bearing<br>nut                                                               | Counter nut                                                                       | mm                    | Part No.                             |
| 22.5 x 20.1    | 2.0                           | Hand/Hydr.        | <b>50611257</b>  | 50611264                                                                          | 50601271                                                                          | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 12.7                  | 50339672                             |

### Round punch with four slots



#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.0 mm thick

#### Operation

- Manual and hydraulic

#### Predrilling

- 15.9 mm dia. pilot drill 50344030

#### Scope of supply

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut

| Punch<br>A x B x C | Max.<br>Material<br>thickness |                   | Complete<br>Unit | Individual parts for manual operation                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     | Mounting<br>hole-dia. | Adapter for<br>hydr. punch<br>driver |
|--------------------|-------------------------------|-------------------|------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|--------------------------------------|
|                    |                               |                   |                  |  |  |  |  |  |                       |                                      |
| mm                 | mm<br>(St37)                  | Operating<br>mode | Part No.         | Punch                                                                               | Die                                                                                 | Draw studs                                                                          | Ball bearing<br>nut                                                                 | Counter nut                                                                         | mm                    | Part No.                             |
| 22.5 x 3.2 x 25.4  | 2.0                           | Hand/Hydr.        | <b>50602381</b>  | 50602390                                                                            | 50602500                                                                            | 50601172                                                                            | 50601652                                                                            | 50602586                                                                            | 15.9                  | 50601679                             |
| 30.5 x 4.8 x 36.0  | 3.0                           | Hand/Hydr.        | <b>50602420</b>  | 50602438                                                                            | 50602497                                                                            | 50601172                                                                            | 50601652                                                                            | 50602586                                                                            | 15.9                  | 50601679                             |

**“D” special shape punch**
**Suitable for**

- Mild steel (St37), plastic and aluminum up to 2.0 mm thick

**Operation**

- Manual and hydraulic

**Predrilling**

- 12.7 mm dia. pilot drill 50344102

**Scope of supply**

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut

**Order info**

- \* 50610809 and 50610830 available only as punch unit



| Punch<br>A x B | Max.<br>Material<br>thickness | Operating<br>mode | Complete<br>Unit<br> | Individual parts for manual operation                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Mounting<br>hole-dia. | Adapter for<br>hydr. punch<br>driver |
|----------------|-------------------------------|-------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------|--------------------------------------|
|                |                               |                   |                                                                                                       |  |  |  |  |  |                       |                                      |
| mm             | mm<br>(St37)                  |                   | Part No.                                                                                              | Punch                                                                             | Die                                                                               | Draw studs                                                                        | Ball bearing<br>nut                                                               | Counter nut                                                                       | mm                    | Part No.                             |
| 12.7 x 11.9    | 2.0                           | Hand/Hydr.        | <b>50600770</b>                                                                                       | 50600788                                                                          | 51600790                                                                          | 50601156                                                                          | 50601202                                                                          | 50052446                                                                          | 9.5                   | 50601148                             |
| 15.9 x 15.1    | 2.0                           | Hand/Hydr.        | <b>50610809*</b>                                                                                      |                                                                                   |                                                                                   | 50344218                                                                          | 50347330                                                                          | 50046381                                                                          | 12.7                  | 50339672                             |
| 19.1 x 17.9    | 2.0                           | Hand/Hydr.        | <b>50610830*</b>                                                                                      |                                                                                   |                                                                                   | 50344218                                                                          | 50347330                                                                          | 50046381                                                                          | 12.7                  | 50339672                             |

**Double-“D” special shape punch**
**Suitable for**

- Mild steel (St37), plastic and aluminum up to 2.0 mm thick

**Operation**

- Manual and hydraulic

**Predrilling**

- 15.9 mm dia. pilot drill 50344030

**Scope of supply**

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut

**Order info**

- All punches available only as punch unit



| Punch<br>A x B | Max.<br>Material<br>thickness | Operating mode | Complete<br>Unit<br> | Individual parts for manual operation                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     | Mounting<br>hole-dia. | Adapter for<br>hydr. punch<br>driver |
|----------------|-------------------------------|----------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|--------------------------------------|
|                |                               |                |                                                                                                         |  |  |  |  |  |                       |                                      |
| mm             | mm<br>(St37)                  |                | Part No.                                                                                                | Punch                                                                               | Die                                                                                 | Draw studs                                                                          | Ball bearing<br>nut                                                                 | Counter nut                                                                         | mm                    | Part No.                             |
| 19.5 x 16.3    | 2.0                           | Hand/Hydr.     | <b>50610861</b>                                                                                         |                                                                                     |                                                                                     | 52020113                                                                            | 50347330                                                                            | 50046381                                                                            | 12.7                  | 50339672                             |
| 20.2 x 17.6    | 2.0                           | Hand/Hydr.     | <b>50610892</b>                                                                                         |                                                                                     |                                                                                     | 52020113                                                                            | 50347330                                                                            | 50046381                                                                            | 12.7                  | 50339672                             |
| 23.2 x 19.2    | 2.0                           | Hand/Hydr.     | <b>50610922</b>                                                                                         |                                                                                     |                                                                                     | 52020113                                                                            | 50347330                                                                            | 50046381                                                                            | 12.7                  | 50339672                             |
| 23.2 x 20.2    | 2.0                           | Hand/Hydr.     | <b>50610953</b>                                                                                         |                                                                                     |                                                                                     | 52020113                                                                            | 50347330                                                                            | 50046381                                                                            | 12.7                  | 50339672                             |
| 34.9 x 28.6    | 2.0                           | Hand/Hydr.     | <b>50600982</b>                                                                                         |                                                                                     |                                                                                     | 50601660                                                                            | 50601652                                                                            | 50602586                                                                            | 23.8                  | 50601679                             |

### Keyway punch



#### Suitable for

- Mild steel (St37), plastic and aluminum up to 2.0 mm thick

#### Operation

- Manual and hydraulic

#### Predrilling

- 23.8 mm dia. pilot drill 50300083

#### Scope of supply

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut

| Punch<br>A x B x C | Max.<br>Material<br>thickness |                   | Complete<br>Unit | Individual parts for manual operation |          |            |                     |             | Mounting<br>hole-dia. | Adapter for<br>hydr. punch<br>driver |
|--------------------|-------------------------------|-------------------|------------------|---------------------------------------|----------|------------|---------------------|-------------|-----------------------|--------------------------------------|
|                    |                               |                   |                  |                                       |          |            |                     |             |                       |                                      |
| mm                 | mm<br>(St37)                  | Operating<br>mode | Part No.         | Punch                                 | Die      | Draw studs | Ball bearing<br>nut | Counter nut | mm                    | Part No.                             |
| 12.2 x 1.4 x 0.8   | 1.5                           | Hand/Hydr.        | <b>50601016</b>  | 51601020                              | 51601030 | 50601156   | 50601202            | 50052446    | 9.5                   | 50601148                             |
| 29.7 x 3.1 x 2.5   | 2.0                           | Hand/Hydr.        | <b>50601040</b>  | 51601050                              | 51601060 | 50601660   | 50601652            | 50602586    | 23.8                  | 50601679                             |
| 32.1 x 4.0 x 2.5   | 2.0                           | Hand/Hydr.        | <b>50601075</b>  | 51601080                              | 51601090 | 50601660   | 50601652            | 50602586    | 23.8                  | 50601679                             |
| 33.7 x 2.6 x 2.5   | 2.0                           | Hand/Hydr.        | <b>50601105</b>  | 51601110                              | 50601121 | 50601660   | 50601652            | 50602586    | 23.8                  | 50601679                             |

### Cylinder lock punch



#### Suitable for

- Mild steel (St37) up to 1.5 mm thick and aluminum 3.5 mm

#### Operation

- Manual and hydraulic

#### Predrilling

- 12.7 mm dia. pilot drill 50344102

#### Scope of supply

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut

| Punch<br>A x B x C | Max.<br>Material<br>thickness |                   | Complete<br>Unit | Individual parts for manual operation |          |            |                     |                |                   | Mounting<br>hole-dia. | Adapter for<br>hydr. punch<br>driver |
|--------------------|-------------------------------|-------------------|------------------|---------------------------------------|----------|------------|---------------------|----------------|-------------------|-----------------------|--------------------------------------|
|                    |                               |                   |                  |                                       |          |            |                     |                |                   |                       |                                      |
| mm                 | mm<br>(St37)                  | Operating<br>mode | Part No.         | Punch                                 | Die      | Draw studs | Ball bearing<br>nut | Counter<br>nut | Spacer<br>bushing | mm                    | Part No.                             |
| 17.0 x 33.3 x 10.5 | 2.0                           | Hand/Hydr.        | <b>50053078</b>  | 50053027                              | 50053035 | 50053043   | 50347330            | 90500113       | 50053051          | 12.7                  | 50339672                             |

**Sub-Min "D" punch**
**Suitable for**

- Mild steel (St37) up to 1.5 mm thick and aluminum 3.5 mm
- Front or rear mounting

**Operation**

- Manual and hydraulic

**Predrilling**

- 12.7 mm dia. pilot drill 50344102

**Scope of supply**

- Complete system consisting of punch, die, draw stud, counter nut and ball-bearing nut



| Standard | Number Pole | Operating mode | Dimension |      |      | Complete Unit                                                                     | Individual parts for manual operation                                             |                                                                                   |                                                                                   | Adapter for hydr. punch driver |
|----------|-------------|----------------|-----------|------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------|
|          |             |                |           |      |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                |
|          |             |                | A mm      | B mm | C mm |  |  |  |  |                                |
|          |             |                |           |      |      | Part No.                                                                          | Punch                                                                             | Ball bearing nut                                                                  | Counter nut                                                                       | Part No.                       |
| 229      | 9           | Hand/Hydr.     | 20.0      | 24.9 | 11.9 | <b>50344366</b>                                                                   | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 50339672                       |
| 231      | 15          | Hand/Hydr.     | 28.6      | 33.3 | 11.9 | <b>50344374</b>                                                                   | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 50339672                       |
| RS232    | 25          | Hand/Hydr.     | 42.0      | 47.1 | 11.9 | <b>50344200</b>                                                                   | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 50339672                       |
| 234      | 37          | Hand/Hydr.     | 58.3      | 63.4 | 11.9 | <b>50344293</b>                                                                   | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 50339672                       |
| 238      | 50          | Hand/Hydr.     | 55.9      | 61.0 | 14.7 | <b>50344447</b>                                                                   | 52020113                                                                          | 50347330                                                                          | 50046381                                                                          | 50339672                       |

### Special shape punches for heavy duty connectors



#### Characteristics

- Rectangular punches for heavy duty connectors feature a drilling jig built into the die, for drilling the 4 locating holes.

#### Suitable for

- Mild steel (St37) up to 3.0 mm thick and aluminum up to 3.5 mm

#### Operation

- Hydraulic

#### Predrilling

- 30.2 mm dia. pilot drill 50364146

#### Scope of supply

- Complete system consisting of punch, die, draw stud and counter nut

|                                                                               | Punch size<br>A x B | Max. Material<br>thickness |                | Complete<br>Unit | Individual parts<br>for manual operation |             | Mounting<br>hole-dia. |
|-------------------------------------------------------------------------------|---------------------|----------------------------|----------------|------------------|------------------------------------------|-------------|-----------------------|
| Item                                                                          | mm                  | mm                         | Operating mode | Part No.         | Punch                                    | Counter nut | mm                    |
| Special shape punch for heavy duty connectors 36 x 52 mm                      | 36.0 x 52.0         | 3.0                        | Hydraulic      | 52033816         | 52033836                                 | 52033844    | 30.2                  |
| Special shape punch for heavy duty connectors 36 x 65 mm                      | 36.0 x 65.0         | 3.0                        | Hydraulic      | 52033817         | 52033836                                 | 52033844    | 30.2                  |
| Special shape punch for heavy duty connectors 36 x 86 mm                      | 36.0 x 86.0         | 3.0                        | Hydraulic      | 52033818         | 52033836                                 | 52033844    | 30.2                  |
| Special shape punch for heavy duty connectors 36 x 91 mm                      | 36.0 x 91.0         | 3.0                        | Hydraulic      | 52033819         | 52033836                                 | 52033844    | 30.2                  |
| Special shape punch for heavy duty connectors 36 x 112 mm                     | 36.0 x 112.0        | 3.0                        | Hydraulic      | 52033820         | 52033836                                 | 52033844    | 30.2                  |
| Special shape punch for heavy duty connectors 46 x 86 mm                      | 46.0 x 86.0         | 3.0                        | Hydraulic      | 52033831         | 52033836                                 | 52033844    | 30.2                  |
| Special shape punch for heavy duty connectors 46 x 112 mm                     | 46.0 x 112.0        | 3.0                        | Hydraulic      | 52033832         | 52033836                                 | 52033844    | 30.2                  |
| Special shaped punch HAN Yellock® 30 with 4 centre mark points 47.2 x 56.4 mm | 47.2 x 56.4         | 3.0 / 3.0 VA               | Hydraulic      | 52058591**       | 52033836                                 | 52033844    | 30.2                  |
| Special shaped punch HAN Yellock® 30 with 4 centre mark points 47.2 x 56.4 mm | 47.2 x 85.5         | 3.0 / 3.0 VA               | Hydraulic      | 52058592**       | 52033836                                 | 52033844    | 30.2                  |



**Draw studs for shaped punch**
**Order info**

- To increase the service life, we recommend greasing the draw studs with Greenlee installation paste no. 50115472
- Sizes given in diameter x length
- Subject to tolerance deviations

| Item                                    | Part No. |
|-----------------------------------------|----------|
| Draw stud for shape punch 19 x 117 mm   | 50601180 |
| Draw stud for shape punch 12.7 x 117 mm | 50601660 |
| Draw stud for shape punch 12.7 x 117 mm | 50601172 |
| Draw stud for shape punch 9.5 x 135 mm  | 50053043 |
| Draw stud for shape punch 9.5 x 93 mm   | 50601130 |
| Draw stud for shape punch 9.5 x 95 mm   | 51601160 |
| Draw stud for shaped punch 9.5 x 88 mm  | 52020113 |
| Draw stud for shape punch 6.3 x 87 mm   | 50601156 |



## ***Force for punched holes to 143.7 mm.***

### **Hydraulic punches for manual and battery powered operation.**

No matter whether hand, foot or battery powered, all hydraulic punches serve just one purpose: punching holes. Yet, contrary to popular belief, personal preferences have very little to do with choosing a punch. The punches are suitable for various applications or for holes up to certain sizes.

In addition, each punch has its own particular features that come into their own depending on the application.



- Hydraulic punches for hand operation with straight head.
- Hydraulic punches for hand operation with angled and rotating head.
- Hydraulic punches for foot operation.
- Hydraulic punches for battery and mains operation.



*Greenlee punching tools permit punching operations in various shapes and sizes.*

## ■ Battery powered punch for every angle: LS 50-L FLEX

- ▶ Head rotatable through 360°.
- ▶ Compact design with high punching force of 60 kN and automatic limit switch.

### Benefits:

- ▶ Effortless operations even in difficult areas thanks to ergonomic and lightweight design.
- ▶ Can be used with all Greenlee round and special shaped punches.
- ▶ The integrated control preserves the tools and significantly increases service life, thereby saving you money.



## ■ LS 60-L: Punches 60 mm (PG48) holes in 8 seconds and shuts off automatically.



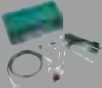
- ▶ Punches 60 mm (PG48) holes in ST37 up to 3 mm in just 8 seconds.
- ▶ **Integrated micro processor control shuts off motor once punching operation is complete.**

### Benefits:

- ▶ Considerably faster punching operations save you time.
- ▶ The integrated control **preserves the tools and significantly increases service life**, thereby saving you money.

▶ More on Page 549.

## ■ Features of hydraulic punches.

|                                                                                                                    | Hand operation | Foot operation | Battery/ mains operation | Max. hole, round | Max. hole, square | Max. punching force | Auto-matic shut-off |
|--------------------------------------------------------------------------------------------------------------------|----------------|----------------|--------------------------|------------------|-------------------|---------------------|---------------------|
| Quick Draw™                     | ✓              |                |                          | 64 mm            | 68 x 68 mm        | 80 kN               |                     |
| Quick Draw™ 90°                 | ✓              |                |                          | 64 mm            | 68 x 68 mm        | 80 kN               |                     |
| LS 50-L FLEX                    |                |                | ✓                        | 143.7 mm         | 104.8 x 104,8 mm  | 60 kN               | ✓                   |
| LS 60-L                         |                |                | ✓                        | 96 mm            | 104.8 x 104,8 mm  | 60 kN               | ✓                   |
| Hydraulic punch with hand pump  | ✓              |                |                          | 143.7 mm         | 138 x 138 mm      | 110 kN              |                     |
| Hydraulic punch with foot pump  |                | ✓              |                          | 143.7 mm         | 138 x 138 mm      | 110 kN              |                     |

### Speed Nut



► Up to 3 x faster then conventional punch draw stud setup

#### Characteristics

- Compatible with all Greenlee hand hydraulic and battery powered punch drivers
- Simple operation and great time-saving due to quick-lock system
- Suitable for all rectangular punches up to 33.3 x 66.7 mm and square punches up to 46.0 x 46.0 mm

| Item                        | Part No.      |      |
|-----------------------------|---------------|------|
| Speed Nut Set               | <b>SLSN34</b> |      |
| Scope of supply             | Part No.      | Page |
| Speed Nut draw stud         | SLSNDS34      | 546  |
| Quick-lock bajonet coupling | SLSNN34       | 546  |

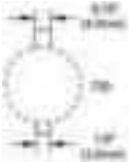
### Keyway punch



► Time-saving punching of slots for anti-twist protected parts

#### Suitable for

- Mild steel (St37) up to 3 mm thick
- Manual operation



| Item         | Part No.        |  |
|--------------|-----------------|--|
| Keyway punch | <b>50265342</b> |  |

| Accessories                  | Art-Nr.  | Seite |
|------------------------------|----------|-------|
| Spare punch for keyway punch | 50265369 | 546   |
| Spare die for keyway punch   | 50265385 | 546   |

## Hydraulic punch driver Quick Draw™ 7804E

- ▶ Perfect for fast, straight on panel punching
- ▶ Develops 8 tons of hydraulic force for easy punching

### Characteristics

- Hand hydraulic punch driver with straight head

### Suitable for

- Special shape punches up to a maximum size of 68 x 68 mm or 35 x 65 mm
- Round punches up to ISO 63 (64 mm dia.)

| Technical data                                           |                   |      |
|----------------------------------------------------------|-------------------|------|
| Dimension                                                | 321 x 110 x 70 mm |      |
| Punching force                                           | 80 kN             |      |
| Weight                                                   | 2.5 kg            |      |
| Item                                                     | Art.-Nr.          |      |
| Quick Draw™ 7804E                                        | <b>50342916</b>   |      |
| Scope of supply                                          | Part No.          | Page |
| Hand hydraulic punch 7804E                               | 50342886          | 547  |
| Draw stud for punch with hydraulic operation 9.5 x 71 mm | 51300430          | 535  |
| Draw stud for hydraulic operation 19.0 x 105 mm          | 50318721          | 535  |
| Spacer bush, short                                       | 50032488          | 547  |
| Adapter 19.0 x 48 mm with internal thread 9,5 mm         | 50339672          | 535  |
| Plastic case                                             | 50352024          | 547  |



## Hydraulic punch driver Quick Draw 90™ 7904E

- ▶ Perfect for fast, straight-on front panel punching
- ▶ Head rotates 180° allows greater versatility in tight spaces

### Characteristics

- Compact design
- Hand hydraulic punch driver with 90° head

### Suitable for

- Special shape punches up to a maximum size of 68 x 68 mm or 35 x 65 mm
- Round punches up to ISO 63 (64 mm dia.)

| Technical data                                           |                   |      |
|----------------------------------------------------------|-------------------|------|
| Dimension                                                | 312 x 110 x 65 mm |      |
| Punching force                                           | 80 kN             |      |
| Weight                                                   | 3.35 kg           |      |
| Item                                                     | Part No.          |      |
| Quick Draw 90™ 7904E                                     | <b>50342991</b>   |      |
| Scope of supply                                          | Part No.          | Page |
| Hand hydraulic punch 7904E                               | 50337866          | 547  |
| Draw stud for punch with hydraulic operation 9.5 x 71 mm | 51300430          | 535  |
| Draw stud for hydraulic operation 19.0 x 105 mm          | 50318721          | 535  |
| Spacer bush, short                                       | 50032488          | 547  |
| Adapter 19.0 x 48 mm with internal thread 9,5 mm         | 50339672          | 535  |
| Plastic case                                             | 50352024          | 547  |



Hand hydraulic driver



► Flexible head allows greater versatility in tight spaces

**Characteristics**

- Unlimited driver orientation

**Suitable for**

- Special shape punches up to a maximum size of 68 x 68 mm or 35 x 65 mm
- Round punches up to ISO 63 (64 mm dia.)

**Order info**

- Knockout punches not included
- Without punch

| Technical data                                            |                   |      |
|-----------------------------------------------------------|-------------------|------|
| Dimension                                                 | 340 x 150 x 85 mm |      |
| Punching force                                            | 80 kN             |      |
| Weight                                                    | 5 kg              |      |
| Revolving/rotatable                                       | 360°              |      |
| Item                                                      | Part No.          |      |
| Hand hydraulic punching set                               | 52033843          |      |
| Scope of supply                                           | Part No.          | Page |
| Draw stud for hydraulic operation 9.5 mm to 19 mm, 122 mm | 52042827          | 535  |
| HSS Co5 step bit                                          | 52049371          | 548  |
| Spacer bush, short                                        | 50032488          | 547  |
| Plastic case                                              |                   |      |

## LS 60-L Battery powered hydraulic punching tool

- ▶ Automatic stop makes the punching tools last longer
- ▶ Lithium-ion technology allows long operating times and short recharging times

### Characteristics

- Battery-Powered punch driver with microprocessor
- Automatic retraction
- Automatic battery charge status recognition

### Suitable for

- Punches up to 104.8 x 104.8 mm St37 2.0 mm
- Punches 92 x 92 mm or 46 x 92 mm, 68 x 68 mm or ISO 63 (64 mm dia.) round in St37 3 mm
- Suitable for 96 mm round - St37 2.5 mm
- Suitable for Slug Splitter up to 64 mm round - 2.5 mm stainless steel

| Technical data        |                                                                                                                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Punching force        | 60 kN                                                                                                                                                                             |
| Weight                | 3.9 kg                                                                                                                                                                            |
| Battery capacity      | 3 Ah (RAL2 / BL1830)                                                                                                                                                              |
| Charging time         | 22 min. (RAL2 / BL1830)                                                                                                                                                           |
| Punching time         | 5 s at 22.5 mm dia., 3 mm mild steel<br>12 s at 61.5 mm dia., 3 mm mild steel                                                                                                     |
| Ambient temperature   | -15 to +40 °C                                                                                                                                                                     |
| Head outside diameter | 73 mm                                                                                                                                                                             |
| Dimensions            | 325 x 285 x 80 mm                                                                                                                                                                 |
| Punching capacity     | 90 punches/battery at 22.5 mm dia. and 3.5 mm mild steel<br>170 punches/battery at 2.5 mm dia. and 3.5 mm mild steel<br>250 punches/battery at 22.5 mm dia. and 2.5 mm mild steel |

| Item                                                     | Part No.     |      |
|----------------------------------------------------------|--------------|------|
| Battery-operated hydraulic punch driver LS 60-L          | <b>LS60L</b> |      |
| Scope of supply                                          | Part No.     | Page |
| Draw stud for punch with hydraulic operation 9.5 x 71 mm | 51300430     | 535  |
| Draw stud for hydraulic operation 19.0 x 105 mm          | 50318721     | 535  |
| Spacer bush, short                                       | 50032488     | 547  |
| Adapter 19.0 x 48 mm with internal thread 9,5 mm         | 50339672     | 535  |
| HSS Co5 step bit                                         | 52049371     | 548  |
| KKLS60LGL Plastic case                                   | KKLS60LGL    | 549  |
| Quick-charger for 18V Li-Ion batteries, 230 V            | LGL1         | 400  |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                    | RAL2         | 316  |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| EU plug                              |          |      |



### LS 50-L Flex Battery powered hydraulic punching tool



- High flexibility using 360° rotating head
- Lithium-ion technology allows long operating times and short recharging times
- Automatic stop makes the punching tools last longer

#### Characteristics

- Battery-powered punch driver with microprocessor
- Automatic retraction
- Automatic battery charge status recognition

#### Suitable for

- Punches up to 104.8 x 104.8 mm St37 2.0 mm
- Punches 92 x 92 mm or 46 x 92 mm, 68 x 68 mm or ISO 63 (64 mm dia.) round in St37 3 mm
- Suitable for 144,1 mm round - St37 2.5 mm
- Suitable for Slug Splitter up to 64 mm round - 2.5 mm stainless steel

#### Order info

- Complete set incl. draw stud, pilot drill and spacer bush, battery and charger in case
- LBOXXLS50LFLEX: identical content, but in Sortimo L-BOXX



LS50LFLEX



LBOXXLS50LFLEX

| Technical data      |                                                                                                                                                                          |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capacity            | 120 punch operations at Ø 22.5 mm, 3.4 mm mild steel resp.<br>190 punch operations at Ø 22.5 mm, 3 mm mild steel<br>280 punch operations at Ø 22.5 mm, 2.5 mm mild steel |
| Punching force      | 60 kN                                                                                                                                                                    |
| Weight              | 2.1 kg                                                                                                                                                                   |
| Battery voltage     | 18 V DC V                                                                                                                                                                |
| Battery capacity    | 3 (RAL2/BL1830) or 1.5 (RAL1/BL1815)                                                                                                                                     |
| Charging time       | 22 min. (RAL2/BL1830) or 15 min. (RAL1/BL1815)                                                                                                                           |
| Punching time       | 5 s at 22.5 mm dia., 3 mm mild steel<br>6 s at 63.5 mm dia., 3 mm mild steel                                                                                             |
| Hydraulic oil       | Rivolta S.B.H. 11                                                                                                                                                        |
| Ambient temperature | -15 to +40 °C                                                                                                                                                            |
| Dimensions          | 340 x 115 x 80 mm                                                                                                                                                        |

| Item                                                     | Part No.  |      |
|----------------------------------------------------------|-----------|------|
| Battery powered hydraulic punch driver LS 50-L FLEX      | LS50LFLEX |      |
| Scope of supply                                          | Part No.  | Page |
| Quick-charger for 18V Li-Ion batteries, 230 V            | LGL1      | 400  |
| Battery 18 V / 3.0 Ah, Li-Ion (54 Wh)                    | RAL2      | 316  |
| Draw stud for hydraulic operation 19.0 x 105 mm          | 50318721  | 535  |
| Spacer bush, short                                       | 50032488  | 547  |
| HSS Co5 step bit                                         | 52049371  | 548  |
| Adapter 19.0 x 48 mm with internal thread 9,5 mm         | 50339672  | 535  |
| Draw stud for punch with hydraulic operation 9.5 x 71 mm | 51300430  | 535  |
| Plastic case                                             | KK50LFLEX |      |

| Accessories                          | Part No. | Page |
|--------------------------------------|----------|------|
| 18 V mains adapter for 240 V Voltage | NG2230   | 399  |
| EU plug                              |          |      |

| Variants                                                       | Part No.        | Page |
|----------------------------------------------------------------|-----------------|------|
| L-BOXX with flexible battery powered hydraulic punch LS50LFLEX | LBOXXLS50L-FLEX | 550  |



## Hydraulic punch driver with hand pump

### ► Compact design

#### Characteristics

- With hand pump, hose and cylinder
- Covers ranges up to 138 x 138 mm

#### Suitable for

- All punches up to 143.7 mm round and 138 x 138 mm square
- Suitable for mild steel up to 3.5 mm St37 and 3.5 mm V2A  
(depending on punch size)

#### Operation

- Hydraulic



| Technical data                                                 |                 |      |
|----------------------------------------------------------------|-----------------|------|
| Punching force                                                 | 110 kN          |      |
| Weight                                                         | 8.3 kg          |      |
| Item                                                           | Part No.        |      |
| Hydraulic punch driver with hand pump, hose and cylinder       | <b>50159062</b> |      |
| Scope of supply                                                | Part No.        | Page |
| Hydraulic cylinder                                             | 50170910        | 551  |
| Draw stud for hydraulic operation 9.5 mm to 19 mm dia., 122 mm | 52042827        | 535  |
| Spacer bush, short                                             | 50032488        | 547  |
| Spacer bush, medium                                            | 51032490        | 551  |
| Spacer bush 38 mm, long                                        | 50069047        | 551  |
| Kwik Stepper™ step bit 12.7 mm                                 | 50344102        | 551  |
| 767 Hydraulic hand pump                                        | 50132849        | 551  |
| Hydraulic hose, 0.9 m                                          | 50063022        | 551  |
| Draw stud for hydraulic operation 19.0 x 137 mm                | 52045040        | 535  |

### Hydraulic punch driver with foot pump



#### Characteristics

- With foot pump, hose and cylinder
- Covers ranges up to 138 x 138 mm

#### Suitable for

- For all punches
- Up to 143.7 mm round and 138 x 138 mm square
- Suitable for mild steel up to 3.5 mm St37 and 3.5 mm V2A (depending on punch size)

#### Operation

- Hydraulic

| Technical data                                                 |                 |      |
|----------------------------------------------------------------|-----------------|------|
| Punching force                                                 | 110 kN          |      |
| Weight                                                         | 15.2 kg         |      |
| Item                                                           | Part No.        |      |
| Hydraulic punch driver with foot pump, hose and cylinder       | <b>50250973</b> |      |
| Scope of supply                                                | Part No.        | Page |
| Hydraulic cylinder                                             | 50170910        | 551  |
| Spacer bush, short                                             | 50032488        | 547  |
| Spacer bush, medium                                            | 51032490        | 551  |
| Spacer bush 38 mm, long                                        | 50069047        | 551  |
| Kwik Stepper™ step bit 12.7 mm                                 | 50344102        | 551  |
| 1725 Hydraulic foot pump                                       | 50313533        | 552  |
| Hydraulic hose                                                 | 50377299        | 552  |
| Draw stud for hydraulic operation 9.5 mm to 19 mm dia., 122 mm | 52042827        | 535  |
| Draw stud for hydraulic operation 19.0 x 137 mm                | 52045040        | 535  |

### Assembly paste

- ▶ Increases the service life
- ▶ Prevents "seizing"
- ▶ Screws and nuts threads resistant to wear



#### Suitable for

- Statically and dynamically high stressed thread connections

| Item                | Part No.        |
|---------------------|-----------------|
| Assembly paste, 30g | <b>50115472</b> |

## Portable C-frame punch driver, 15.2 - 34.6 mm

► Fast, one shot punching - no pre-drilling of pilot holes required

### Order info

- For actuation we recommend hydraulic foot pump 1725, Part No. 50313533, hand pump 767, Part No. 50132849 or electro-hydraulic pump Part No. 50052799
- When using AHP700L the adapter CMGSK is required



| Technical data    |                 |
|-------------------|-----------------|
| Throat            | 200 mm          |
| Weight            | 6.8 kg          |
| Punching capacity | up to 3 mm St37 |
| Punching range    | 15.2 - 34.6 mm  |

| Item                               | Part No.        |
|------------------------------------|-----------------|
| Portable C-frame punch driver 1731 | <b>50159119</b> |

| Scope of supply      | Part No. | Page |
|----------------------|----------|------|
| Punch adapter 9.5 mm | 50132768 | 553  |
| Punch adapter 19 mm  | 50132776 | 553  |
| Punch Pg 16          | 51040060 | 553  |
| Punch Pg 21          | 51040080 | 553  |
| Punch 34.6 mm        | 50040103 | 553  |
| Die Pg 16 (22.5 mm)  | 50120875 | 553  |
| Die Pg 21 (28.3 mm)  | 50120867 | 553  |
| Die 34.6 mm          | 50120859 | 553  |
| Metal case           | 50166344 | 553  |

| Accessories               | Part No. | Page |
|---------------------------|----------|------|
| Punch Pg 9 (15.2 mm)      | 50213164 | 553  |
| Die Pg 9 (15.2mm)         | 50185578 | 553  |
| Punch Pg 11 (18.6 mm)     | 50177001 | 553  |
| Die Pg 11 (18.6 mm)       | 50185586 | 553  |
| Punch Pg 13 (20.4 mm)     | 50176978 | 553  |
| Die Pg 13 (20.4 mm)       | 50185594 | 553  |
| Punch 30.5 mm (oil-tight) | 50362828 | 553  |
| Die 30.5 mm (oil-tight)   | 50371037 | 553  |
| Die ISO 16                | 50766421 | 553  |
| Die ISO 20                | 50766438 | 553  |
| Die ISO 25                | 50766445 | 553  |
| Die ISO 32                | 50766452 | 553  |
| Punch ISO 16              | 50351931 | 553  |
| Punch ISO 25              | 50039865 | 553  |
| Punch ISO 32              | 50244590 | 553  |

### Portable C-frame punch driver, 15.2 - 115.4 mm



#### Suitable for

- For use with standard punches and dies, punching range 15.2 to 115.4 mm

#### Order info

- For actuation we recommend hydraulic hand pump 755, Part No. 50156772 or electro-hydraulic pump 50052799
- When using AHP700L the adapter CMGSK is required

| Technical data    |                   |
|-------------------|-------------------|
| Throat            | 200 mm            |
| Weight            | 27 kg             |
| Punching capacity | up to 3 mm St37   |
| Punching range    | 15.2 bis 115.4 mm |

| Item                               | Part No.        |      |
|------------------------------------|-----------------|------|
| Portable C-frame punch driver 1732 | <b>50273612</b> |      |
| Scope of supply                    | Part No.        | Page |
| Die adapter 9.5 mm                 | 50117912        | 554  |
| Die adapter 19 mm                  | 50117904        | 554  |
| Die adapter 28.6 mm                | 50117890        | 554  |
| Die adapter 9.5 mm                 | 50132660        | 554  |
| Die adapter 19 mm                  | 50132679        | 554  |
| Die adapter 28.6 mm                | 50132687        | 554  |
| Hexagonal nut                      | 90542657        | 554  |
| Metal case                         | 50273353        | 554  |

| Accessories               | Part No. | Page |
|---------------------------|----------|------|
| Punch Pg 9 (15.2 mm)      | 50213164 | 553  |
| Die Pg 9 (15.2mm)         | 50185578 | 553  |
| Punch Pg 11 (18.6 mm)     | 50177001 | 553  |
| Die Pg 11 (18.6 mm)       | 50185586 | 553  |
| Punch Pg 13 (20.4 mm)     | 50176978 | 553  |
| Die Pg 13 (20.4 mm)       | 50185594 | 553  |
| Punch 30.5 mm (oil-tight) | 50362828 | 553  |
| Die 30.5 mm (oil-tight)   | 50371037 | 553  |
| Die ISO 16                | 50766421 | 553  |
| Die ISO 20                | 50766438 | 553  |
| Die ISO 25                | 50766445 | 553  |
| Die ISO 32                | 50766452 | 553  |
| Punch ISO 16              | 50351931 | 553  |
| Punch ISO 25              | 50039865 | 553  |
| Punch ISO 32              | 50244590 | 553  |

## LSK 120 Hydraulic hole punching head - basic tool

- ▶ Fast and precise cutting
- ▶ Punching in just a few seconds
- ▶ Compact design permits working in tight areas

### Suitable for

- For punching aluminum and copper up to 10 mm thick.
- Hole diameters: 6.5 - 17 mm
- Centric punching: 120 mm max. material width
- Drive with EHP 4 and AHP 700-L available

### Order info

- Operation with EHP 4 and AHP 700-L adapter CMGSK required

| Technical data          |                   |
|-------------------------|-------------------|
| Max. operating pressure | max. 700 bar      |
| Max. compressive force  | 160 kN            |
| Dimension               | 234 x 174 x 88 mm |
| Weight                  | approx. 9.5 kg    |

| Item                                 | Part No.        |
|--------------------------------------|-----------------|
| Hydraulic hole punching head LSK 120 | <b>50052110</b> |

| Accessories            | Part No. | Page |
|------------------------|----------|------|
| Punch and die Ø 6.5 mm | 50052276 | 555  |
| Punch and die Ø 8.5 mm | 50052284 | 555  |
| Punch and die Ø 11 mm  | 50052292 | 555  |
| Punch and die Ø 13 mm  | 50052306 | 555  |
| Punch and die Ø 15 mm  | 50052314 | 555  |
| Punch and die Ø 17 mm  | 50052322 | 555  |



### Slug Buster® punch set for all applications from ISO 16 - 40



#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Manual

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183  
Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

| Item                                           | Part No.        |      |
|------------------------------------------------|-----------------|------|
| Slug Buster® punch set ISO 16 - 40             | <b>50366920</b> |      |
| Scope of supply                                | Part No.        | Page |
| Slug Buster® punch set ISO 16/20/25/32/40      | 50356178SET     | 563  |
| Draw studs for manual operation Ø 9.5 x 40 mm  | 50000420        | 534  |
| Draw studs for manual operation Ø 19.0 x 55 mm | 50040405        | 534  |
| Ratchet                                        | 50349414        | 556  |
| Kwik Stepper™ step bit 9.7 mm                  | 50360183        | 556  |
| Plastic case                                   | 50366858        | 556  |

### Slug Buster® punch set for all applications from PG 9 to PG 21 and 30.5 mm



#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Manual

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183  
Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

| Item                                            | Part No.        |      |
|-------------------------------------------------|-----------------|------|
| Slug Buster® punch set PG 9 - PG 21 and 30.5 mm | <b>50366904</b> |      |
| Scope of supply                                 | Part No.        | Page |
| Slug Buster® punch set PG 9 - PG 21, 30.5 mm    | 50323989SET     | 564  |
| Draw studs for manual operation 9.5 x 40 mm     | 50000420        | 534  |
| Ratchet                                         | 50349414        | 556  |
| Kwik Stepper™ step bit 9.7 mm                   | 50360183        | 556  |
| Plastic case                                    | 50366858        | 556  |

## Slug Buster® punch set for ISO 16 - 63

### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

### Operation

- Manual

### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183  
 Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030



| Item                                         | Part No.        |      |
|----------------------------------------------|-----------------|------|
| Slug Buster® punch set ISO 16 - 63           | <b>50366939</b> |      |
| Scope of supply                              | Part No.        | Page |
| Slug Buster® punch set ISO 16 - 63           | 50068920SET     | 563  |
| Draw studs for manual operation 9.5 x 40 mm  | 50000420        | 534  |
| Draw studs for manual operation 19.0 x 55 mm | 50040405        | 534  |
| Ratchet                                      | 50349414        | 556  |
| Kwik Stepper™ step bit 9.7 mm                | 50360183        | 556  |
| Plastic case                                 | 50366858        | 556  |

## Slug Buster® punch set for all applications from PG 9 - 48 and 30.5 mm

### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

### Operation

- Manual

### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183  
 Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030



| Item                                            | Part No.        |      |
|-------------------------------------------------|-----------------|------|
| Slug Buster® punch set PG 9 - PG 48 and 30.5 mm | <b>50366912</b> |      |
| Scope of supply                                 | Part No.        | Page |
| Draw studs for manual operation 9.5 x 40 mm     | 50000420        | 534  |
| Draw studs for manual operation 19.0 x 55 mm    | 50040405        | 534  |
| Ratchet                                         | 50349414        | 556  |
| Slug Buster® punch set PG 9 - PG 48, 30.5 mm    | 50328034SET     | 557  |
| Plastic case                                    | 50366858        | 556  |

### Speed Punch™ set ISO 16 - 40



- ▶ Up to 3x faster than conventional punching tools
- ▶ Quick and easy handling because there is no screwing and unscrewing the lock nut needed
- ▶ Compatible with all Greenlee hydraulic and battery powered punch drivers

#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- hydraulic

#### Predrilling

- Draw studs 9.5 mm, pilot drill 9.7 mm 50360183  
Draw studs 19 mm, pilot drill 20.5 mm 50344030

#### Scope of supply

- Complete system consisting of draw stud, speed lock, punch and die in 5 sizes including plastic case

| Item                                                     | Part No.        |      |
|----------------------------------------------------------|-----------------|------|
| Slug Buster® punch set ISO 16 - 40                       | <b>50366920</b> |      |
| Description                                              | Part No.        | Page |
| Punch & Die ISO 16 (16,2 mm)                             | 52055431        | 534  |
| Punch & Die ISO 20 (20,4 mm)                             | 52055432        | 534  |
| Punch & Die ISO 25 (25,4 mm)                             | 52055434        | 534  |
| Punch & Die ISO 32 (32,5 mm)                             | 52055435        | 534  |
| Punch & Die ISO 40 (40,5 mm)                             | 52055436        | 534  |
| SPEED LOCK & Draw stud 9,5 mm for ISO 16/20/25 and PG 16 | 52055439        | 534  |
| SPEED LOCK & Draw stud 9,5 mm for ISO 32/40/50/63        | 52055440        | 534  |
| Plastic case                                             | KKSPIS016B63    |      |



**Speed Punch™ set ISO 16 - 63**

- ▶ Up to 3x faster than conventional punching tools
- ▶ Quick and easy handling because there is no screwing and unscrewing the lock nut needed
- ▶ Compatible with all Greenlee hydraulic and battery powered punch drivers

**Suitable for**

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

**Operation**

- hydraulic

**Predrilling**

- Draw studs 9,5 mm, pilot drill 9,7 mm 50360183
- Draw studs 19 mm, pilot drill 20,5 mm 50344030

**Scope of supply**

- Complete system consisting of draw stud, speed lock, punch and die in 7 sizes including plastic case



| Item                                                     | Part No.           |      |
|----------------------------------------------------------|--------------------|------|
| Speed Punch™ set ISO 16 – 63                             | <b>52055440SET</b> |      |
| Scope of supply                                          | Part No.           | Page |
| Punch & Die ISO 16 (16,2 mm)                             | 52055431           | 534  |
| Punch & Die ISO 20 (20,4 mm)                             | 52055432           | 534  |
| Punch & Die ISO 25 (25,4 mm)                             | 52055434           | 534  |
| Punch & Die ISO 32 (32,5 mm)                             | 52055435           | 534  |
| Punch & Die ISO 40 (40,5 mm)                             | 52055436           | 534  |
| Punch & Die ISO 50 (50,8 mm)                             | 52055437           | 534  |
| Punch & Die ISO 63 (64,0 mm)                             | 52055438           | 534  |
| SPEED LOCK & Draw stud 9,5 mm for ISO 16/20/25 and PG 16 | 52055439           | 534  |
| SPEED LOCK & Draw stud 9,5 mm for ISO 32/40/50/63        | 52055440           | 534  |
| Plastic case                                             | KKSPI016B63        |      |

**SLUG-SPLITTER® punch set (stainless steel) ISO 16 - 40**

- ▶ Unique punch profile
- ▶ Split slugs fall free and can be removed easily

**Suitable for**

- Stainless steel (V2A), mild steel (St37), plastic and aluminum up to 3.5 mm thick

**Operation**

- Hydraulic

**Predrilling**

- Draw stud 19 mm, pilot drill 20.5 mm dia. 50344030
- Draw stud 11.1 mm, pilot drill 12.7 mm dia. 50344102



| Item                                                            | Part No.        |      |
|-----------------------------------------------------------------|-----------------|------|
| Slug Splitter® punch set (stainless steel) ISO 16/20/25/32/40   | <b>50766803</b> |      |
| Scope of supply                                                 | Part No.        | Page |
| SLUG-SPLITTER® punch set (stainless steel) 16.2 mm              | 50069527        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 20.4 mm              | 50069543        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 25.4 mm              | 50069560        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 32.5 mm              | 50069594        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 40.5 mm              | 50069616        | 533  |
| Draw stud for hydraulic operation 11.1 mm to 19 mm dia., 108 mm | 50294512        | 535  |
| Draw stud for hydraulic operation 19 x 140 mm                   | 50294520        | 535  |
| Plastic case                                                    | KKSSI016B63     |      |

### SLUG-SPLITTER® punch set (stainless steel) ISO 16 - 63



- Unique punch profile
- Split slugs fall free and can be removed easily

#### Suitable for

- Stainless steel (V2A), mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Hydraulic

#### Predrilling

- Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030
- Draw stud 11.1 mm dia., pilot drill 12.7 mm dia. 50344102

| Item                                                                   | Part No.        |      |
|------------------------------------------------------------------------|-----------------|------|
| Slug Splitter® punch set (stainless steel)<br>ISO 16/20/25/32/40/50/63 | <b>50766797</b> |      |
| Scope of supply                                                        | Part No.        | Page |
| SLUG-SPLITTER® punch set (stainless steel) 16.2 mm                     | 50069527        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 20.4 mm                     | 50069543        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 25.4 mm                     | 50069560        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 32.5 mm                     | 50069594        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 40.5 mm                     | 50069616        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 50.8 mm                     | 50069632        | 533  |
| SLUG-SPLITTER® punch set (stainless steel) 64 mm                       | 50069667        | 533  |
| Draw stud for hydraulic operation 11.1 mm to 19 mm dia., 108 mm        | 50294512        | 535  |
| Draw stud for hydraulic operation 19 x 140 mm                          | 50294520        | 535  |
| Plastic case                                                           | KKISO16B63      |      |

### Slug Buster® hand hydraulic punch driver set PG 9 - 21, 30.5 mm



#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Hydraulic

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183
- Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

| Item                                                                  | Part No.           |      |
|-----------------------------------------------------------------------|--------------------|------|
| Slug Buster® hand hydraulic punch driver set PG 9 - PG 21 and 30.5 mm | <b>50356119SET</b> |      |
| Scope of supply                                                       | Part No.           | Page |
| Hand hydraulic punch 7804E                                            | 50342886           | 547  |
| Draw stud for punch with hydraulic operation 9.5 x 71 mm              | 51300430           | 535  |
| Draw stud for hydraulic operation 19.0 x 105 mm                       | 50318721           | 535  |
| Spacer short                                                          | 50032488           | 547  |
| Adapter 19.0 dia. x 48 mm with internal thread 9.5 mm                 | 50339672           | 535  |
| Slug Buster® punch set PG 9 - PG 21, 30.5 mm                          | 50323989SET        | 556  |
| Plastic case                                                          | 50352024           | 547  |

## Slug Buster® hand hydraulic punch driver set 90° PG 9 - 21, 30.5 mm

### Suitable for

- Suitable for mild steel (ST37), plastic and aluminum up to 3.5 mm thick

### Operation

- Hydraulic

### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183  
Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030



| Item                                                                  | Part No.           |      |
|-----------------------------------------------------------------------|--------------------|------|
| Slug Buster® hand hydraulic punch driver set PG 9 - PG 21 and 30.5 mm | <b>50356151SET</b> |      |
| Scope of supply                                                       | Part No.           | Page |
| Hand hydraulic punch 7904E                                            | 50337866           | 547  |
| Draw stud for punch with hydraulic operation 9.5 x 71 mm              | 51300430           | 535  |
| Draw stud for hydraulic operation 19.0 x 105 mm                       | 50318721           | 535  |
| Spacer, short                                                         | 50032488           | 547  |
| Adapter 19.0 dia. x 48 mm with internal thread 9.5 mm                 | 50339672           | 535  |
| Slug Buster® punch set PG 9 - PG 21, 30.5 mm                          | 50323989SET        | 556  |
| Plastic case                                                          | 50352024           | 547  |

## Slug Buster® hand hydraulic punch driver set ISO 16 - 40

### Suitable for

- Suitable for mild steel (ST37), plastic and aluminum up to 3.5 mm thick

### Operation

- Hydraulic

### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183  
Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030



| Item                                                     | Part No.           |      |
|----------------------------------------------------------|--------------------|------|
| Slug Buster® hand hydraulic punch driver set ISO 16 - 40 | <b>50356143SET</b> |      |
| Scope of supply                                          | Part No.           | Page |
| Hand hydraulic punch 7804E                               | 50342886           | 547  |
| Draw stud for punch with hydraulic operation 9.5 x 71 mm | 51300430           | 535  |
| Draw stud for hydraulic operation 19.0 x 105 mm          | 50318721           | 535  |
| Spacer, short                                            | 50032488           | 547  |
| Adapter 19.0 x 48 mm with internal thread 9.5 mm         | 50339672           | 535  |
| Slug Buster® punch set ISO 16/20/25/32/40                | 50356178SET        | 556  |
| Plastic case                                             | 50352024           | 547  |

### Slug Buster® hand hydraulic punch driver set 90° ISO 16 - 40



#### Suitable for

- Suitable for mild steel (ST37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Hydraulic

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183  
Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

| Item                                                     | Part No.           |      |
|----------------------------------------------------------|--------------------|------|
| Slug Buster® hand hydraulic punch driver set ISO 16 - 40 | <b>50356160SET</b> |      |
| Scope of supply                                          | Part No.           | Page |
| Hand hydraulic punch 7904E                               | 50337866           | 547  |
| Draw stud for punch with hydraulic operation 9.5 x 71 mm | 51300430           | 535  |
| Draw stud for hydraulic operation 19.0 x 105 mm          | 50318721           | 535  |
| Spacer, short                                            | 50032488           | 547  |
| Adapter 19.0 x 48 mm with internal thread 9.5 mm         | 50339672           | 535  |
| Slug Buster® punch set ISO 16/20/25/32/40                | 50356178SET        | 556  |
| Plastic case                                             | 50352024           | 547  |

### Hand hydraulic punching set 90° ISO 16 - 40



- Flexible head allows greater versatility in tight spaces

#### Suitable for

- Special shape punches up to a maximum size of 68 x 68 mm or 35 x 65 mm
- Round punches up to ISO 63 (64 mm dia.)

| Item                                                      | Part No.        |      |
|-----------------------------------------------------------|-----------------|------|
| Hand hydraulic punching set ISO 16 - 40                   | <b>52034233</b> |      |
| Scope of supply                                           | Part No.        | Page |
| Slug Buster® punch set ISO 16/20/25/32/40                 | 50356178SET     | 556  |
| Draw stud for hydraulic operation 9.5 mm to 19 mm, 122 mm | 52042827        | 535  |
| Draw stud for hydraulic operation 19.0 x 105 mm           | 50318721        | 535  |
| Spacer, short                                             | 50032488        | 547  |
| HSS Co5 step bit                                          | 52049371        | 548  |
| Plastic case                                              |                 |      |

**Slug Buster® punch set ISO 16 - 40**

- ▶ For quick, clean, effortless and burr-free holes
- ▶ Split slugs fall free and can be removed easily

**Suitable for**

- Mild steel (St37), plastic and aluminum up to 3.0 mm thick

**Operation**

- Manual and hydraulic

**Predrilling**

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183
- Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

**Scope of supply**

- Complete system consisting of punches, dies and plastic case in 5 sizes



| Item                                      | Part No.           |
|-------------------------------------------|--------------------|
| Slug Buster® punch set ISO 16/20/25/32/40 | <b>50356178SET</b> |

| Accessories  | Part No.   | Page |
|--------------|------------|------|
| Plastic case | KKISO16B63 |      |

**Slug Buster® punch set ISO 16 - 63**

- ▶ Long service life
- ▶ Less effort thanks to simple use

**Suitable for**

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

**Operation**

- Manual and hydraulic

**Predrilling**

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183
- Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

**Scope of supply**

- Complete system consisting of punches, dies and plastic case in 7 sizes



| Item                                            | Part No.           |
|-------------------------------------------------|--------------------|
| Slug Buster® punch set ISO 16/20/25/32/40/50/63 | <b>50068920SET</b> |

| Accessories  | Part No.   | Page |
|--------------|------------|------|
| Plastic case | KKISO16B63 |      |

### Slug Buster® punch set PG 9 - 21, 30.5 mm



- Unique punch profile
- Split slugs fall free and can be removed easily

#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Manual and hydraulic

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183
- Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

#### Scope of supply

- Complete system consisting of punches, dies and plastic case in 6 sizes

| Item                                                | Part No.           |
|-----------------------------------------------------|--------------------|
| Slug Buster® punch set PG 9/11/13/16/21 and 30.5 mm | <b>50323989SET</b> |

| Accessories  | Part No. | Page |
|--------------|----------|------|
| Plastic case | KKPG9B48 |      |

### Slug Buster® punch set PG 9 - 48, 30.5 mm



- Unique punch profile
- Split slugs fall free and can be removed easily

#### Suitable for

- Mild steel (St37), plastic and aluminum up to 3.5 mm thick

#### Operation

- Manual and hydraulic

#### Predrilling

- Draw stud 9.5 mm dia., pilot drill 9.7 mm dia. 50360183
- Draw stud 19 mm dia., pilot drill 20.5 mm dia. 50344030

#### Scope of supply

- Complete system consisting of punches, dies and plastic case in 9 sizes

| Item                                                         | Part No.           |
|--------------------------------------------------------------|--------------------|
| Slug Buster® punch set PG 9/11/13/16/21/29/36/48 and 30.5 mm | <b>50328034SET</b> |

| Accessories  | Part No. | Page |
|--------------|----------|------|
| Plastic case | KKPG9B48 |      |



## *Deep cuts, fast change.*

### **Bi-metal and carbide-tipped hole saws and arbors.**

Hole saws are used extensively to cut holes in different materials. These tools differentiate from other brands (manufacturers) by their extremely long service life. Their clever design enables a quick and easy blade change.



Countersink hole saws ensure burr free holes for easy mounting of electrical outlets.

- For nominal dimensions from 14 mm to 152 mm.
- Suitable for a range of materials.



## ■ A strong back plate for precise concentricity.

- ▶ **Solid back plate for increased stability.**
- ▶ For installing wall outlets, halogen lightings etc.

### Benefits:

- ▶ The reinforced back plate gives additional stability, creating more precise holes.
- ▶ Hole saws are multi-purpose tools, and so fewer tools are needed.



## ■ A little more: Cutting depth to 41.3 mm.

- ▶ Cutting depth of 41.3 mm.
- ▶ For metal, aluminum, wood and plastic, stainless steel, cast iron, fibreglass, non-ferrous metal.

### Benefits:

- ▶ These hole saws achieve deeper cuts than tools from other suppliers.
- ▶ You need **just one hole saw for a range of materials.**



## ■ For fast change: *Kwik Change™*.

- ▶ **Bayonet connection for fast** hole saw change.
- ▶ Ejector spring makes removal of slugs easier.

### Benefits:

- ▶ The bayonet connection significantly reduces tooling thus, saving you time.
- ▶ Slugs are mechanically expelled - accelerating drilling operations.



▶ More on  
Page 572.



## ■ The multi-purpose tool: *HKP carbide-tipped hole saw.*

- ▶ Optimised chip clearance.
- ▶ **Suitable for a range of materials.**

### Benefits:

- ▶ Safe and fast operations.
- ▶ One tool for numerous applications.



## HSS bi-metal hole saws



- ▶ Vibration-reduction and high true running accuracy due to thick back section
- ▶ Positive combi-tooth design easily assured, precise cut
- ▶ Cooling slots ensure low heat build-up

### Characteristics

- Positive rake variable pitch design provides faster and easier cutting
- Variable pitch design
- Max. cutting depth 41.3 mm
- Tooth hardness Rc 65-68

### Suitable for

- For mild steel, cast iron, brass, aluminum, fibreglass, wood and plastic

### Order info

- Arbors have to be ordered separately, not included in scope of supply

| Part No. | Item                         | Punch size<br>mm | Standard size |        | Weight<br>g | Recommended cutting speed r.p.m. for |                 |           |                   |          |      |
|----------|------------------------------|------------------|---------------|--------|-------------|--------------------------------------|-----------------|-----------|-------------------|----------|------|
|          |                              |                  | Pg            | ISO    |             | mild steel                           | stainless steel | cast iron | non-ferrous metal | aluminum | wood |
| 50191314 | HSS bi-metal hole saws 14 mm | 14               |               |        | 46          | 580                                  | 300             | 400       | 790               | 900      | 800  |
| 52057722 | HSS bi-metal hole saws 15 mm | 15               |               |        | 46          | 580                                  | 300             | 400       | 790               | 900      | 800  |
| 52057723 | HSS bi-metal hole saws 16 mm | 16               | Pg 9          | ISO 16 | 46          | 550                                  | 275             | 365       | 730               | 825      | 760  |
| 52057724 | HSS bi-metal hole saws 17 mm | 17               |               |        | 46          | 500                                  | 250             | 330       | 665               | 750      | 720  |
| 52057725 | HSS bi-metal hole saws 18 mm | 18               |               |        | 46          | 500                                  | 250             | 330       | 665               | 750      | 720  |
| 52057726 | HSS bi-metal hole saws 19 mm | 19               | Pg 11         |        | 46          | 460                                  | 230             | 300       | 600               | 690      | 680  |
| 52057727 | HSS bi-metal hole saws 20 mm | 20               |               | ISO 20 | 46          | 445                                  | 220             | 290       | 580               | 660      | 640  |
| 52057728 | HSS bi-metal hole saws 21 mm | 21               | Pg 13         |        | 46          | 425                                  | 195             | 280       | 560               | 635      | 580  |
| 52057729 | HSS bi-metal hole saws 22 mm | 22               | Pg 16         |        | 46          | 390                                  | 195             | 260       | 520               | 585      | 560  |
| 52057730 | HSS bi-metal hole saws 23 mm | 23               |               |        | 46          | 380                                  | 190             | 250       | 510               | 570      | 540  |
| 52057731 | HSS bi-metal hole saws 24 mm | 24               |               |        | 46          | 370                                  | 185             | 245       | 494               | 555      | 520  |
| 52057732 | HSS bi-metal hole saws 25 mm | 25               |               | ISO 25 | 46          | 350                                  | 175             | 235       | 470               | 525      | 500  |
| 52057733 | HSS bi-metal hole saws 26 mm | 26               |               |        | 46          | 325                                  | 160             | 215       | 435               | 480      | 500  |
| 52057734 | HSS bi-metal hole saws 27 mm | 27               |               |        | 46          | 300                                  | 150             | 200       | 400               | 450      | 450  |
| 52057735 | HSS bi-metal hole saws 28 mm | 28               |               |        | 46          | 300                                  | 150             | 200       | 400               | 450      | 450  |
| 52057736 | HSS bi-metal hole saws 29 mm | 29               | Pg 21         |        | 91          | 285                                  | 145             | 190       | 380               | 425      | 430  |
| 52057737 | HSS bi-metal hole saws 30 mm | 30               |               |        | 91          | 270                                  | 140             | 180       | 360               | 410      | 410  |
| 52057738 | HSS bi-metal hole saws 32 mm | 32               |               | ISO 32 | 91          | 270                                  | 140             | 180       | 360               | 410      | 410  |
| 52057739 | HSS bi-metal hole saws 33 mm | 33               |               |        | 46          | 250                                  | 125             | 165       | 330               | 375      | 370  |
| 52057740 | HSS bi-metal hole saws 35 mm | 35               |               |        | 46          | 240                                  | 120             | 160       | 315               | 360      | 30   |
| 52057741 | HSS bi-metal hole saws 36 mm | 36               |               |        | 91          | 240                                  | 120             | 160       | 315               | 360      | 30   |
| 52057742 | HSS bi-metal hole saws 37 mm | 37               | Pg 29         |        | 91          | 230                                  | 115             | 150       | 300               | 345      | 330  |
| 52057743 | HSS bi-metal hole saws 38 mm | 38               |               |        | 91          | 220                                  | 110             | 145       | 290               | 330      | 310  |
| 52057744 | HSS bi-metal hole saws 40 mm | 40               |               | ISO 40 | 91          | 210                                  | 110             | 140       | 280               | 315      | 290  |
| 52057745 | HSS bi-metal hole saws 41 mm | 41               |               |        | 91          | 205                                  | 105             | 135       | 270               | 305      | 270  |
| 52057746 | HSS bi-metal hole saws 42 mm | 42               |               |        | 137         | 205                                  | 105             | 135       | 270               | 305      | 270  |
| 52057747 | HSS bi-metal hole saws 43 mm | 43               |               |        | 91          | 195                                  | 100             | 130       | 260               | 295      | 250  |
| 52057748 | HSS bi-metal hole saws 44 mm | 44               |               |        | 91          | 190                                  | 95              | 125       | 250               | 285      | 230  |
| 52057749 | HSS bi-metal hole saws 45 mm | 45               |               |        | 91          | 190                                  | 95              | 125       | 250               | 285      | 230  |
| 52057750 | HSS bi-metal hole saws 46 mm | 46               |               |        | 137         | 180                                  | 90              | 120       | 240               | 270      | 210  |
| 52057751 | HSS bi-metal hole saws 48 mm | 48               | Pg 36         |        | 91          | 180                                  | 90              | 120       | 240               | 270      | 210  |
| 52057752 | HSS bi-metal hole saws 50 mm | 50               |               | ISO 50 | 91          | 170                                  | 85              | 115       | 230               | 255      | 200  |
| 52057753 | HSS bi-metal hole saws 51 mm | 51               |               |        | 137         | 165                                  | 80              | 110       | 220               | 245      | 200  |
| 52057754 | HSS bi-metal hole saws 52 mm | 52               |               |        | 137         | 165                                  | 80              | 110       | 220               | 245      | 200  |
| 52057755 | HSS bi-metal hole saws 53 mm | 53               |               |        | 137         | 160                                  | 80              | 105       | 210               | 240      | 190  |
| 52057756 | HSS bi-metal hole saws 54 mm | 54               | Pg 42         |        | 137         | 160                                  | 80              | 105       | 210               | 240      | 190  |
| 52057757 | HSS bi-metal hole saws 55 mm | 55               |               |        | 137         | 150                                  | 75              | 100       | 200               | 225      | 185  |
| 52057758 | HSS bi-metal hole saws 57 mm | 57               |               |        | 227         | 150                                  | 75              | 100       | 195               | 225      | 185  |
| 52057760 | HSS bi-metal hole saws 59 mm | 59               |               |        | 137         | 140                                  | 70              | 95        | 190               | 220      | 180  |
| 52057761 | HSS bi-metal hole saws 60 mm | 60               | Pg 48         |        | 137         | 135                                  | 70              | 90        | 180               | 205      | 180  |

| Part No. | Item                          | Punch size<br>mm | Standard size |        | Weight<br>g | Recommended cutting speed r.p.m. for |                 |           |                   |          |      |
|----------|-------------------------------|------------------|---------------|--------|-------------|--------------------------------------|-----------------|-----------|-------------------|----------|------|
|          |                               |                  | Pg            | ISO    |             | mild steel                           | stainless steel | cast iron | non-ferrous metal | aluminum | wood |
| 52057762 | HSS bi-metal hole saws 63 mm  | 63               |               | ISO 63 | 182         | 130                                  | 65              | 85        | 175               | 200      | 175  |
| 52057763 | HSS bi-metal hole saws 65 mm  | 65               |               |        | 182         | 130                                  | 65              | 85        | 170               | 195      | 170  |
| 52057764 | HSS bi-metal hole saws 67 mm  | 67               |               |        | 182         | 125                                  | 60              | 80        | 160               | 185      | 165  |
| 52057765 | HSS bi-metal hole saws 68 mm  | 68               |               |        | 182         | 125                                  | 60              | 80        | 160               | 185      | 160  |
| 52057766 | HSS bi-metal hole saws 70 mm  | 70               |               |        | 182         | 120                                  | 55              | 80        | 160               | 180      | 160  |
| 52057767 | HSS bi-metal hole saws 73 mm  | 73               |               |        | 182         | 115                                  | 55              | 75        | 150               | 170      | 150  |
| 52057768 | HSS bi-metal hole saws 74 mm  | 74               |               |        | 182         | 115                                  | 55              | 75        | 150               | 170      | 150  |
| 52057769 | HSS bi-metal hole saws 75 mm  | 75               |               |        | 227         | 115                                  | 55              | 75        | 150               | 170      | 150  |
| 52057770 | HSS bi-metal hole saws 76 mm  | 76               |               |        | 227         | 110                                  | 55              | 70        | 140               | 165      | 145  |
| 52057771 | HSS bi-metal hole saws 80 mm  | 80               |               |        | 227         | 110                                  | 55              | 70        | 140               | 165      | 145  |
| 52057773 | HSS bi-metal hole saws 83 mm  | 83               |               |        | 273         | 105                                  | 50              | 70        | 140               | 155      | 140  |
| 52057774 | HSS bi-metal hole saws 86 mm  | 86               |               |        | 273         | 100                                  | 50              | 65        | 130               | 150      | 135  |
| 52057775 | HSS bi-metal hole saws 89 mm  | 89               |               |        | 273         | 95                                   | 45              | 65        | 130               | 145      | 130  |
| 52057776 | HSS bi-metal hole saws 92 mm  | 92               |               |        | 273         | 95                                   | 45              | 60        | 120               | 130      | 120  |
| 52057777 | HSS bi-metal hole saws 95 mm  | 95               |               |        | 318         | 95                                   | 45              | 60        | 120               | 135      | 110  |
| 52057778 | HSS bi-metal hole saws 98 mm  | 98               |               |        | 318         | 90                                   | 40              | 60        | 120               | 135      | 110  |
| 52057779 | HSS bi-metal hole saws 102 mm | 102              |               |        | 318         | 85                                   | 10              | 55        | 110               | 130      | 100  |
| 50191772 | HSS bi-metal hole saws 105 mm | 105              |               |        | 363         | 80                                   | 40              | 55        | 110               | 120      | 110  |
| 50191780 | HSS bi-metal hole saws 108 mm | 108              |               |        | 363         | 80                                   | 40              | 55        | 110               | 120      | 110  |
| 50191799 | HSS bi-metal hole saws 111 mm | 111              |               |        | 363         | 80                                   | 40              | 50        | 100               | 120      | 110  |
| 50191802 | HSS bi-metal hole saws 114 mm | 114              |               |        | 409         | 75                                   | 40              | 50        | 100               | 105      | 100  |
| 50191810 | HSS bi-metal hole saws 121 mm | 121              |               |        | 499         | 75                                   | 35              | 50        | 95                | 95       | 100  |
| 50191829 | HSS bi-metal hole saws 127 mm | 127              |               |        | 545         | 65                                   | 35              | 45        | 90                | 90       | 100  |
| 50191837 | HSS bi-metal hole saws 140 mm | 140              |               |        | 545         | 60                                   | 35              | 35        | 85                | 85       | 100  |
| 50191845 | HSS bi-metal hole saws 152 mm | 152              |               |        | 636         | 55                                   | 35              | 35        | 75                | 75       | 100  |

## HSS bi-metal hole saw set

► Positive combi-toothing easily assured, precise cut

### Characteristics

- High true running accuracy
- Less effort when cutting

### Suitable for

- Metal, brass, fibreglass, non-ferrous metal, cast iron, aluminum, wood and plastics



| Part No. | Description       | Nominal<br>size<br>mm | Standard size |        | 52059292SET | 52059293SET | 50069497SET | 52059294SET | 50292099SET | 52059295SET | 50125630SET |
|----------|-------------------|-----------------------|---------------|--------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|          |                   |                       | Pg            | ISO    | Electro II  | Universal   | ISO16-63    | Plumbing    | 830PG       | Standard    | Electro     |
| 52057723 | Bi-Metal Hole Saw | 16                    | PG9           | ISO 63 |             | •           | •           |             | •           | •           |             |
| 52057724 | Bi-Metal Hole Saw | 17                    |               |        |             |             |             |             |             |             |             |
| 52057726 | Bi-Metal Hole Saw | 19                    | PG11          |        |             | •           |             | •           | •           | •           |             |
| 52057727 | Bi-Metal Hole Saw | 20                    |               | ISO20  |             |             | •           |             |             |             |             |
| 52057728 | Bi-Metal Hole Saw | 21                    | PG13          |        |             |             |             |             | •           |             |             |
| 52057729 | Bi-Metal Hole Saw | 22                    | PG16          |        | •           | •           |             |             | •           | •           |             |
| 52057731 | Bi-Metal Hole Saw | 24                    |               |        |             |             |             | •           |             |             |             |
| 52057732 | Bi-Metal Hole Saw | 25                    |               | ISO25  |             | •           | •           |             |             |             |             |
| 52057733 | Bi-Metal Hole Saw | 26                    |               |        |             |             |             |             |             |             |             |
| 52057736 | Bi-Metal Hole Saw | 29                    | PG21          |        | •           | •           |             | •           | •           | •           |             |
| 52057737 | Bi-Metal Hole Saw | 30                    |               |        |             |             |             |             | •           |             |             |
| 52057738 | Bi-Metal Hole Saw | 32                    |               | ISO32  |             |             | •           |             |             |             |             |
| 52057739 | Bi-Metal Hole Saw | 33                    |               |        |             |             |             |             |             |             |             |
| 52057740 | Bi-Metal Hole Saw | 35                    |               |        | •           | •           |             |             |             | •           | •           |

## Hole saws

| Part No. | Description                   | Nominal size mm | Standard size |     | 52059292SET<br>Electro II | 52059293SET<br>Universal | 50069497SET<br>ISO16-63 | 52059294SET<br>Plumbing | 50292099SET<br>830PG | 52059295SET<br>Standard | 50125630SET<br>Electro |
|----------|-------------------------------|-----------------|---------------|-----|---------------------------|--------------------------|-------------------------|-------------------------|----------------------|-------------------------|------------------------|
|          |                               |                 | Pg            | ISO |                           |                          |                         |                         |                      |                         |                        |
| 52057742 | Bi-Metal Hole Saw             | 37              | PG29          |     |                           |                          |                         |                         | •                    |                         |                        |
| 52057743 | Bi-Metal Hole Saw             | 38              |               |     |                           | •                        |                         | •                       |                      |                         |                        |
| 52057744 | Bi-Metal Hole Saw             | 40              | ISO40         |     |                           |                          | •                       |                         |                      |                         |                        |
| 52057745 | Bi-Metal Hole Saw             | 41              |               |     |                           |                          |                         |                         |                      |                         |                        |
| 52057748 | Bi-Metal Hole Saw             | 44              |               |     | •                         | •                        |                         | •                       |                      | •                       |                        |
| 52057751 | Bi-Metal Hole Saw             | 48              | PG36          |     |                           |                          |                         |                         | •                    |                         |                        |
| 52057752 | Bi-Metal Hole Saw             | 50              | ISO50         |     |                           |                          | •                       |                         |                      |                         |                        |
| 52057753 | Bi-Metal Hole Saw             | 51              |               |     | •                         | •                        |                         |                         |                      |                         |                        |
| 52057754 | Bi-Metal Hole Saw             | 52              |               |     |                           |                          |                         |                         |                      | •                       |                        |
| 52057758 | Bi-Metal Hole Saw             | 57              |               |     |                           |                          |                         | •                       |                      | •                       |                        |
| 52057761 | Bi-Metal Hole Saw             | 60              | PG48          |     |                           |                          |                         |                         | •                    |                         |                        |
| 52057762 | Bi-Metal Hole Saw             | 63              | ISO63         |     | •                         | •                        | •                       |                         |                      |                         |                        |
| 52057764 | Bi-Metal Hole Saw             | 67              |               |     |                           |                          |                         | •                       |                      | •                       |                        |
| 52057765 | Bi-Metal Hole Saw             | 68              |               |     | •                         |                          |                         |                         |                      |                         | •                      |
| 52057769 | Bi-Metal Hole Saw             | 75              |               |     |                           |                          |                         |                         |                      |                         | •                      |
| 52057770 | Bi-Metal Hole Saw             | 76              |               |     |                           | •                        |                         |                         |                      |                         |                        |
| 52033839 | Countersink for Hole Saw 68mm |                 |               |     |                           |                          |                         |                         |                      |                         | •                      |
| 52057780 | Arbor 14 to 30 mm             |                 |               |     | •                         | •                        | •                       | •                       | •                    | •                       | •                      |
| 52057781 | Arbor 32 to 152 mm            |                 |               |     | •                         | •                        | •                       | •                       | •                    | •                       | •                      |
| 52059258 | Case                          |                 |               |     | •                         | •                        | •                       | •                       | •                    | •                       | •                      |

## Electro set with countersink

### Characteristics

- Sockets can be mounted flush with the wall.
- Countersink with two specially-hardened cutting teeth

### Suitable for

- Steel, non-ferrous metal, aluminum, cast iron, wood, plastic and building materials

### Scope of supply

- Consisting of hole saws 35 mm, 68 mm, 75 mm, countersink for 68 mm hole saw, arbor with pilot drill and counter nut for hole saws 32 - 152 mm and spare HSS pilot drill 6.35 mm dia.



| Item                                     | Part No.           |      |
|------------------------------------------|--------------------|------|
| Electro set with countersink 35/68/75 mm | <b>50125630SET</b> |      |
| Scope of supply                          | Part No.           | Page |
| HSS bi-metal hole saw 35 mm              | 52057740           | 568  |
| HSS bi-metal hole saw 68 mm              | 52057765           | 569  |
| HSS bi-metal hole saw 75 mm              | 52057769           | 569  |
| Countersink for hole saws                | 52033839           | 570  |
| Arbor for HSS bi-metal hole saws 8.6 mm  | 52057781           | 570  |
| Plastic case                             | 52059258           | 570  |

## Arbor for HSS bi-metal hole saws 14 - 30 mm

### Suitable for

- Sizes from 14 mm - 30 mm



| Item          | Part No.        |
|---------------|-----------------|
| Arbor 6.3 mm  | <b>50371576</b> |
| Arbor 7.9 mm  | <b>50385224</b> |
| Arbor 8.6 mm  | <b>52057780</b> |
| Arbor 11.1 mm | <b>50371550</b> |

## Arbor for HSS bi-metal hole saws 32 - 152 mm

### Suitable for

- Sizes from 32 mm - 51 mm
- Sizes from 32 mm - 152 mm

| Item                                                 | Part No.        |
|------------------------------------------------------|-----------------|
| Arbor 7.9 mm for HSS bi-metal hole saws 32 - 51 mm   | <b>50371541</b> |
| Arbor 8.6 mm for HSS bi-metal hole saws 32 - 152 mm  | <b>52057781</b> |
| Arbor 11.1 mm for HSS bi-metal hole saws 32 - 152 mm | <b>50371568</b> |



## SDS arbor for HSS bi-metal hole saws

### Suitable for

- Sizes from 32 mm - 152 mm
- Sizes from 14 mm - 30 mm

| Item                                             | Part No.        |
|--------------------------------------------------|-----------------|
| SDS arbor for HSS bi-metal hole saws 14 - 30 mm  | <b>50069691</b> |
| SDS arbor for HSS bi-metal hole saws 32 - 152 mm | <b>50069292</b> |



## Interchangeable pilot drill arbor for HSS bi-metal hole saws

| Item                                                         | Part No.        |
|--------------------------------------------------------------|-----------------|
| Interchangeable pilot drill arbor for HSS bi-metal hole saws | <b>52057782</b> |



## Kwik Change carbide-tipped hole saw



► Bayonet connection allows quick change of hole saws

### Characteristics

- Ejector spring pushes the metal out of the hole saw
- Triangular arbor 9.5 mm for 50057529
- Triangular arbor 12.7 mm for 50057537

### Suitable for

- Steel, stainless steel, non-ferrous metals, plastics, light building boards and wood to 4.5 mm thick

### Order info

- Arbors are not included in scope of supply, to be ordered separately
- Hole saws 19 - 54 mm - Arbor 50057529
- Hole saws 64 - 76 mm - Arbor 50057537

| Item                                      | True dimension<br>mm | Standard size |        | Part No. |
|-------------------------------------------|----------------------|---------------|--------|----------|
|                                           |                      | Pg            | ISO    |          |
| Kwik Change carbide-tipped hole saw 19 mm | 19                   | Pg 11         |        | 50056930 |
| Kwik Change carbide-tipped hole saw 22 mm | 22.2                 | Pg 16         |        | 50056956 |
| Kwik Change carbide-tipped hole saw 25 mm | 25.4                 |               | ISO 25 | 50056964 |
| Kwik Change carbide-tipped hole saw 29 mm | 28.6                 | Pg 21         |        | 50056972 |
| Kwik Change carbide-tipped hole saw 31 mm | 31                   |               |        | 50056980 |
| Kwik Change carbide-tipped hole saw 32 mm | 31.8                 |               | ISO 32 | 50056999 |
| Kwik Change carbide-tipped hole saw 35 mm | 34.9                 |               |        | 50057006 |
| Kwik Change carbide-tipped hole saw 37 mm | 36.5                 | Pg 29         |        | 50059599 |
| Kwik Change carbide-tipped hole saw 38 mm | 38.1                 |               |        | 50057014 |
| Kwik Change carbide-tipped hole saw 45 mm | 44.4                 |               |        | 50057022 |
| Kwik Change carbide-tipped hole saw 51 mm | 50.8                 |               |        | 50057030 |
| Kwik Change carbide-tipped hole saw 54 mm | 54                   | Pg 42         |        | 50059602 |
| Kwik Change carbide-tipped hole saw 64 mm | 63.5                 |               | ISO 63 | 50057057 |
| Kwik Change carbide-tipped hole saw 76 mm | 76.2                 |               |        | 50057073 |

## Kwik Change carbide-tipped hole saw set

- ▶ Bayonet connection allows quick change of hole saws

### Characteristics

- Arbor 50057529
- Ejector spring pushes the metal out of the hole saw

### Suitable for

- Steel, stainless steel, non-ferrous metals, plastics, light building boards and wood to 4.5 mm thick



| Item                                                                       | Part No.        |
|----------------------------------------------------------------------------|-----------------|
| Kwik Change carbide-tipped hole saw set PG 16, PG 21, 35 mm, 45 mm, ISO 50 | <b>50057669</b> |
| Kwik Change carbide-tipped hole saw set PG 16, PG 21, 35 mm                | <b>50058207</b> |

## Kwik Change arbor

### Suitable for

- Sizes 16 mm - 58 mm; 60 mm - 76 mm

### Order info

- Arbors are not included in scope of supply, to be ordered separately

| Item                         | Part No.        |
|------------------------------|-----------------|
| Kwik Change arbor 16 - 58 mm | <b>50057529</b> |
| Kwik Change arbor 60 - 76 mm | <b>50057537</b> |



## Pilot drill for arbor

| Item                           | Part No.        |
|--------------------------------|-----------------|
| Pilot drill for arbor 50057529 | <b>50057618</b> |
| Pilot drill for arbor 50057537 | <b>50057626</b> |



### HKP carbide-tipped hole saw



- ▶ Easy chip removal with extra wide tooth pitch
- ▶ No clogging or burning of carbide teeth

#### Characteristics

- Groove permits easy removal of the drilling core
- Maximum cutting depth: 60 mm
- Flute covers two third of the total length

#### Suitable for

- Wood, chipboard, coated chipboard, pressboard, PVC, fibreglass, plaster board, porous concrete, claystone and clay tiles

| Item                                                                                                   | Part No. |
|--------------------------------------------------------------------------------------------------------|----------|
| HKP carbide-tipped hole saw 35 mm without arbor                                                        | 52033834 |
| HKP carbide-tipped hole saw 68 mm without arbor                                                        | 52033835 |
| HKP carbide-tipped hole saw 74 mm without arbor                                                        | 52033837 |
| HKP carbide-tipped hole saw set 35, 68 and 74 mm incl. 3-zone arbor, SDS arbor, HSS and HM pilot drill | 52033833 |
| HKP carbide-tipped hole saw set 68 mm incl. 3-zone arbor, HSS and HM pilot drill, countersink          | 52034333 |

| Accessories                                     | Part No. | Page |
|-------------------------------------------------|----------|------|
| 3-zone arbor 70 mm long, shaft diameter 13 mm   | 52034328 | 574  |
| SDS arbor shaft for HKP carbide-tipped hole saw | 52034329 | 574  |

### Carbide-tipped hole saw



- ▶ Carbide-tipped cutting edges for long service life and clean cuts
- ▶ Interchangeable cobalt steel pilot drill with unique tip to prevent long chips

#### Characteristics

- Cuts quick, clean and accurate holes in stainless steel, copper, aluminum and steel
- Flange stop prevents over drilling
- Maximum cutting depth: 10 mm
- Maximum material thickness: 4 mm

| Item                                   | True dimension | Minimum chuck size | Standard size |        | Recommended cutting speed r.p.m. |            | Part No. |
|----------------------------------------|----------------|--------------------|---------------|--------|----------------------------------|------------|----------|
|                                        |                |                    | Pg            | ISO    | Stainless steel                  | mild steel |          |
| Carbide-tipped hole saw 19 mm (Pg 11)  | 19.0           | 6.4                | Pg 11         |        | 550                              | 800        | 50383248 |
| Carbide-tipped hole saw 22.2 mm (PG16) | 22.2           | 6.4                | Pg 16         |        | 475                              | 690        | 50383264 |
| Carbide-tipped hole saw 25.4 mm        | 25.4           | 9.5                |               | ISO 25 | 415                              | 600        | 50383272 |
| Carbide-tipped hole saw 28.6 mm (PG21) | 28.6           | 9.5                | Pg 21         |        | 370                              | 535        | 50383280 |
| Carbide-tipped hole saw 30.5 mm        | 30.5           | 9.5                |               |        | 345                              | 500        | 50383299 |
| Carbide-tipped hole saw 31.7 mm        | 31.7           | 9.5                |               |        | 330                              | 485        | 50383302 |
| Carbide-tipped hole saw 35 mm          | 35.0           | 9.5                |               |        | 300                              | 435        | 50383310 |
| Carbide-tipped hole saw 38.1 mm        | 38.1           | 9.5                |               |        | 275                              | 400        | 50383329 |
| Carbide-tipped hole saw 44.4 mm        | 44.4           | 9.5                |               |        | 235                              | 340        | 50383337 |
| Carbide-tipped hole saw 50.8 mm        | 50.8           | 9.5                |               | ISO 50 | 205                              | 300        | 50383345 |
| Carbide-tipped hole saw 63.5 mm        | 63.5           | 12.7               |               | ISO 63 | 165                              | 240        | 50383361 |



## Pilot drill for carbide-tipped hole saws

### Suitable for

- Wood, aluminum, steel, plastic, fiberglass and stainless steel

| Item                                                                     | Part No. |
|--------------------------------------------------------------------------|----------|
| Interchangeable pilot drill for carbide-tipped hole saws 19 mm - 50.8 mm | 50398725 |
| Interchangeable pilot drill for carbide-tipped hole saws 63.5 mm         | 50383906 |



## Carbide-tipped hole saw set

- ▶ Carbide-tipped cutting edges for long service life and clean cuts
- ▶ Interchangeable cobalt steel pilot drill with unique tip to prevent long chips
- ▶ Cuts quick, clean and accurate holes in stainless steel, copper, aluminum and steel

### Characteristics

- Flange stop prevents over drilling
- Maximum cutting depth: 10 mm
- Maximum material thickness: 4 mm



| Item                                               | Part No. |      |
|----------------------------------------------------|----------|------|
| Carbide-tipped hole saw set PG 16, PG 21 and 35 mm | 50035991 |      |
| Scope of supply                                    | Part No. | Page |
| Carbide-tipped hole saw 22.2 mm (PG16)             | 50383264 | 574  |
| Carbide-tipped hole saw 28.6 mm (PG21)             | 50383280 | 574  |
| Carbide-tipped hole saw 35 mm                      | 50383310 | 574  |
| Pilot drill for carbide-tipped hole saws           | 50398725 | 575  |
| Plastic case                                       |          |      |

## *Step by step burr-free.*

### **Precise step bits milled using the latest CNC technology.**

For burr-free drilling of sheet metal, pipes, non-ferrous metals, stainless steel and plastics.

Step bits are top quality products and manufactured to the latest standards using CNC technology.



- For holes from 3.2 mm to 40 mm.
- Suitable for a wide range of materials.
- With spiral flute and edge breaker.



*Step bits are suitable for a wide range of materials and surfaces.*

## ■ Burr-free thanks to the edge breaker: Kwik Stepper™ step bits.

- For the burr-free drilling and reaming of sheet metal, pipes, non-ferrous metals, stainless steel and plastics.
- Centering, drilling and deburring in one operation.

### Benefits:

- Step bits are multi-purpose tools and can be used for a wide range of materials.



## ■ Spiral flute for more holes with less effort.

- Spiral flute (DBGM) reduces effort and improves cutting performance.

### Benefits:

- Less effort means less wear and tear.
- The holes are more precise and operation is trouble free.

## ■ 90% transmission zone, 0% slippage: ROTASTOP®.

- Tool change in a flash.
- Maximum torque transmission.
- 90% transmission zone on the drills.



### Benefits:

- No more drill slippage, making your work more efficient.
- Faster tool change.
- Improved power transmission.

## ■ Features of bits.

| Step bits | Drilling range<br>mm Ø | Step sizes mm Ø                                                                 | Length<br>mm | Number<br>of steps | Shank<br>mm Ø | Rota-<br>stop® |
|-----------|------------------------|---------------------------------------------------------------------------------|--------------|--------------------|---------------|----------------|
| 50344013  | 3.2 – 12.7             | 3.2 / 4.0 / 4.8 / 5.6 / 6.4 / 7.1 / 7.9 / 8.7 / 9.5 / 10.3 / 11.1 / 11.9 / 12.7 | 80           | 13                 | 6.4           |                |
| 50364022  | 4.8 – 12.7             | 4.8 / 6.4 / 7.9 / 9.5 / 11.1 / 12.7                                             | 80           | 6                  | 6.4           |                |
| 50344110  | 22.2                   | 22.2                                                                            | 85           | 1                  | 9.5           |                |
| 50344030  | 4.8 – 22.2             | 4.8 / 6.4 / 7.9 / 9.5 / 11.1 / 12.7 / 14.3 / 15.9 / 17.5 / 19.1 / 20.6 / 22.2   | 85           | 12                 | 9.5           |                |
| 50300083  | 22.2 – 28.6            | 12.7 / 22.2 / 28.6                                                              | 57           | 3                  | 9.5           |                |
| 50364146  | 22.2 – 34.9            | 22.2 / 28.6 / 31.0 / 31.8 / 34.9                                                | 73           | 5                  | 9.5           |                |
| 50360183  | 9.7                    | Pilot drill for Greenlee draw studs Ø 9.5 mm                                    | 40           | 1                  | 6.4           |                |
| 50344102  | 12.7                   | Pilot drill for Greenlee draw studs Ø 11.1 mm                                   | 40           | 1                  | 6.4           |                |
| 50360205  | Pg 7 – 21              | Pg7 / Pg9 / Pg11 / Pg13 / Pg16 / Pg21/30.5                                      | 90           | 7                  | 9.5           |                |
| 50360221  | ISO 16 – 32            | For ISO dimensions 16 / 20 / 25 / 32                                            | 80           | 4                  | 9.5           |                |
| 50069845  | 4 – 12                 | 4.0 / 5.0 / 6.0 / 7.0 / 8.0 / 9.0 / 10.0 / 11.0 / 12.0                          | 80           | 9                  | 6.0           | ✓              |
| 50069853  | 4 – 20                 | 4.0 / 6.0 / 8.0 / 10.0 / 12.0 / 14.0 / 16.0 / 18.0 / 20.0                       | 67           | 9                  | 8.0           | ✓              |
| 50069861  | 6 – 30                 | 6.0 - 30.0 (2.0 mm steps)                                                       | 98           | 13                 | 10.0          | ✓              |
| 50069870  | 6 – 36                 | 6.0 - 36.0 (3.0 mm steps)                                                       | 82           | 11                 | 12.0          | ✓              |
| 50069888  | ISO 12 – 40            | For ISO sizes 12 / 16 / 20 / 25 / 32 / 40                                       | 110          | 6                  | 12.0          | ✓              |

## Kwik Stepper™ step bit



### Characteristics

- For burr-free drilling of mild steel, pipes, non-ferrous metals and plastics.
- Drilling range from 3.2 mm - 34.9 mm

### Suitable for

- Reaming of mild steel, pipes, non-ferrous metals and plastic

| Item                                     | Drilling range<br>dia. | Step sizes<br>dia.                                                                 | Total length | Number of<br>steps | Shank<br>dia. | Part No. |
|------------------------------------------|------------------------|------------------------------------------------------------------------------------|--------------|--------------------|---------------|----------|
|                                          | mm                     | mm                                                                                 | mm           |                    | mm            |          |
| Kwik Stepper™ step bit<br>3.2 - 12.7 mm  | 3.2 - 12.7             | 3.2 / 4.0 / 4.8 / 5.6 / 6.4 / 7.1 / 7.9 / 8.7 / 9.5 / 10.3 /<br>11.1 / 11.9 / 12.7 | 80           | 13                 | 6.4           | 50344013 |
| Kwik Stepper™ step bit<br>4.8 - 12.7 mm  | 4.8 - 12.7             | 4.8 / 6.4 / 7.9 / 9.5 / 11.1 / 12.7                                                | 80           | 6                  | 6.4           | 50364022 |
| Kwik Stepper™ step bit<br>22.2 mm        | 22.2                   | 22.2                                                                               | 85           | 1                  | 9.5           | 50344110 |
| Kwik Stepper™ step bit<br>4.8 - 22.2 mm  | 4.8 - 22.2             | 4.8 / 6.4 / 7.9 / 9.5 / 11.1 / 12.7 / 14.3 / 15.9 / 17.5 /<br>19.1 / 20.6 / 22.2   | 85           | 12                 | 9.5           | 50344030 |
| Kwik Stepper™ step bit<br>22.2 - 28.6 mm | 22.2 - 28.6            | 12.7 / 22.2 / 28.6                                                                 | 57           | 3                  | 9.5           | 50300083 |
| Kwik Stepper™ step bit<br>22.2 - 34.9 mm | 22.2 - 34.9            | 22.2 / 28.6 / 31.0 / 31.8 / 34.9                                                   | 73           | 5                  | 9.5           | 50364146 |
| Kwik Stepper™ step bit<br>9.7 mm         | 9.7                    | For drilling pilot holes for Greenlee draw studs<br>dia. 9.5 mm                    | 40           | 1                  | 6.4           | 50360183 |
| Kwik Stepper™ step bit<br>12.7 mm        | 12.9                   | For drilling pilot holes for Greenlee draw studs<br>dia. 11.1 mm                   | 40           | 1                  | 6.4           | 50344102 |
| Kwik Stepper™ step bit<br>Pg 7-21        | Pg 7-21                | Pg7 / Pg9 / Pg11 / Pg13 / Pg16 / Pg21 / 30.5                                       | 90           | 7                  | 9.5           | 50360205 |
| Kwik Stepper™ step bit<br>ISO 16-32      | ISO 16 - 32            | ISO 16 / 20 / 25 / 32                                                              | 80           | 4                  | 9.5           | 50360221 |

**Kwik Stepper™ step bit with ROTASTOP® shaft**

- ▶ Longer lifetime
- ▶ Less force needed
- ▶ Improved cutting performance
- ▶ Smooth cutting
- ▶ Minimum burr

**Characteristics**

- Drilling range from 4 mm - 40.5 mm

**Suitable for**

- Reaming of mild steel, pipes, non-ferrous metals and plastic



| Item                                                          | Drilling range<br>dia. | Step sizes<br>dia.                                                                        | Total<br>length | Number of<br>steps | Shank<br>dia. | Part No.        |
|---------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------|-----------------|--------------------|---------------|-----------------|
|                                                               | mm                     | mm                                                                                        | mm              |                    | mm            |                 |
| Kwik Stepper™ step bit<br>with ROTASTOP® shaft 4 - 12 mm      | 4 – 12                 | 4.0 / 5.0 / 6.0 / 7.0 / 8.0 / 9.0 / 10.0 /<br>11.0 / 12.0                                 | 80              | 9                  | 6.0           | <b>50069845</b> |
| Kwik Stepper™ step bit<br>with ROTASTOP® shaft 4 - 20 mm      | 4 – 20                 | 4.0 / 6.0 / 8.0 / 10.0 / 12.0 / 14.0 / 16.0 /<br>18.0 / 20.0                              | 67              | 9                  | 8.0           | <b>50069853</b> |
| Kwik Stepper™ step bit<br>with ROTASTOP® shaft 6 - 30 mm      | 6 – 30                 | 6.0 / 8.0 / 10.0 / 12.0 / 14.0 / 16.0 / 18.0 /<br>20.0 / 22.0 / 24.0 / 26.0 / 28.0 / 30.0 | 98              | 13                 | 10.0          | <b>50069861</b> |
| Kwik Stepper™ step bit<br>with ROTASTOP® shaft 6 - 36 mm      | 6 – 36                 | 6.0 / 9.0 / 12.0 / 15.0 / 18.0 / 21.0 / 24.0 /<br>27.0 / 30.0 / 33.0 / 36.0               | 85              | 11                 | 12.0          | <b>50069870</b> |
| Kwik Stepper™ step bit<br>with ROTASTOP® shaft ISO 12 - 40 mm | ISO 12 - 40            | For ISO sizes 12 / 16 / 20 / 25 / 32 / 40                                                 | 110             | 6                  | 12.0          | <b>50069888</b> |

**Kwik Stepper™ step bit set**

- ▶ Longer lifetime
- ▶ Less force needed
- ▶ Improved cutting performance
- ▶ Smooth cutting
- ▶ Minimum burr

**Characteristics**

- Drilling range from 4 - 30 mm

**Suitable for**

- Reaming of mild steel, pipes, non-ferrous metals and plastic



| Item                                                  | Part No.        |      |
|-------------------------------------------------------|-----------------|------|
| Kwik Stepper™ step bit set                            | <b>50069900</b> |      |
| Scope of supply                                       | Part No.        | Page |
| Kwik Stepper™ step bit with ROTASTOP® shaft 4 - 12 mm | 50069845        | 579  |
| Kwik Stepper™ step bit with ROTASTOP® shaft 4 - 20 mm | 50069853        | 579  |
| Kwik Stepper™ step bit with ROTASTOP® shaft 6 - 30 mm | 50069861        | 579  |

Combi bit set in plastic cassette M 3 - M 10



► Drill, tap and deburr in one operation

Suitable for

- For use with mild steel, non-ferrous metals and plastics

| Item                                         | Part No. |      |
|----------------------------------------------|----------|------|
| Combi bit set in plastic cassette M 3 - M 10 | 50116304 |      |
| Scope of supply                              | Part No. | Page |
| Combi bit M3                                 | 50116312 | 580  |
| Combi bit M4                                 | 50116320 | 580  |
| Combi bit M5                                 | 50116339 | 580  |
| Combi bit M6                                 | 50116347 | 580  |
| Combi bit M8                                 | 50116355 | 580  |
| Combi bit M10                                | 50116363 | 580  |
| Combi bit holder                             | 50116371 | 580  |





*“Greenlee processing tools make your workshop mobile. This makes you much more flexible and efficient in plant and control cabinet construction.”*

Friedrich Reusch



|                              |     |
|------------------------------|-----|
| Special cutting tools        | 584 |
| Machining tools for bus bars | 589 |
| Pumps and pump accessories   | 592 |



# *On-site processing and installation.*

## **Tools and systems for plant and control cabinet construction.**

Plant and control cabinet construction requires not only tools for cable assembly and connection, but numerous additional tools as well. That's why the Greenlee range offers tools such as the bus bar tool centre for cutting, punching and stepping bus bars, which would otherwise not be possible on site.

High quality, transportable profile rail cutters, punching tools and wiring duct cutters also permit fast on-site operations.



- **Bus Bar Tool Centre for stationary and portable operations.**
- **Wiring duct cutters for plastic ducts.**
- **Appliances for processing DIN profile rails.**
- **Various drive units.**

## ■ Bus bars for on-site operations.

- ▶ One compact tool for bending, cutting, punching and offsetting copper bus bars up to 120 mm x 12 mm.
- ▶ Compact design and low weight.
- ▶ Easy handling and change of tools.

### Benefits:

- ▶ One tool for all bus bar operations, **all operations can be completed quickly everywhere.**
- ▶ Suitable for solid and laminated bus bars.
- ▶ All working operations can easily be completed with just one tool with a push of a button.



▶ More on Page 589.

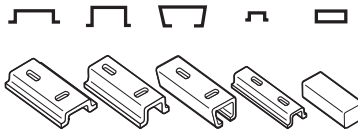


## ■ Easy cutting and punching of DIN profile rails.

- ▶ For all standard DIN profile rails.
- ▶ 5 profiles in standard range.

### Benefits:

- ▶ All standard DIN profile rails can be processed on site.
- ▶ Even the standard range offers a host of options.



## ■ Fast and clean cutting of wiring ducts.

- ▶ Wiring duct cutter for plastic channels up to 125 mm wide and 2.5 mm thick.
- ▶ Burr-free cutting.
- ▶ 90° angle cutting.

### Benefits:

- ▶ Wiring ducts can be cut anywhere with this tool.
- ▶ Maximum precision during cutting prevents mistakes and defects.
- ▶ Wiring ducts can be precisely cut with just a few operations.



▶ More on Page 588.



## PVC pipe cutter



### Characteristics

- Ratchet version

| Technical data    |          |          |
|-------------------|----------|----------|
| Cutting range     |          | to 32 mm |
| Item              | Part No. |          |
| PVC pipe cutter   | 50042530 |          |
|                   |          |          |
| Accessories       |          | Part No. |
| Replacement blade |          | 50003550 |
|                   |          | Page     |

## DIN rail cutting and punching tool



- ▶ For burr-free cutting and punching
- ▶ Less force needed
- ▶ Includes die plate holder with 5 profiles

### Suitable for

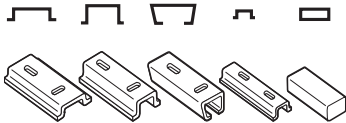
- Punches vertical and horizontal mounting holes 6.4 x 12.0 mm
- With holes for workbench assembly

| Item                               | Part No. |      |
|------------------------------------|----------|------|
| DIN rail cutting and punching tool | 50115413 |      |
| Scope of supply                    | Part No. | Page |
| Hand lever                         | 50115421 |      |
| Length stop 1 m                    | 50115430 |      |
| Cutting die set                    | 50115448 |      |
| Centering mask                     | 50115456 |      |
| Fixing device                      | 50115537 |      |

| Accessories                                               | Part No. | Page |
|-----------------------------------------------------------|----------|------|
| Special-cut plate upon request                            |          |      |
| Special cutting die set incl. centering mask upon request |          |      |



|             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|
| A - 35,0 mm | A - 35,0 mm | A - 34,0 mm | A - 15,0 mm | A - 10,0 mm |
| B - 27,0 mm | B - 27,0 mm | B - 27,0 mm | B - 10,5 mm |             |
| C - 7,5 mm  | C - 15,0 mm | C - 15,0 mm | C - 5,5 mm  | C - 3,0 mm  |
| D - 1,0 mm  | D - 1,5 mm  | D - 1,5 mm  | D - 1,0 mm  |             |



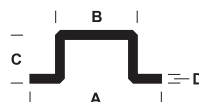
## DIN rail cutting tool Compact

- ▶ For burr-free cutting
- ▶ Less force needed
- ▶ Includes cutting die set with 2 profiles

### Suitable for

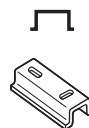
- With holes for workbench assembly
- Manual operation

| Item                          | Length of rail guide<br>mm | Length of hand lever<br>mm | Part No.        |
|-------------------------------|----------------------------|----------------------------|-----------------|
| DIN rail cutting tool Compact | 1000                       | 850                        | <b>52055684</b> |



A - 35,0 mm  
B - 27,0 mm  
C - 7,5 mm  
D - 1,0 mm

A - 35,0 mm  
B - 27,0 mm  
C - 15,0 mm  
D - 1,5 mm



## Wiring conduit cutter



- ▶ Burr-free cutting
- ▶ 90° angle cutting
- ▶ Less effort

### Characteristics

- Standard plastic profile with 2.5 mm wall thickness and up to 125 mm width
- Blade easily replaceable
- Maintenance free

| Technical data                              |                    |      |
|---------------------------------------------|--------------------|------|
| Cutting width                               | 125 mm             |      |
| Dimension                                   | 285 x 280 x 290 mm |      |
| Weight                                      | 10.5 kg            |      |
| Length of rail guide                        | 1000 mm            |      |
| Length of hand lever                        | 500 mm             |      |
| Wiring duct (wall thickness)                | 2.5 mm             |      |
| Item                                        | Part No.           |      |
| Wiring conduit cutter                       | 50125699           |      |
| Scope of supply                             | Part No.           | Page |
| Hand lever                                  |                    |      |
| Length stop                                 |                    |      |
| Measurement scale                           |                    |      |
| Stainless steel support plate               |                    |      |
| Accessories                                 | Part No.           | Page |
| Replacement blade for wiring conduit cutter | 52047028           |      |

## Bus bar tool centre

- ▶ Basic tool for bending, punching and cutting solid and laminated bus bars up to 120 x 12 mm
- ▶ Compact design and low weight

### Suitable for

- Operation with EHP4 or AHP700-L

### Order Info

- For operation with EHP4 the adaptor CMGSK and additional Part No. „EHP4“ required (50052241EHP4). For operation with AHP700-L the adaptor CMGSK and plug Sb24 required.

| Technical data                                 |                    |
|------------------------------------------------|--------------------|
| Crimping force                                 | 185 kN             |
| Max. operating pressure                        | 700 bar            |
| Capacity                                       | 1.5 l / min.       |
| Required oil volume                            | 0.15 l             |
| Dimension                                      | 480 x 500 x 360 mm |
| Weight                                         | 51 kg              |
| Item                                           | Part No.           |
| Bus bar tool centre for operation with AHP700L | 50052241           |



## Bending tool

- ▶ For Al/Cu material to max. 120 x 12 mm
- ▶ Bending radius 5.0 mm

### Characteristics

- max. bending angle 100°

| Technical data                      |          |
|-------------------------------------|----------|
| Weight                              | 7.1 kg   |
| Item                                | Part No. |
| Bending tool, 5.0 mm bending radius | 50052250 |



## Punching tool I

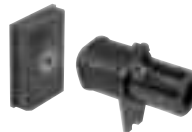
### Characteristics

- For Al/Cu solid bars up to max. 12 mm and steel up to 10 mm thickness

### Suitable for

- Hole diameters from 6.5 - 21 mm

| Technical data  |          |
|-----------------|----------|
| Weight          | 4.5 kg   |
| Item            | Part No. |
| Punching tool I | 50052128 |



### Punch and die holder for punching tool I



#### Characteristics

- Al/Cu solid bars up to max. 12 mm and steel up to 10 mm material thickness

| Item                              | Part No. |
|-----------------------------------|----------|
| Punch and die Ø 6.5 mm            | 50052276 |
| Punch and die Ø 8.5 mm            | 50052284 |
| Punch and die Ø 11 mm             | 50052292 |
| Punch and die Ø 13 mm             | 50052306 |
| Punch and die Ø 15 mm             | 50052314 |
| Punch and die Ø 17 mm             | 50052322 |
| Punch and die Ø 21 mm             | 50052330 |
| Oblong punch and die 6.5 x 13 mm  | 50052349 |
| Oblong punch and die 8.5 x 16 mm  | 50052357 |
| Oblong punch and die 11.0 x 20 mm | 50052365 |
| Oblong punch and die 13.0 x 20 mm | 50052373 |
| Oblong punch and die 17.0 x 20 mm | 50052381 |

### Punching tool III



#### Characteristics

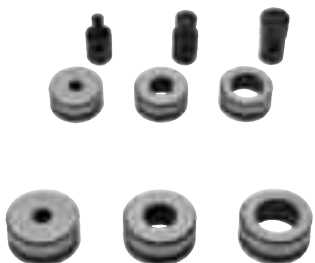
- Solid and laminated bus bars from Al/Cu up to max. 12 mm and steel up to 10 mm thick

#### Suitable for

- Hole diameters from 6.5 - 21 mm

| Technical data    |          |
|-------------------|----------|
| Weight            | 4.5 kg   |
| Item              | Part No. |
| Punching tool III | 50766919 |

### Punch and die holder for punching tool III



#### Characteristics

- Al/Cu solid and laminated bus bars up to max. 12 mm and steel up to 10 mm material thickness

| Item                             | Part No. |
|----------------------------------|----------|
| Punch and die Ø 6.5 mm           | 50115286 |
| Punch and die Ø 8.5 mm           | 50115294 |
| Punch and die Ø 11 mm            | 50115308 |
| Punch and die Ø 13 mm            | 50115316 |
| Punch and die Ø 15 mm            | 50115324 |
| Punch and die Ø 17 mm            | 50115332 |
| Punch and die Ø 21 mm            | 50115340 |
| Oblong punch and die 6.5 x 13 mm | 50115359 |
| Oblong punch and die 8.5 x 16 mm | 50115367 |
| Oblong punch and die 11 x 20 mm  | 50115375 |
| Oblong punch and die 13 x 20 mm  | 50115383 |
| Oblong punch and die 17 x 20 mm  | 50115391 |

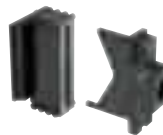


## Cutting tool

### Characteristics

- For Al/Cu material up to max. 120 x 12 mm

| Technical data |                 |
|----------------|-----------------|
| Weight         | 5.3 kg          |
| Item           | Part No.        |
| Cutting tool   | <b>50052144</b> |

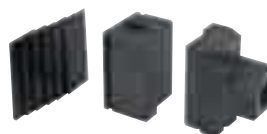


## Offset tool

### Characteristics

- Workpiece offset 5, 6, 8, 10 and 12 mm by using insertion plates
- For Al/Cu material up to max. 120 x 12 mm

| Technical data |                   |
|----------------|-------------------|
| Dimension      | 175 x 90 x 135 mm |
| Weight         | 10.0 kg           |
| Item           | Part No.          |
| Offset tool    | <b>50052152</b>   |



## Accessory box made of aluminum for punching tools, empty

### Suitable for

- Storage of accessories

| Technical data                                           |                    |
|----------------------------------------------------------|--------------------|
| Dimension                                                | 350 x 250 x 200 mm |
| Weight                                                   | 4.3 kg             |
| Item                                                     | Part No.           |
| Accessory box made of aluminum for punching tools, empty | <b>50052160</b>    |



### 767 Hydraulic hand pump



#### ► Lightweight, portable hand pump

##### Characteristics

- In combination with punch cylinder 50170910 for all hole sizes
- Versatile operation - works in every position
- Incl. mounting holes for work bench assembly

| Technical data                |                    |      |
|-------------------------------|--------------------|------|
| Dimension                     | 330 x 100 x 100 mm |      |
| Operating pressure            | max. 460 bar       |      |
| Weight                        | 2.7 kg             |      |
| Item                          | Part No.           |      |
| Hydraulic hand pump 767       | 50132849           |      |
| Accessories                   | Part No.           | Page |
| Hydraulic hose 6.4 mm x 0.9 m | 50383167           |      |

### 1725 Hydraulic foot pump



#### ► Foot operation ensures two-handed operation of round and special shaped punches

##### Characteristics

- Lockable pedal for storage and transport
- In combination with punch cylinder 50170910 for all hole sizes
- Versatile operation

| Technical data              |                    |      |
|-----------------------------|--------------------|------|
| Dimension                   | 400 x 200 x 150 mm |      |
| Operating pressure          | max. 460 bar       |      |
| Weight                      | 5.0 kg             |      |
| Item                        | Part No.           |      |
| Hydraulic foot pump 1725    | 50313533           |      |
| Accessories                 | Part No.           | Page |
| Hydraulic hose 6.4 mm x 3 m | 50377299           |      |

### 755 High-pressure hydraulic hand pump



#### ► Powerful, portable hand pump

##### Characteristics

- In combination with punch cylinder 50170910 for all hole sizes
- Mounting holes for work bench assembly
- Works in every position
- Incl. 9.5 mm quick coupling with dust cap

| Technical data                        |                    |      |
|---------------------------------------|--------------------|------|
| Dimension                             | 650 x 180 x 150 mm |      |
| Operating pressure                    | max. 700 bar       |      |
| Weight                                | 8.0 kg             |      |
| Item                                  | Part No.           |      |
| High-pressure hydraulic hand pump 755 | 50156772           |      |
| Accessories                           | Part No.           | Page |
| Hydraulic hose 9.5 mm x 1.80 m        | 50112899           |      |

## Hydraulic hose 6.4 mm x 3 m

### Characteristics

- For use with hydraulic foot pump 1725
- Filled with hydraulic oil

| Item                        | Part No.        |      |
|-----------------------------|-----------------|------|
| Hydraulic hose 6.4 mm x 3 m | <b>50377299</b> |      |
| Scope of supply             | Part No.        | Page |
| Hydraulic hose, 3.0 m       | 90525159        |      |
| Coupler plug                | 90541693        |      |
| Dust cap                    | 90541707        |      |



## Hydraulic hose 9.5 mm x 1.80 m

### Characteristics

- For use with pump 755
- Filled with hydraulic oil

| Item                           | Part No.        |      |
|--------------------------------|-----------------|------|
| Hydraulic hose 9.5 mm x 1.80 m | <b>50112899</b> |      |
| Scope of supply                | Part No.        | Page |
| Hydraulic hose, 1.8 m          | 90507606        |      |
| Quick action coupling          | 90508238        |      |
| Dust cap                       | 90541707        |      |



## Hydraulic hose 6.4 mm x 0.9 m

### Characteristics

- For use with hydraulic hand pump 767
- Without hydraulic oil

| Item                          | Part No.        |      |
|-------------------------------|-----------------|------|
| Hydraulic hose 6.4 mm x 0.9 m | <b>50383167</b> |      |
| Scope of supply               | Part No.        | Page |
| Hydraulic hose, 0.9 m         | 50063022        |      |
| Coupler plug                  | 90541693        |      |
| Dust cap                      | 90541707        |      |



## Hydraulic oil

### Characteristics

- Specially-developed for GREENLEE hydraulic tools

| Item                 | Part No.        |  |
|----------------------|-----------------|--|
| Hydraulic oil 3.8 l  | <b>90510593</b> |  |
| Hydraulic oil 0.95 l | <b>90508068</b> |  |



”

*Now it's your turn.*

*Greenlee cable pulling systems – the easy way for you to lay cables and conductors in various applications.“*



Cristina Garcia,  
Sales and Distribution

**Fish tapes/pulling rods 596**

|                                 |     |
|---------------------------------|-----|
| Polyester                       | 598 |
| Perlon®                         | 598 |
| Nylon                           | 599 |
| Steel                           | 599 |
| Flex-O-Twist™ speed flex leader | 599 |
| Fibreglass cable pulling rods   | 600 |

**Cable pulling systems 601**

|                                      |     |
|--------------------------------------|-----|
| Speedy Spinner fibreglass            | 601 |
| Flexi Spinner polyester              | 602 |
| Oil-tempered spring steel fish tapes | 602 |
| Smart Butler fibreglass              | 605 |

**Cable puller 607**

|                                 |     |
|---------------------------------|-----|
| Easy Roller cable drum unwinder | 607 |
| Cable puller                    | 607 |

**Pulling grips 610**

|                       |     |
|-----------------------|-----|
| Pulling grips, closed | 610 |
| Pulling grips, open   | 612 |

**Accessory 613**


*Pull by pull*

## ***Installing cables.***

**Cable pulling systems for light and heavy duty cables.**

A host of technical solutions is available for cable pulling. These solutions vary greatly depending on the application or cable type. Our range offers solutions for light and heavy duty cables, and for long straight lines, angular channels or hollow spaces.



*The Easy Roller simplifies the rolling and unrolling of cable drums.*



- Fish tapes from polyester, perlon, nylon, steel, fibreglass.
- Fibreglass winches for civil and industrial applications.
- Cable pulling rods for cavities and suspended ceilings.
- Cable puller for pulling heavy cables.
- Cable unwinder and accessories for convenient operations.

*Ultra Tugger™:  
Use via floor device.*



## ■ For fast pulling in and out: *Speedy Spinner*.

- ▶ Fish tape lengths of 20, 30 and 40 m (Ø 3 mm).
- ▶ Fast pulling in and out with just one finger.
- ▶ Incl. extensive range of accessories and pulling aids.

### Benefits:

- ▶ Flexible fibreglass spring ensures smooth operations.
- ▶ Accessories cover enables cables to be pulled out on the floor.
- ▶ Low weight for simple handling.



## ■ Perfect buddy with pulling aid: *Polyester tapes*

- ▶ Extremely flexible and almost unbreakable.
- ▶ Available in lengths of 10, 15, 20, 25 and 30 m.
- ▶ Replaceable spring guide head and eye.

### Benefits:

- ▶ 50% less friction than nylon tapes.
- ▶ The higher thrust than nylon tapes makes installation easier.



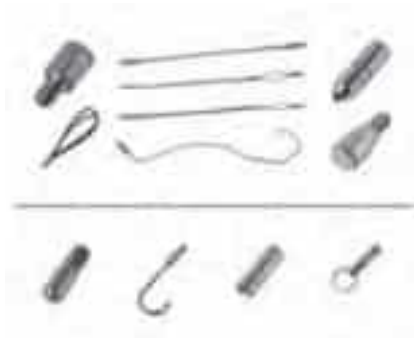
Polyester tape in the winder housing

## ■ Strong supports: *Fibreglass pulling rods*.

- ▶ Extremely high tensile force.
- ▶ Practically unbreakable and extremely stable thanks to the special coating of the outer jacket.
- ▶ Flexible application with accessories such as LED lamp, chain, magnet, hook or adapter.

### Benefits:

- ▶ Effortless operations, as well as easier and faster pulling of cables in ceilings, cavity walls and under-floors.



## Polyester fish tapes green 4.5 mm



- ▶ 50% less friction than nylon tapes
- ▶ Extremely flexible and nearly unbreakable

### Characteristics

- Drilled tape ensures high pressure thrust
- Facilitates pulling due to less friction
- Replaceable pulling eye and spring guide head

### Order info

- Detailed information please find in application chart on page i-16

| Length                                           | Part No. | Diameter<br>mm |
|--------------------------------------------------|----------|----------------|
| 10 m                                             | 52055292 | 4,5            |
| 15 m                                             | 52055293 | 4,5            |
| 20 m                                             | 52055294 | 4,5            |
| 25 m                                             | 52055295 | 4,5            |
| 30 m                                             | 52055296 | 4,5            |
| Scope of supply                                  |          | Part No. Page  |
| Pulling aid for pulling system 3 - 6 mm dia. (1) |          | 52055311 602   |
| Head with eye M5 (2)                             |          | 52055398 602   |
| Spring guide head with eye M5 7 mm dia.          |          | 52055397 602   |
| Accessories                                      |          | Part No. Page  |
| 5-piece accessory set for polyester fish tapes   |          | 52055396       |

## Perlon fish tapes 4 mm



### Characteristics

- With pressed M4 guide head
- Spring guide head and pulling eye can be screwed off

### Order info

- Detailed information please find in application chart on page i-16

| Length                                                           | Part No. | Diameter<br>mm |
|------------------------------------------------------------------|----------|----------------|
| 5 m                                                              | 52055276 | 4              |
| 10 m                                                             | 52055277 | 4              |
| 15 m                                                             | 52055278 | 4              |
| 20 m                                                             | 52055279 | 4              |
| 25 m                                                             | 52055280 | 4              |
| 30 m                                                             | 52055281 | 4              |
| Scope of supply                                                  |          | Part No. Page  |
| Comprising pulling eyes WW 1/2" (1) and spring guide head M4 (1) |          | 52055288 598   |
| Pulling eye M4                                                   |          |                |
| Accessories                                                      |          | Part No. Page  |
| Comprising pulling eyes WW 1/2" (1) and spring guide head M4 (1) |          | 52055288       |



## Nylon fish tapes 4 mm

### Characteristics

- With pressed spring guide head and pulling eye WW 1/4"

### Order info

- Detailed information please find in application chart on page i-16

| Length | Part No. | Diameter mm |
|--------|----------|-------------|
| 5 m    | 52055270 | 4           |
| 10 m   | 52055271 | 4           |
| 15 m   | 52055272 | 4           |
| 20 m   | 52055273 | 4           |
| 25 m   | 52055274 | 4           |
| 30 m   | 52055275 | 4           |



## Steel fish tapes 4 mm

### Characteristics

- With pressed spring guide head and pulling eye WW 1/4"

### Order info

- Detailed information please find in application chart on page i-16

| Length | Part No. | Diameter mm |
|--------|----------|-------------|
| 5 m    | 52055282 | 4           |
| 10 m   | 52055283 | 4           |
| 15 m   | 52055284 | 4           |
| 20 m   | 52055285 | 4           |
| 25 m   | 52055286 | 4           |
| 30 m   | 52055287 | 4           |



## Flex-O-Twist™ speed flex leader

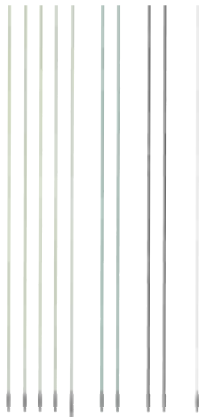
### Characteristics

- Especially suitable for sharp bends
- Flexible fish tape leader

| Length | Part No. |
|--------|----------|
| 300 mm | 50308599 |



Fibreglass cable pulling rods



Characteristics

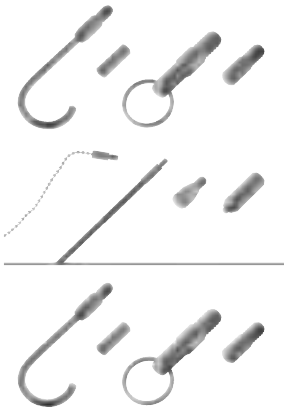
- Nearly unbreakable due to special outer sheath
- Time-saving cable laying
- Laying also under most difficult conditions

Suitable for

- Cable installation and laying
- Pulling or pushing

| Part No. | Version                                                                                                                                                                                                                                                         |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 52055385 | Consists of: 4 pcs. light green fibreglass sticks 5.6 mm dia. with WW connecting bushing, 1 pc. light green fibreglass stick 5.6 mm dia. with WW connecting bushing und swivel joint, 2 pcs. black fibreglass sticks 6 mm dia. with WW connecting bushing, 2 pc |
| 52055386 | Consists of: 3 pce. light green fibreglass sticks 5.6 mm dia. with WW connecting bushing, 1 pce. black fibreglass stick 6 mm dia. with WW connecting bushing, 1 pce. white nylon stick 4 mm dia. with WW connecting                                             |

| Accessories           | Part No. | Page |
|-----------------------|----------|------|
| Accessory set, 8-pcs. | 52055387 |      |
| Accessory set, 4-pcs. | 52055388 |      |



## Speedy Spinner fibreglass cable pull system

- ▶ Unique, user-friendly design
- ▶ Easy and fast tape pay-out and rewind

### Characteristics

- Both hands operation
- Unrolling on floors also possible
- Flexible fibreglass spring for fast tape pay-out and rewind
- High pushing force
- Accessory set included in scope of supply

### Suitable for

- Tube diameter 16 - 32 mm

### Order info

- Detailed information please find in application chart on page i-16



| Item                                                           | Diameter<br>mm | Length | Part No.        |
|----------------------------------------------------------------|----------------|--------|-----------------|
| Speedy Spinner fibreglass cable pull system, 20 m              | 3.0            | 20 m   | <b>52055298</b> |
| Speedy Spinner fibreglass cable pull system, 30 m              | 3.0            | 30 m   | <b>52055299</b> |
| Speedy Spinner fibreglass cable pull system, 40 m              | 3.0            | 40 m   | <b>52055300</b> |
| Scope of supply                                                |                |        | Part No. Page   |
| Head with eye M5 for fibreglass tape 3 mm                      |                |        | 52055304        |
| Spring guide head with eye M5 for fibreglass tape 3 mm         |                |        | 52055305        |
| Spring guide head with eye M5 - 10 mm for fibreglass tape 3 mm |                |        | 52055306        |
| Starting leader joints M5                                      |                |        | 52055308        |
| Connecting sleeves for fibreglass 3 mm                         |                |        | 52055309        |
| Cable grip 4 - 6 mm dia. for fibreglass tape                   |                |        | 52055310        |
| Pulling aid for pulling system 3 - 6 mm (1)                    |                |        | 52055311 602    |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Speedy Spinner fibreglass replacement tape, 20 m | 52055289 |      |
| Speedy Spinner fibreglass replacement tape, 30 m | 52055290 |      |
| Speedy Spinner fibreglass replacement tape, 40 m | 52055291 |      |
| Speedy Spinner repair set, 10-piece              | 52055303 |      |

### Flexi Spinner polyester cable pulling system



- ▶ Nearly unbreakable
- ▶ Approx. 50 % less frictional resistance as nylon and perlon
- ▶ High pushing force for large distances with narrow bends

#### Characteristics

- Highly-flexible polyester tape
- Modern design
- Rugged case

#### Order info

- Detailed information please find in application chart on page i-16

| Item                                             | Diameter<br>mm | Length | Part No.        |
|--------------------------------------------------|----------------|--------|-----------------|
| Flexi Spinner polyester cable pull system, 20 m  | 4.5            | 20 m   | <b>52055389</b> |
| Flexi Spinner polyester cable pull system, 25 m  | 4.5            | 25 m   | <b>52055390</b> |
| Flexi Spinner polyester cable pull system, 30 m  | 4.5            | 30 m   | <b>52055391</b> |
| Flexi Spinner, winder case (empty)               |                |        | <b>52055392</b> |
| Scope of supply                                  |                |        | Part No. Page   |
| Pulling aid for pulling system 3 - 6 mm dia. (1) |                |        | 52055311 602    |
| Head with eye M5 (2)                             |                |        | 52055398 602    |
| Spring guide head with eye M5 7 mm dia.          |                |        | 52055397 602    |

| Accessories                                      | Part No. | Page |
|--------------------------------------------------|----------|------|
| Polyester fish tape green 4.5 mm dia., 20 m      | 52055294 | 598  |
| Polyester fish tape green 4.5 mm dia., 25 m      | 52055295 | 598  |
| Polyester fish tape green 4.5 mm dia., 30 m      | 52055296 | 598  |
| Pulling aid for pulling system 3 - 6 mm dia. (1) | 52055311 | 602  |
| Head with eye M5 (2)                             | 52055398 | 602  |
| Spring guide head with eye M5 7 mm dia.          | 52055397 | 602  |

### MagnumPRO™ Oil-tempered spring steel fish tapes



#### Characteristics

- Winder case eases cable pulling
- Dirt-free tape finish
- High impact nylon winder case with large handle grip

#### Suitable for

- Pulling of cables over long distances

| Item                                                | Tape<br>dimensions<br>mm | Length | Part No.        |
|-----------------------------------------------------|--------------------------|--------|-----------------|
| MagnumPRO™ Oil-tempered spring steel fish tape 20 m | 3.0 x 1.5                | 20 m   | <b>52041709</b> |
| MagnumPRO™ Oil-tempered spring steel fish tape 30 m | 6.3 x 1.5                | 30 m   | <b>52041745</b> |
| MagnumPRO™ Oil-tempered spring steel fish tape 38 m | 3.0 x 1.5                | 38 m   | <b>52041741</b> |
| MagnumPRO™ Oil-tempered spring steel fish tape 73 m | 3.0 x 1.5                | 73 m   | <b>52041743</b> |

| Accessories                                         | Part No. | Page |
|-----------------------------------------------------|----------|------|
| Rotating head eye for 3 mm fish tapes               | 50293672 |      |
| MagnumPRO™ Oil-tempered spring steel fish tape 60 m | 52044594 |      |

## MagnumPRO™ Stainless steel fish tapes

- ▶ Stainless, speed flex leader
- ▶ Slim pulling eye permits trouble-free pulling in long and winding conduits

### Characteristics

- Can be used in conjunction with every steel fish tape with a tape dimension of 3.0 x 1.5 mm
- High impact nylon winder case with large handle grip

| Item                                       | Tape dimensions mm | Length | Part No.        |
|--------------------------------------------|--------------------|--------|-----------------|
| MagnumPRO™ Stainless steel fish tape, 30 m | 3.0 x 1.5          | 30 m   | <b>52041746</b> |
| MagnumPRO™ Stainless steel fish tape, 60 m | 3.0 x 1.5          | 60 m   | <b>52041747</b> |

| Accessories                                                       | Part No. | Page |
|-------------------------------------------------------------------|----------|------|
| Speed Flex leader for fish tapes with tape dimension 3.0 x 1.5 mm | 50143921 | 603  |



## MagnumPRO™ Nylon fish tapes

- ▶ Non conductive, curl resistant nylon tape for fast, clean fishing

### Characteristics

- Diameter 4.8 mm
- High impact nylon winder case with large handle grip

| Item                                         | Diameter mm | Length | Part No.        |
|----------------------------------------------|-------------|--------|-----------------|
| MagnumPRO™ Nylon fish tape 4.8 mm dia., 15 m | 4.8         | 15 m   | <b>52041750</b> |
| MagnumPRO™ Nylon fish tape 4.8 mm dia., 30 m | 4.8         | 30 m   | <b>52041751</b> |

| Accessories     | Part No. | Page |
|-----------------|----------|------|
| Replacement tip | 50016644 | 603  |



### MagnumPRO™ Flexible steel fish tapes



#### Characteristics

- Made of multi-strand steel cable
- Flexible type
- For quick and simple application
- High impact nylon winder case with large handle grip

| Item                                      | Diameter<br>mm | Length | Part No.        |
|-------------------------------------------|----------------|--------|-----------------|
| MagnumPRO™ Flexible steel fish tape, 15 m | 4.8            | 15 m   | <b>52041748</b> |
| MagnumPRO™ Flexible steel fish tape, 30 m | 4.8            | 30 m   | <b>52041749</b> |

### MagnumPRO™ Fiberglass fish tapes



#### Characteristics

- Non-conductive fiberglass tape with low friction coating
- To fish in small and large conduits even with wire or cable in place
- High impact nylon winder case with large handle grip

#### Suitable for

- Data and telecommunication industry
- Pulling over distances from 15 m, 30 m, 45 m, 60 m, 76 m

| Item                                              | Diameter<br>mm | Length | Part No.        |
|---------------------------------------------------|----------------|--------|-----------------|
| MagnumPRO™ Fiberglass fish tape 4.5 mm dia., 15 m | 4.5            | 15 m   | <b>52041752</b> |
| MagnumPRO™ Fiberglass fish tape 4.5 mm dia., 30 m | 4.5            | 30 m   | <b>52041753</b> |
| MagnumPRO™ Fiberglass fish tape 4.8 mm dia., 60 m | 4.8            | 60 m   | <b>50357468</b> |
| MagnumPRO™ Fiberglass fish tape 4.8 mm dia., 76 m | 4.8            | 76 m   | <b>50357476</b> |

| Accessories                        | Part No. | Page |
|------------------------------------|----------|------|
| Fibreglass fish tape accessory set | 50357506 |      |
| Pulling eyelet 3.0 mm              | 50359193 |      |
| Pulling eyelet 4.8 mm              | 50359304 |      |

## Steel fish tape EZ Reach

### Characteristics

- With hand crank
- Flat steel tape for working above suspended ceilings, under carpets and through walls

### Suitable for

- Pulling up to 7.5 m length

| Item                           | Tape dimensions<br>mm | Part No.        |
|--------------------------------|-----------------------|-----------------|
| Steel fish tape EZ Reach 7.5 m | 7,5 x 6               | <b>50016962</b> |



## Smart Butler fibreglass cable pulling system with steel reel

- ▶ Unique, user-friendly design, galvanised and sprayed
- ▶ Teflon-coated adapter for low resistance when rolling up and out

### Characteristics

- High pushing force
- Low-resistance winding and rewinding
- Secure working thanks to operative brake
- Effective working with accessory directly mounted on frame
- From steel reel 790 mm dia., incl. rollers



| Item                                                                                    | Diameter<br>mm | steel reel basket<br>mm | Length | Weight<br>kg | Version | Part No.        |
|-----------------------------------------------------------------------------------------|----------------|-------------------------|--------|--------------|---------|-----------------|
| Smart Butler fibreglass cable pulling-in system<br>330 mm dia. steel reel basket, 40 m  | 4.5            | Ø 330                   | 40 m   | 4            |         | <b>52055313</b> |
| Smart Butler fibreglass cable pulling-in system<br>330 mm dia. steel reel basket, 60 m  | 4.5            | Ø 330                   | 60 m   | 5            |         | <b>52055315</b> |
| Smart Butler fibreglass cable pulling-in system<br>330 mm dia. steel reel basket, 80 m  | 4.5            | Ø 330                   | 80 m   | 6            |         | <b>52055316</b> |
| Smart Butler fibreglass cable pulling-in system<br>550 mm dia. steel reel basket, 40 m  | 6.0            | Ø 550                   | 40 m   | 10           |         | <b>52055325</b> |
| Smart Butler fibreglass cable pulling-in system<br>550 mm dia. steel reel basket, 60 m  | 6.0            | Ø 550                   | 60 m   | 11           |         | <b>52055326</b> |
| Smart Butler fibreglass cable pulling-in system<br>550 mm dia. steel reel basket, 80 m  | 6.0            | Ø 550                   | 80 m   | 12           |         | <b>52055327</b> |
| Smart Butler fibreglass cable pulling-in system<br>550 mm dia. steel reel basket, 100 m | 6.0            | Ø 550                   | 100 m  | 12           |         | <b>52055328</b> |
| Smart Butler fibreglass cable pulling-in system<br>660 mm dia. steel reel basket, 40 m  | 7.5            | Ø 660                   | 40 m   | 13           |         | <b>52055337</b> |
| Smart Butler fibreglass cable pulling-in system<br>660 mm dia. steel reel basket, 60 m  | 7.5            | Ø 660                   | 60 m   | 14           |         | <b>52055338</b> |
| Smart Butler fibreglass cable pulling-in system<br>660 mm dia. steel reel basket, 80 m  | 7.5            | Ø 660                   | 80 m   | 15           |         | <b>52055339</b> |

## Cable pulling systems

| Item                                                                                     | Diameter<br>mm | steel reel basket<br>mm | Length | Weight<br>kg | Version       | Part No.        |
|------------------------------------------------------------------------------------------|----------------|-------------------------|--------|--------------|---------------|-----------------|
| Smart Butler fiberglass cable pulling-in system<br>660 mm dia. steel reel basket, 100 m  | 7.5            | Ø 660                   | 100 m  | 17           |               | <b>52055340</b> |
| Smart Butler fiberglass cable pulling-in system<br>660 mm dia. steel reel basket, 120 m  | 7.5            | Ø 660                   | 120 m  | 18           |               | <b>52055341</b> |
| Smart Butler fiberglass cable pulling-in system<br>660 mm dia. steel reel basket, 40 m   | 9.0            | Ø 660                   | 40 m   | 14           |               | <b>52055347</b> |
| Smart Butler fiberglass cable pulling-in system<br>660 mm dia. steel reel basket, 60 m   | 9.0            | Ø 660                   | 60 m   | 16           |               | <b>52055348</b> |
| Smart Butler fiberglass cable pulling-in system<br>790 mm dia. steel reel basket, 80 m   | 9.0            | Ø 790                   | 80 m   | 31           | incl. rollers | <b>52055349</b> |
| Smart Butler fiberglass cable pulling-in system<br>790 mm dia. steel reel basket, 100 m  | 9.0            | Ø 790                   | 100 m  | 33           | incl. rollers | <b>52055350</b> |
| Smart Butler fiberglass cable pulling-in system<br>1000 mm dia. steel reel basket, 120 m | 9.0            | Ø 1000                  | 120 m  | 35           | incl. rollers | <b>52055351</b> |
| Smart Butler fiberglass cable pulling-in system<br>1000 mm dia. steel reel basket, 150 m | 9.0            | Ø 1000                  | 150 m  | 37           | incl. rollers | <b>52055352</b> |
| Smart Butler fiberglass cable pulling-in system<br>1000 mm dia. steel reel basket, 150 m | 11.0           | Ø 1000                  | 150 m  | 53           | incl. rollers | <b>52055359</b> |
| Smart Butler fiberglass cable pulling-in system<br>1000 mm dia. steel reel basket, 200 m | 11.0           | Ø 1000                  | 200 m  | 60           | incl. rollers | <b>52055360</b> |
| Smart Butler fiberglass cable pulling-in system<br>1000 mm dia. steel reel basket, 250 m | 11.0           | Ø 1000                  | 250 m  | 67           | incl. rollers | <b>52055361</b> |
| Smart Butler fiberglass cable pulling-in system<br>1000 mm dia. steel reel basket, 300 m | 11.0           | Ø 1000                  | 300 m  | 75           | incl. rollers | <b>52055362</b> |

## Scope of supply

4.5 / 6 mm dia.: Tension head with eyelet, pulling-in tape with pressed start/end sleeves, connecting sleeve WW 1/4"-M6, starting spinner with shackle

7.5 / 9 / 11 mm dia. : Tension head with eyelet, fish tape with pressed start/end sleeves, connecting sleeve WW 1/2"-M12, starting spinner with shackle

| Accessories                                                 | Part No. | Page | Accessories                                                | Part No. | Page |
|-------------------------------------------------------------|----------|------|------------------------------------------------------------|----------|------|
| Smart Butler fiberglass replacement tape 4.5 mm dia., 40 m  | 52055317 |      | Smart Butler fiberglass replacement tape 11 mm dia., 300 m | 52055366 |      |
| Smart Butler fiberglass replacement tape 4.5 mm dia., 60 m  | 52055318 |      | Starter and end bushing WW ¼" for fish tape 4.5 mm dia.    | 52055321 |      |
| Smart Butler fiberglass replacement tape 4.5 mm dia., 80 m  | 52055319 |      | Starter and end bushing WW ¼" for fish tape 6.0 mm dia.    | 52055333 |      |
| Smart Butler fiberglass replacement tape 6 mm dia., 40 m    | 52055329 |      | Starter and end bushing WW ½" for fish tape 7.5 mm dia.    | 52055369 |      |
| Smart Butler fiberglass replacement tape 6 mm dia., 60 m    | 52055330 |      | Starter and end bushing WW ½" for fish tape 9 mm dia.      | 52055370 |      |
| Smart Butler fiberglass replacement tape 6 mm dia., 80 m    | 52055331 |      | Starter and end bushing WW ½" for fish tape 11 mm dia.     | 52055371 |      |
| Smart Butler fiberglass replacement tape 6 mm dia., 100 m   | 52055332 |      | Connecting sleeve for fiberglass 4.5 mm dia.               | 52055322 |      |
| Smart Butler fiberglass replacement tape 7.5 mm dia., 40 m  | 52055342 |      | Connecting sleeve for fiberglass 6 mm dia.                 | 52055334 |      |
| Smart Butler fiberglass replacement tape 7.5 mm dia., 60 m  | 52055343 |      | Connecting sleeves for fiberglass tape 9 mm dia.           | 52055372 |      |
| Smart Butler fiberglass replacement tape 7.5 mm dia., 80 m  | 52055344 |      | Connecting sleeves for fiberglass tape 11 mm dia.          | 52055373 |      |
| Smart Butler fiberglass replacement tape 7.5 mm dia., 100 m | 52055345 |      | Connecting sleeve WW 1/2" with rotary swivel               | 52055374 |      |
| Smart Butler fiberglass replacement tape 7.5 mm dia., 120 m | 52055346 |      | Bulb with shackle WW ¼" for 4.5 mm dia.                    | 52055323 |      |
| Smart Butler fiberglass replacement tape 9 mm dia., 40 m    | 52055353 |      | Bulb with shackle WW ¼" for 6.0 mm dia.                    | 52055335 |      |
| Smart Butler fiberglass replacement tape 9 mm dia., 60 m    | 52055354 |      | Bulb with shackle WW ½" for 7.5 mm dia.                    | 52055367 |      |
| Smart Butler fiberglass replacement tape 9 mm dia., 80 m    | 52055355 |      | Bulb with castor WW ½"                                     | 52055368 |      |
| Smart Butler fiberglass replacement tape 9 mm dia., 100 m   | 52055356 |      | Tension head with eyelet WW 1/4" for 4.5 - 6 mm dia.       | 52055320 |      |
| Smart Butler fiberglass replacement tape 9 mm dia., 120 m   | 52055357 |      | Emergency repair set for fiberglass tape 4.5 mm dia.       | 52055324 |      |
| Smart Butler fiberglass replacement tape 9 mm dia., 150 m   | 52055358 |      | Emergency repair set for fiberglass tape 6 mm dia.         | 52055336 |      |
| Smart Butler fiberglass replacement tape 11 mm dia., 150 m  | 52055363 |      | Emergency repair set for fiberglass tape 7.5 mm dia.       | 52055375 |      |
| Smart Butler fiberglass replacement tape 11 mm dia., 200 m  | 52055364 |      | Emergency repair set for fiberglass tape 9 mm dia.         | 52055376 |      |
| Smart Butler fiberglass replacement tape 11 mm dia., 250 m  | 52055365 |      | Emergency repair set for fiberglass tape 11 mm dia.        | 52055377 |      |



## Easy Roller cable drum unwinder

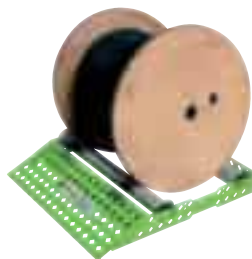
- ▶ Unique, user-friendly design
- ▶ 30 % less weight
- ▶ Ramp with shallow incline

### Characteristics

- Light - 30% less weight
- Easy rolling up and out of heavy cable drums thanks to the ramp with shallow incline
- Rollers with integrated lateral guide
- Possible to fit to the cable drum diameter

### Suitable for

- Large and small cable drums
- Width 500 mm, 250 kg carrying capacity
- Width 650 mm, 250 kg carrying capacity



| Item                                        | Dimension<br>mm   | Width<br>mm | Part No.        |
|---------------------------------------------|-------------------|-------------|-----------------|
| Easy Roller cable roll-up drum,<br>standard | 530 x 570 x 90 mm | 530         | <b>52055383</b> |
| Easy Roller cable roll-up drum,<br>wide     | 670 x 605 x 95 mm | 670         | <b>52055384</b> |

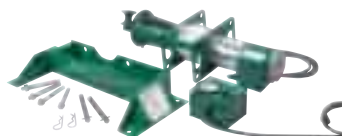
## Ultra Tugger™ cable puller 6800-22 CE

- ▶ Lightweight, portable cable puller
- ▶ Tapered capstan and patented rope guide system for better control of the rope when feeding onto the capstan
- ▶ Pulling force gauge for monitoring the max. pulling of 3.6 t

### Characteristics

- Direct gear drive

| Item                                  | Part No.                                                                                                                                       |      |  |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------|--|
| Ultra Tugger™ cable puller 6800-22 CE | 50031961                                                                                                                                       |      |  |
| Technical data                        |                                                                                                                                                |      |  |
| Maximum pulling force                 | 3.6 t                                                                                                                                          |      |  |
| Continuous output                     | 3 t                                                                                                                                            |      |  |
| Pulling rate                          | 2.7 m/min at no load,<br>2.4 m/min at 900 kg load,<br>2.3 m/min at 1,800 kg load,<br>2.1 m/min at 2,700 kg load,<br>1.8 m/min at 3,600 kg load |      |  |
| Dimension                             | 300 x 660 x 220 mm                                                                                                                             |      |  |
| Motor                                 | 230 V, 50 Hz                                                                                                                                   |      |  |
| Scope of supply                       | Part No.                                                                                                                                       | Page |  |
| Pulling force gauge                   | 50010697                                                                                                                                       |      |  |
| Device for floor-mounting             | 50008650                                                                                                                                       |      |  |



### Rope for cable puller 6800-22 CE



#### Characteristics

- Breaking strength approx. 14.2 t
- Rope diameter 22 mm
- Rope on rope stand

| Item                                         | Part No. |
|----------------------------------------------|----------|
| Rope for cable puller 6800-22 CE, 91 m long  | 50341367 |
| Rope for cable puller 6800-22 CE, 182 m long | 50341375 |
| Rope for cable puller 6800-22 CE, 365 m long | 50341383 |
| Rope stand for ropes 91 and 182 m            | 50343629 |

### Tray type sheaves for cable puller 6800-22 CE

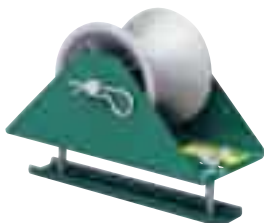


#### Characteristics

- Steel frames with forged hook 25 mm
- Sheaves from aluminum alloy with self-lubricating bearings
- Max. rated capacity 3.6 t
- For hooking

| Item                    | External diameter<br>mm | Internal radius<br>mm | Width<br>mm | Weight<br>kg | Part No. |
|-------------------------|-------------------------|-----------------------|-------------|--------------|----------|
| Tray type sheave 125 mm | 300                     | 100                   | 125         | 12.0         | 50008722 |
| Tray type sheave 150 mm | 460                     | 180                   | 150         | 20.0         | 50008730 |
| Tray type sheave 165 mm | 600                     | 250                   | 165         | 30.0         | 50008749 |

### Cable tray rollers 125 mm



#### Characteristics

- Sheaves from aluminum alloy
- Self-lubricating bearings
- Steel frames for mounting to cable ducts up to 50 mm thickness

| Item                      | Length<br>mm | Width<br>mm | Weight<br>kg | Part No. |
|---------------------------|--------------|-------------|--------------|----------|
| Cable tray rollers 125 mm | 300          | 125         | 5.0          | 50153323 |
| Cable tray rollers 125 mm | 560          | 125         | 8.0          | 50190946 |

## Cable tray roller

### Characteristics

- Steel ball-bearings
- Steel frames
- Mounting slots
- Universal mounting brackets



| Item                            | Version  | Width of cable conduit<br>mm | Weight<br>kg | Part No. |
|---------------------------------|----------|------------------------------|--------------|----------|
| Cable tray rollers 300 - 450 mm | Straight | 300 - 450                    | 3.6          | 50273833 |
| Cable tray rollers 500 - 600 mm | Straight | 500 - 600                    | 4.5          | 50273841 |
| Cable tray rollers 600 - 760 mm | Straight | 600 - 760                    | 5.9          | 50273868 |
| Cable tray rollers 300 - 450 mm | Radius   | 300 - 450                    | 5.0          | 50273884 |
| Cable tray rollers 500 - 600 mm | Radius   | 500 - 600                    | 5.4          | 50273892 |
| Cable tray rollers 600 - 760 mm | Radius   | 600 - 760                    | 5.9          | 50273906 |



## Pulling grips

## Pulling grips Junior, closed

**Characteristics**

- Single weave galvanized steel mesh with flexible pulling eyelet

**Suitable for**

- The pulling-in of small diameter cables
- For manual pulling of feed lines in pipes and cable ducts

| Item                                                        | Length of mesh<br>mm | Eye length<br>mm | For cable diameter<br>mm | Max. pulling force<br>kN | Part No. |
|-------------------------------------------------------------|----------------------|------------------|--------------------------|--------------------------|----------|
| Pulling grips Junior, closed for cable diameters 5 - 6 mm   | 110                  | 83               | 5 - 6                    | 0.3                      | 50305964 |
| Pulling grips Junior, closed for cable diameters 7 - 9 mm   | 110                  | 83               | 7 - 9                    | 0.4                      | 50305840 |
| Pulling grips Junior, closed for cable diameters 10 - 12 mm | 180                  | 96               | 10 - 12                  | 0.8                      | 50305867 |
| Pulling grips Junior, closed for cable diameters 13 - 15 mm | 220                  | 110              | 13 - 15                  | 1.1                      | 50305883 |
| Pulling grips Junior, closed for cable diameters 16 - 18 mm | 255                  | 130              | 16 - 18                  | 1.7                      | 50305905 |
| Pulling grips Junior, closed for cable diameters 19 - 25 mm | 255                  | 146              | 19 - 25                  | 2.4                      | 50305921 |
| Pulling grips Junior, closed for cable diameters 26 - 31 mm | 300                  | 165              | 26 - 31                  | 3.4                      | 50305948 |

**T-Basket type pulling grips, closed**
**Characteristics**

- Double weave galvanized steel mesh with flexible pulling eyelet

**Suitable for**

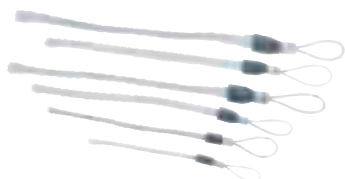
- For medium-weight pulls in pipes and cable ducts



| Item                                                    | Length of mesh<br>mm | Eye length<br>mm | For cable diameter<br>mm | Max. pulling force<br>kN | Part No. |
|---------------------------------------------------------|----------------------|------------------|--------------------------|--------------------------|----------|
| Pulling grips type T, closed for cable dia. 13 - 15 mm  | 535                  | 200              | 13 - 15                  | 4.0                      | 50305581 |
| Pulling grips type T, closed for cable dia. 16 - 18 mm  | 610                  | 200              | 16 - 18                  | 4.9                      | 50305603 |
| Pulling grips type T, closed for cable dia. 19 - 25 mm  | 610                  | 230              | 19 - 25                  | 6.0                      | 50305620 |
| Pulling grips type T, closed for cable dia. 26 - 38 mm  | 610                  | 230              | 26 - 38                  | 8.7                      | 50305646 |
| Pulling grips type T, closed for cable dia. 39 - 50 mm  | 610                  | 280              | 39 - 50                  | 14.5                     | 50305662 |
| Pulling grips type T, closed for cable dia. 51 - 63 mm  | 610                  | 300              | 51 - 63                  | 16.4                     | 50305689 |
| Pulling grips type T, closed for cable dia. 64 - 76 mm  | 610                  | 300              | 64 - 76                  | 21.7                     | 50305700 |
| Pulling grips type T, closed for cable dia. 77 - 88 mm  | 610                  | 360              | 77 - 88                  | 21.7                     | 50305727 |
| Pulling grips type T, closed for cable dia. 89 - 100 mm | 660                  | 360              | 89 - 100                 | 27.5                     | 50305743 |
| Pulling grips type T, closed for cable dia. 19 - 25 mm  | 915                  | 230              | 19 - 25                  | 6.0                      | 50305760 |
| Pulling grips type T, closed for cable dia. 26 - 38 mm  | 915                  | 230              | 26 - 38                  | 8.7                      | 50305786 |
| Pulling grips type T, closed for cable dia. 39 - 50 mm  | 915                  | 280              | 39 - 50                  | 14.5                     | 50310100 |
| Pulling grips type T, closed for cable dia. 51 - 63 mm  | 915                  | 300              | 51 - 63                  | 16.4                     | 50305808 |
| Pulling grips type T, closed for cable dia. 64 - 76 mm  | 915                  | 300              | 64 - 76                  | 21.7                     | 50310127 |
| Pulling grips type T, closed for cable dia. 77 - 88 mm  | 915                  | 360              | 77 - 88                  | 21.7                     | 50305824 |
| Pulling grips type T, closed for cable dia. 89 - 100 mm | 1020                 | 360              | 89 - 100                 | 27.5                     | 50310143 |

## Pulling grips

### Pulling grip set, closed



#### Characteristics

- Set of the most important pulling grips for the most frequently required pulling operations

| Item                                                                        | Diameter<br>mm | Part No.        |
|-----------------------------------------------------------------------------|----------------|-----------------|
| Pulling grip set 50305840, 50305876, 50305883, 50305905, 50305921, 50305948 | 7 - 31         | <b>50307584</b> |
| Pulling grip set 50305760, 50305786, 50310100                               | 19 - 50        | <b>50314823</b> |
| Pulling grip set 50305808, 50310100, 50310127                               | 51 - 76        | <b>50314831</b> |
| Pulling grip set 50305760, 50305786, 50305808, 50310100, 50310127           | 19 - 76        | <b>50314840</b> |

### Pulling grip, open



#### Characteristics

- Single woven galvanised steel netting mesh with bar closure
- Offset flexible eyelet

#### Suitable for

- Easy and straight pulls when the cable end is not available

| Item                                               | Length of mesh<br>mm | Eye length<br>mm | For cable diameter<br>mm | Max. pulling force<br>kN | Part No.        |
|----------------------------------------------------|----------------------|------------------|--------------------------|--------------------------|-----------------|
| Pulling grip open, for cable diameters 13 - 15 mm  | 150                  | 175              | 13 - 15                  | 1.3                      | <b>50306588</b> |
| Pulling grip open, for cable diameters 16 - 18 mm  | 200                  | 175              | 16 - 18                  | 1.6                      | <b>50310240</b> |
| Pulling grip open, for cable diameters 19 - 25 mm  | 250                  | 175              | 19 - 25                  | 1.9                      | <b>50306600</b> |
| Pulling grip open, for cable diameters 26 - 31 mm  | 300                  | 200              | 26 - 31                  | 3.0                      | <b>50310267</b> |
| Pulling grip open, for cable diameters 32 - 38 mm  | 350                  | 200              | 32 - 38                  | 4.0                      | <b>50306626</b> |
| Pulling grip open, for cable diameters 39 - 44 mm  | 380                  | 230              | 39 - 44                  | 5.1                      | <b>50310283</b> |
| Pulling grip open, for cable diameters 45 - 50 mm  | 400                  | 250              | 45 - 50                  | 6.7                      | <b>50306642</b> |
| Pulling grip open, for cable diameters 51 - 63 mm  | 480                  | 250              | 51 - 63                  | 8.0                      | <b>50310305</b> |
| Pulling grip open, for cable diameters 64 - 76 mm  | 500                  | 250              | 64 - 76                  | 9.7                      | <b>50306669</b> |
| Pulling grip open, for cable diameters 77 - 88 mm  | 530                  | 300              | 77 - 88                  | 10.6                     | <b>50310321</b> |
| Pulling grip open, for cable diameters 89 - 100 mm | 600                  | 300              | 89 - 100                 | 10.6                     | <b>50306685</b> |

**Cable Cream™ cable puller lubricant**
**Characteristics**

- Adheres well without dripping
- Easy to remove
- Compatible with all cable insulation types
- Environmentally safe / non-hazardous

| Item                                       | Part No. |
|--------------------------------------------|----------|
| Cable Cream™ cable puller lubricant 0.95 l | 50352075 |
| Cable Cream™ cable puller lubricant 3.8 l  | 50352083 |


**Cable installation lubricant**
**Characteristics**

- Reduces friction by up to 80 %
- Biodegradable
- Harmless to the user

**Suitable for**

- Electric/telephone cables in pipes Ø 16 - 25 mm
- Large cable diameters

| Item                                                                       | Part No. |
|----------------------------------------------------------------------------|----------|
| Cable lubricant gel in tube 0.25 kg                                        | 52055379 |
| Cable lubricant gel in bottle 1 kg                                         | 52055380 |
| Cable lubricant liquid for optical fibres and power cables, canister 5 kg  | 52055381 |
| Cable lubricant liquid for optical fibres and power cables, canister 10 kg | 52055382 |


**Lubricant foam spray**
**Characteristics**

- Reduces friction by up to 80 %
- Biodegradable
- Harmless to the user
- Silicon-free

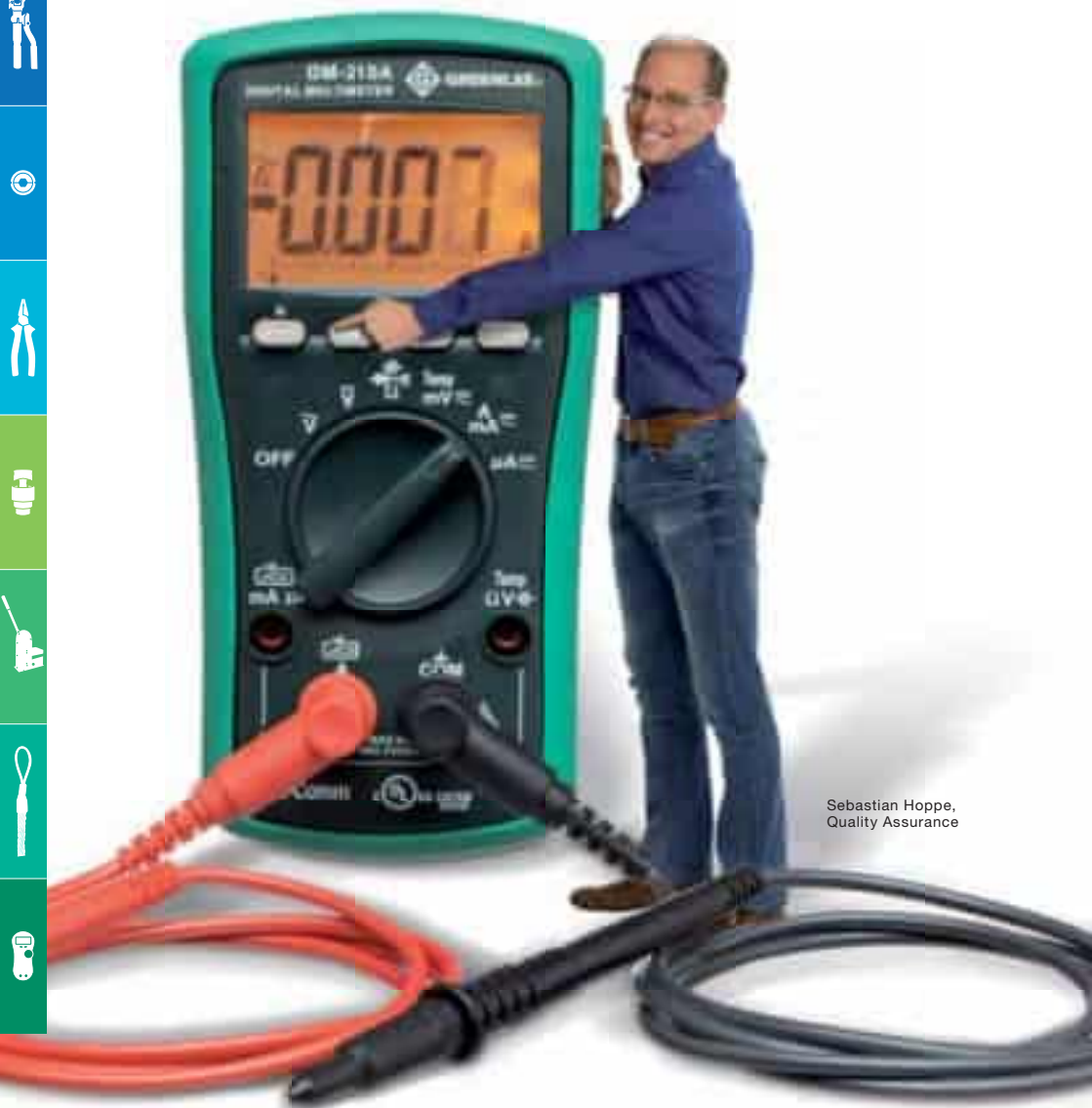
**Suitable for**

- Electric/telephone cables in pipes Ø 16 - 25 mm

| Item                         | Part No. |
|------------------------------|----------|
| Lubricant foam bottle 400 ml | 52055378 |



” Believe your eyes: Testing and measuring instruments from Greenlee deliver highly-precise readings every single day. We guarantee this with the Limited Lifetime Warranty.“



Sebastian Hoppe,  
Quality Assurance



|                                        |     |
|----------------------------------------|-----|
| Voltage testers                        | 616 |
| Digital multimeter                     | 620 |
| Clamp meters                           | 634 |
| VDE testing instruments                | 646 |
| Temperature gauges                     | 650 |
| Cable and conductor identifiers        | 654 |
| Network, measuring devices and testers | 656 |



## *Measuring and testing up to 1000 V.*

### **Voltage testers for distribution boards, meters, control panels etc.**

Fast testing for the presence of voltage. Suitable for measuring DC or AC voltage.

Some of the devices output warning signals, some feature a patented phase sequence indicator display. The voltage ranges are from 5 to 1000 volts, depending on the device and the testing category.

**If handled correctly, we offer a lifetime limited warranty on these products.**



- For fast contactless voltage testing (EF function).
- For DC and AC voltage.
- Also with polarity display.
- Detachable measuring tips for a range of applications.
- FI resolution function.
- 2-pole rotary field display, 1-pole phase test.
- Continuity test.
- Voltage measurement without battery.



## ■ Fast testing at AC voltage 5 – 1000 Volt: GT-16

- ▶ Fast and contactless testing with adjustable sensitivity.
- ▶ With an optical and acoustic signal.
- ▶ Integrated On/Off switch.
- ▶ Handy pin design for any jacket pocket.

### Benefits:

- ▶ Fast and easy testing of various voltage ranges.
- ▶ Increased battery life by disabling the stand-by function.
- ▶ The voltage tester is always to hand.



## ■ Includes phase sequence indicator display: GT-85NE



- ▶ With patented phase sequence indicator display.
- ▶ Also for resistance measurements.
- ▶ With diode test.
- ▶ Removable tips.

### Benefits:

- ▶ Just one measuring device for several types of measurement.
- ▶ Flexible application with wall outlets, Schuko-compatible (19 mm clearance) and terminals.
- ▶ Unique measuring point illumination for working in poor lighting conditions.

## ■ Features of testers

|         | Voltage range  | Category/<br>voltage               | Contactless | Display | FI resolution | Phase rotation<br>display | Continuity test | Single pole<br>phase test | Measurement<br>without battery |
|---------|----------------|------------------------------------|-------------|---------|---------------|---------------------------|-----------------|---------------------------|--------------------------------|
| GT-12A  | 50 - 1000 AC   | CAT IV / 1000 V                    | ✓           | LED     |               |                           |                 |                           |                                |
| GT-16   | 5 - 1000 AC    | CAT IV / 1000 V                    | ✓           | LED     |               |                           |                 |                           |                                |
| GT-55NE | 6 - 690V AC/DC | CAT III / 1000 V<br>CAT IV / 600 V |             | LED     | ✓             | ✓                         | ✓               | ✓                         | ✓                              |
| GT-85NE | 6 - 690V AC/DC | CAT III / 1000 V<br>CAT IV / 600 V |             | LCD     | ✓             | ✓                         | ✓               | ✓                         | ✓                              |

Voltage testers

**GT-12A Contactless voltage tester 50 - 1000 V**



**Characteristics**

- Fast, easy, contactless voltage testing
- Clear LED and acoustic warning signal when the voltage has been determined
- ON/OFF switch provides longer battery service life
- Handy pen format, which fits easily into a jacket or tool pocket
- Rubber-coated comfort handle
- Fast, easy replacement of batteries
- Automatic self test

| Technical data                                |                |      |
|-----------------------------------------------|----------------|------|
| Frequency range                               | 50 - 500 Hz    |      |
| Voltage range                                 | 50 - 1000 V AC |      |
| Measuring category                            | CAT IV 1000V   |      |
| Item                                          | Part No.       |      |
| GT-12A Contactless voltage tester 50 - 1000 V | 52063422       |      |
| Scope of supply                               |                | Page |
| Battery 2 x 1.5 V AAA                         |                |      |

**GT-16 Adjustable, contactless voltage tester 5 - 1000 V**



**Characteristics**

- Fast, easy, contactless voltage testing
- Clear LED and acoustic warning signal when the voltage has been determined
- ON/OFF switch provides longer battery service life
- Handy pen format, which fits easily into a jacket or tool pocket
- Ergonomically shaped comfort handle
- Fast, easy replacement of batteries
- Automatic self test
- Adjustable sensibility by rotary switch

| Technical data                                          |                            |      |
|---------------------------------------------------------|----------------------------|------|
| Frequency range                                         | 50 - 500 Hz                |      |
| Voltage range                                           | 5 - 1000 V AC              |      |
| Measuring category                                      | CAT III 600V, CAT IV 1000V |      |
| Item                                                    | Part No.                   |      |
| GT-16 Adjustable, contactless voltage tester 5 - 1000 V | 52033580                   |      |
| Scope of supply                                         |                            | Page |
| Battery 1 x 1.5 V AAA                                   |                            |      |

## GT-55NE Bipolar voltage tester with LED display

### Characteristics

- LED display 12, 24, 50, 120, 230, 400, 750 V AC/DC
- Power LED for measuring point illumination
- Display of AC and DC voltage
- Bipolar rotary field testing
- Unipolar phase testing, optical and acoustic
- Continuity check, optical and acoustic
- Diode test
- Polarity indicator, loud beeper
- IP 2X contact protection
- IP 65 spray water protected and dust-proof



| Technical data                                  |                            |      |
|-------------------------------------------------|----------------------------|------|
| Voltage range                                   | 12 - 750 V AC/DC           |      |
| Frequency                                       | 45 - 65 Hz                 |      |
| Measuring category                              | CAT III 1000V, CAT IV 600V |      |
| Item                                            | Part No.                   |      |
| GT-55NE bipolar voltage tester with LED display | 52049408                   |      |
| Scope of supply                                 | Part No.                   | Page |
| Battery 2 x 1.5 V AAA                           |                            |      |

| Accessories                                                        | Part No. | Page |
|--------------------------------------------------------------------|----------|------|
| TC-30 Nylon carrying case for measuring instruments with belt loop | 50075365 | 645  |
| Replacement tips                                                   | 52034234 |      |

## GT-85NE Bipolar voltage tester with LCD display

### Characteristics

- LCD display with background illumination
- Actual resistance measurement up to 2 K $\Omega$
- Power LED for measuring point illumination
- Display of AC and DC voltage
- Bipolar rotary field testing
- Unipolar phase testing, optical and acoustic
- Continuity check, optical and acoustic
- Diode test
- Polarity indicator, loud beeper
- IP 2X contact protection
- IP65 - spray water protected and dust-proof



| Technical data                                  |                            |      |
|-------------------------------------------------|----------------------------|------|
| Voltage range                                   | 12 - 750 V AC/DC           |      |
| Resistance                                      | 0 - 2 K $\Omega$           |      |
| Frequency                                       | 0 - 65 Hz                  |      |
| Measuring category                              | CAT III 1000V, CAT IV 600V |      |
| Item                                            | Part No.                   |      |
| GT-85NE Bipolar voltage tester with LCD display | 52049407                   |      |
| Scope of supply                                 | Part No.                   | Page |
| Battery 2 x 1.5 V AAA                           |                            |      |

| Accessories                                                        | Part No. | Page |
|--------------------------------------------------------------------|----------|------|
| TC-30 Nylon carrying case for measuring instruments with belt loop | 50075365 | 645  |
| Replacement tips                                                   | 52034234 |      |

# Digital all-rounder.

## Multimeters for every application.

Measuring, detecting, testing: These terms can be used to describe the complex performance spectrum of our digital multimeters. Their numerous functions make these devices genuine all-rounders.

The following areas reflect various applications of the multimeters:

- ▶ Multimeter for electrical and telecommunication.
- ▶ For vehicle electrics.
- ▶ For air-conditioning systems.
- ▶ For laboratory and field use.

**If handled correctly, we offer a lifetime limited warranty on these products.**



- For DC and AC.
- For DC and AC voltage.
- With digital and analogue display.
- For measuring categories II, III and IV.
- With true effective value measurement.
- For frequency, capacity and resistance measurement.



## Specifically for electricians: DM-200A

- ▶ Optical RS 232 and USB interface.
- ▶ Automatic range selection and data hold function.
- ▶ **Contactless voltage detection** (EF function).
- ▶ Large, backlit display.
- ▶ Automatic shut-off.

### Benefits:

- ▶ Fast simple and contactless testing of the presence of voltage.
- ▶ The automatic range selection function enables optimised measured value read-off at all times.
- ▶ Measured values transferred straight to a PC through the optical RS232 interface and USB cable.



## Outstanding measuring accuracy and versatile applications: DM-860A



- ▶ 5  $\frac{1}{2}$ -digit display with a display range of 500,000.
- ▶ Temperature, frequency and capacity measurement.
- ▶ **TRUE RMS effective value measurement.**

### Benefits:

- ▶ Extremely accurate when recording and displaying the measured values.
- ▶ The broad spectrum in temperature measurements enables use in air-conditioning systems, in laboratories or in industries.
- ▶ Quick fault diagnosis by measuring the true effective value.

- ▶ *More on Page 632.*

## TRUE RMS: precise measurement, even when consumption fluctuates.

- ▶ TRUE RMS - true effective value measurement is a special function of some GREENLEE multimeters. This function enables correct consumption measurement with non-linear - i.e. sinusoidal - consumption.

### Benefits:

- ▶ True consumption measurements without errors through sinusoidal consumers.
- ▶ More reliable planning and lower error quotas - caused for example by incorrectly calculated current consumption.
- ▶ **Devices with TRUE RMS: DM-510A, DM-810A, DM-820A and DM-860A.**



## ■ Robust and high capacity for industrial use: DM-65.

- ▶ The most diverse applications.
- ▶ Large **backlit display with bar chart**.

### Benefits:

- ▶ Suitable for applications to CAT IV, 600 V.
- ▶ The large illuminated display simplifies read-off under all lighting conditions.

▶ More on Page 626.

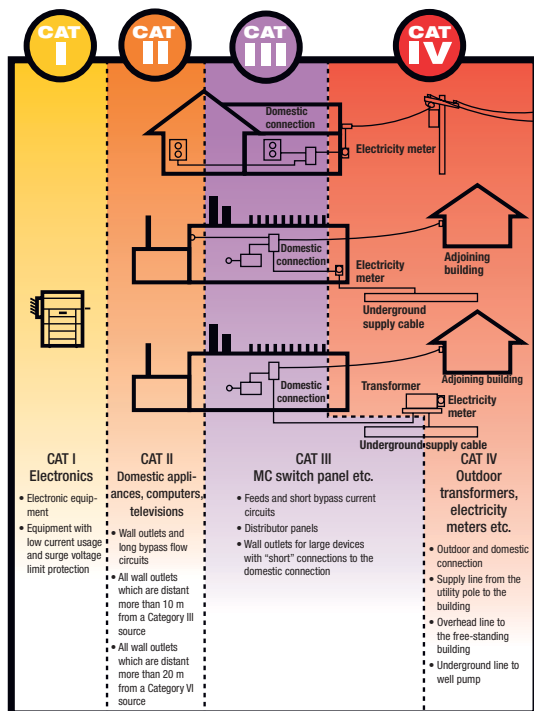


## ■ Features of testers

|         | True effective value | DC A (A max.) | AC A (A max.) | DC V (V max.) | AC V (V max.) | Resistance (MΩ) | Optical interface | Automatic and manual range selection | Contactless voltage testing | Measuring category                    |
|---------|----------------------|---------------|---------------|---------------|---------------|-----------------|-------------------|--------------------------------------|-----------------------------|---------------------------------------|
| DM-25   |                      |               |               | 600           | 600           | 2               |                   |                                      |                             | III, 600 V                            |
| DM-45   |                      | 10            | 10            | 600           | 600           | 40              |                   | ✓                                    |                             | III, 600 V                            |
| DM-65   |                      | 10            | 10            | 1000          | 1000          | 60              |                   | ✓                                    |                             | III, 1000 V<br>IV, 600 V              |
| DM-200A |                      | 8             | 8             | 1000          | 1000          | 60              | ✓                 | ✓                                    | ✓                           | IV, 300 V<br>III, 600 V<br>II, 1000 V |
| DM-210A |                      | 8             | 8             | 1000          | 1000          | 60              | ✓                 | ✓                                    | ✓                           | IV, 300 V<br>III, 600 V<br>II, 1000 V |
| DM-510  | ✓                    | 8             | 8             | 1000          | 1000          | 60              | ✓                 | ✓                                    | ✓                           | IV, 300 V<br>III, 600 V<br>II, 1000 V |
| DM-810A | ✓                    | 10            | 10            | 1000          | 1000          | 50              | ✓                 | ✓                                    | ✓                           | IV, 1000 V                            |
| DM-820A | ✓                    | 10            | 10            | 1000          | 1000          | 50              | ✓                 | ✓                                    | ✓                           | IV, 1000 V                            |
| DM-860A | ✓                    | 10            | 10            | 1000          | 1000          | 50              | ✓                 | ✓                                    |                             | IV, 1000 V                            |



# What you should know about the nominal capacities of the measuring categories.



Protective values which greatly exceed the nominal capacity of a system are stipulated in the standards of the IEC categories. Without this additional protection, transient overvoltages which occur with increasing regularity may cause serious or fatal injuries.



## Measurement Category I

is the signal level for telecommunications and electronic equipment.

## Measurement Category II

is the local level for permanently connected devices or devices not operated by means of a fixed connection - including all types of illumination from household devices to office equipment such as copy machines. Can also be used in Category I ranges.

## Measurement Category III

is the distribution level for fixed main or bypass flow circuits. These electric circuits are usually separated by at least one level of transformer barrier of Category IV (public utility or other high-voltage power source). Can also be used in Category II and Category I ranges.

## Measurement Category IV

is the main electric supply level. Greenlee is setting new standards by offering equipment that meets the highest protective values of IEC standards and which are certified accordingly. Can be used in all category ranges.

**Greenlee equipment** – tested and certified for compliance with norms by an independent party. This catalogue states the category for many Greenlee devices, indicating that these devices comply with the various IEC categories (II, III or IV). All these references represent the categories confirmed in tests by independent testing organisations – giving you additional assurance.

### The right type of protection for the task at hand.

No matter where you may need overvoltage protection – select a device which has at least the nominal capacity suitable for the work you are carrying out.

## Digital multimeter

### DM Series in detail



| Part No.                             | 52059476      | 52059477      | 52059478                       | 52047801                                       | 52047802                                       | 52047803                                       |
|--------------------------------------|---------------|---------------|--------------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|
| Catalog-no.                          | DM-25         | DM-45         | DM-65                          | DM-200A                                        | DM-210A                                        | DM-510A                                        |
| True RMS                             |               |               |                                |                                                |                                                | •                                              |
| DC A (A max.)                        |               | 10            | 10                             | 8                                              | 8                                              | 8                                              |
| Maximum resolution (μA)              |               | 0.1           | 0.1                            | 0.1                                            | 0.1                                            | 0.1                                            |
| Best accuracy (%)                    |               | 1.0           | 1.0                            | 0.5                                            | 0.8                                            | 0.5                                            |
| AC A (A max.)                        |               | 10            | 10                             | 8                                              | 8                                              | 8                                              |
| Maximum resolution (μA)              |               | 0.1           | 0.1                            | 0.1                                            | 0.1                                            | 0.1                                            |
| Best accuracy (%)                    |               | 1.8           | 1.8                            | 1.0                                            | 1.0                                            | 1.0                                            |
| DC V (V max.)                        | 600           | 600           | 1000                           | 1000                                           | 1000                                           | 1000                                           |
| Maximum resolution (μV)              | 10 mV         | 100           | 100                            | 10                                             | 10                                             | 10                                             |
| Best accuracy (%)                    | 0.8           | 0.8           | 0.8                            | 0.2                                            | 0.2                                            | 0.2                                            |
| AC V (V max.)                        | 600           | 600           | 1000                           | 1000                                           | 1000                                           | 1000                                           |
| Maximum resolution (μV)              | 100 mV        | 1000          | 1000                           | 10                                             | 10                                             | 10                                             |
| Best accuracy (%)                    | 1.2           | 0.8           | 0.8                            | 1.0                                            | 1.0                                            | 1.0                                            |
| Resistance (MΩ)                      | 2             | 40            | 60                             | 60                                             | 60                                             | 60                                             |
| Maximum resolution (mΩ)              | 100           | 100           | 100                            | 100                                            | 100                                            | 100                                            |
| Best accuracy (%)                    | 1.0           | 1.0           | 1.0                            | 0.5                                            | 0.5                                            | 0.5                                            |
| Continuity and beeper                | •             | •             | •                              | •                                              | •                                              | •                                              |
| Diode test                           | •             | •             | •                              | •                                              | •                                              | •                                              |
| Capacitance                          |               | 200 μF        | 400 μF                         |                                                | •                                              | •                                              |
| Frequency measurement                |               | •             | •                              | •                                              | •                                              | •                                              |
| Frequency response (Hz)              | 40-400        | 40-400        | 40-400                         | 40-500                                         | 40-500                                         | 40-500                                         |
| Temperature (T1)                     |               | •             | •                              |                                                | •                                              | •                                              |
| Display type                         | Digital       | Digital       | Digital                        | Digital                                        | Digital                                        | Digital                                        |
| Display of updating rate (x/s)       | 2.5           | 3.0           | 3.0                            | 5                                              | 5                                              | 5                                              |
| Coverage                             | 2000          | 4000          | 6000                           | 2500                                           | 2500                                           | 2500                                           |
| Analogue bar chart                   |               |               | •                              | 24                                             | 24                                             | 24                                             |
| Updating rate analogue (x/s)         |               |               |                                | 40                                             | 40                                             | 40                                             |
| Computer Interface                   |               |               |                                | USB, RS 232                                    | USB, RS 232                                    |                                                |
| Automatic and manual range selection |               | •             | •                              | •                                              | •                                              | •                                              |
| Automatic stop                       |               | •             | •                              | •                                              | •                                              |                                                |
| Non-contact voltage detection        |               |               |                                | •                                              | •                                              | •                                              |
| Data Hold (measured data memory)     |               | •             | •                              | •                                              | •                                              | •                                              |
| Minimum value / maximum value        |               |               |                                |                                                |                                                |                                                |
| Relative compensation function       |               |               |                                | •                                              | •                                              | •                                              |
| Measurement category rating          | CAT III 600 V | CAT III 600 V | CAT III 1000 V<br>CAT IV 600 V | CAT II 1000 V<br>CAT III 300 V<br>CAT IV 600 V | CAT II 1000 V<br>CAT III 300 V<br>CAT IV 600 V | CAT II 1000 V<br>CAT III 300 V<br>CAT IV 600 V |
| CE                                   | •             | •             | •                              | •                                              | •                                              | •                                              |
| Limited lifetime warranty            | •             | •             | •                              | •                                              | •                                              | •                                              |

## DM-25 Digital multimeter 600 V AC/DC

### Characteristics

- AC/DC voltage measurement
- Resistance measurement
- Audible continuity test
- Diode test

| Technical data                       |                             |      |
|--------------------------------------|-----------------------------|------|
| Display                              | Digital                     |      |
| Voltage measurement                  | 0.1 - 600 V                 |      |
| Resistance                           | 0.1 $\Omega$ - 2 M $\Omega$ |      |
| Measuring category                   | CAT III 600V                |      |
| Item                                 | Part No.                    |      |
| DM-25 Digital multimeter 600 V AC/DC | 52059476                    |      |
| Scope of supply                      | Part No.                    | Page |
| Test leads                           |                             |      |
| Battery 9 V                          |                             |      |
| Protective cover                     |                             |      |



## DM-45 Digital multimeter 600 V AC/DC with temperature measurement

### Characteristics

- AC/DC voltage and current measurement
- Resistance measurement
- Audible continuity testing, diode test, temperature measurement
- Frequency and capacitance measurement

| Technical data                                                    |                              |      |
|-------------------------------------------------------------------|------------------------------|------|
| Display                                                           | Digital                      |      |
| Capacitance                                                       | 10 pF - 200 $\mu$ F          |      |
| Voltage measurement                                               | 1 mV - 600 V                 |      |
| Current measurement                                               | 0.10 $\mu$ A - 10 A          |      |
| Resistance                                                        | 0.1 $\Omega$ - 40 M $\Omega$ |      |
| Frequency                                                         | 1 Hz - 9.999 MHz             |      |
| Measuring category                                                | CAT III 600V                 |      |
| Temperature measurement                                           | -20°C - 1000°C               |      |
| Item                                                              | Part No.                     |      |
| DM-45 Digital multimeter 600 V AC/DC with temperature measurement | 52059477                     |      |
| Scope of supply                                                   | Part No.                     | Page |
| TSG-3 test leads                                                  | 50120344                     |      |
| Temperature probe                                                 |                              |      |
| Protective cover                                                  |                              |      |
| Battery 9 V                                                       |                              |      |



Digital multimeter

DM-65 Digital multimeter 1000 V AC/DC with temperature measurement



Characteristics

- AC/DC voltage and current measurement
- Resistance measurement
- Audible continuity testing, diode test, temperature measurement
- Frequency and capacitance measurement

| Technical data                        |                              |          |
|---------------------------------------|------------------------------|----------|
| Display                               | Digital with bar chart       |          |
| Capacitance                           | 10 pF - 400 µF               |          |
| Voltage measurement                   | 1 mV - 1000 V                |          |
| Current measurement                   | 0.1 µA - 10 A                |          |
| Resistance                            | 0.1 Ω - 60 MΩ                |          |
| Frequency                             | 1 Hz - 9.999 MHz             |          |
| Measuring category                    | CAT III 1000 V, CAT IV 600 V |          |
| Temperature measurement               | -20°C - 1000°C               |          |
| Item                                  | Part No.                     |          |
| DM-65 Digital multimeter 1000 V AC/DC | <b>52059478</b>              |          |
| Scope of supply                       |                              | Page     |
| TSG-3 test leads                      |                              | 50120344 |
| Temperature probe                     |                              |          |
| Protective cover                      |                              |          |
| Battery 9 V                           |                              |          |

## DM-200A / DM-210A Digital multimeter

### Characteristics

- PC interface
- Automatic and manual range selection
- Large, backlit LC-display
- Automatic stop
- Analogue bar chart
- Optical and audible warning in the event of incorrect handling



| Technical data                                                                |                                                                               | 52047802                                                                |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Item                                                                          | DM-200A Digital multimeter for temperature measurement K-type, -4 °F - 572 °F | DM-210A Digital multimeter for temperature measurement -50 °C - 1000 °C |
| Voltage measurement                                                           | 0.01mV - 1000V AC/DC                                                          | 0.01mV - 1000V AC/DC                                                    |
| Current measurement                                                           | 0.1µA - 8A AC/DC                                                              | 0.1µA - 8A AC/DC                                                        |
| Resistance                                                                    | 0.1Ω - 60MΩ                                                                   | 0.1Ω - 60MΩ                                                             |
| Frequency                                                                     | 10Hz - 50KHz sine wave; 5Hz - 1MHz logic levelsquare wave                     | 10Hz - 50KHz sine wave; 5Hz - 1MHz logic levelsquare wave               |
| Measuring category                                                            | CAT II 1000V, CAT III 600, CAT IV 300                                         | CAT II 1000V, CAT III 600, CAT IV 300                                   |
| Capacitance                                                                   |                                                                               | 60nF - 3000µF                                                           |
| Frequency pickup                                                              |                                                                               | 50Hz - 400Hz                                                            |
| Temperature measurement                                                       |                                                                               | -50°C - 1000°C                                                          |
| Item                                                                          | Part No.                                                                      |                                                                         |
| DM-200A Digital multimeter for temperature measurement K-type, -4 °F - 572 °F | 52047801                                                                      |                                                                         |
| DM-210A Digital multimeter for temperature measurement -50 °C - 1000 °C       | 52047802                                                                      |                                                                         |
| Scope of supply                                                               | Part No.                                                                      | Page                                                                    |
| TSG-3 test leads                                                              | 50120344                                                                      |                                                                         |
| Protective cover                                                              |                                                                               |                                                                         |
| Battery 2 x 1.5 V AAA                                                         |                                                                               |                                                                         |

## DM-510A Digital multimeter, True RMS



### Characteristics

- Autocheck function permits the automatic selection of AC V / DC V or resistance with low impedance for Ghost-Voltage-Removal
- PC interface
- Frequency, temperature and capacitance measurement
- Automatic and manual range selection
- Large, backlit LC-display
- Automatic stop
- Analogue bar chart
- Optical and audible warning in the event of incorrect handling

| Technical data                                                          |                                          |      |
|-------------------------------------------------------------------------|------------------------------------------|------|
| Capacitance                                                             | 60.00nF - 3000µF                         |      |
| Voltage measurement                                                     | 0.01 mV - 1000 V AC/DC                   |      |
| Frequency pickup                                                        | 50Hz - 400Hz                             |      |
| Current measurement                                                     | 0.1µA - 8A AC/DC                         |      |
| Resistance                                                              | 0.1Ω - 60MΩ                              |      |
| Frequency                                                               | 5 Hz - 1 MHz                             |      |
| Measuring category                                                      | CAT III 600V; CAT II 1000V; CAT IV 300 V |      |
| Temperature measurement                                                 | -50°C - 1000°C                           |      |
| Item                                                                    | Part No.                                 |      |
| DM-510A Digital multimeter, True RMS                                    | <b>52047803</b>                          |      |
| Scope of supply                                                         | Part No.                                 | Page |
| TSG-3 test leads                                                        | 50120344                                 |      |
| Temperature sensor, bright finish                                       |                                          |      |
| Battery 2 x 1.5 V AAA                                                   |                                          |      |
| Accessories                                                             | Part No.                                 | Page |
| TC-20 Nylon carrying case with carrying strap for measuring instruments | 50075357                                 | 633  |
| DMSC-2U Interface kit, for downloading data                             | 52047947                                 | 633  |

## DM-800 Series in detail



| Part No.                             | 52047805<br>DM-810A | 52047806<br>DM-820A | 50077970<br>DM-860A            |
|--------------------------------------|---------------------|---------------------|--------------------------------|
| Catalog-no.                          |                     |                     |                                |
| True RMS                             | •                   | •                   | •                              |
| DC A (A max.)                        | 10                  | 10                  | 10                             |
| Maximum resolution (μA)              | 0.1                 | 0.1                 | 0.01                           |
| Best accuracy (%)                    | 0.2                 | 0.2                 | 0.1                            |
| AC A (A max.)                        | 10                  | 10                  | 10                             |
| Maximum resolution (μA)              | 0.1                 | 0.1                 | 0.01                           |
| Best accuracy (%)                    | 0.6                 | 0.6                 | 0.5                            |
| DC V (V max.)                        | 1000                | 1000                | 1000                           |
| Maximum resolution (μV)              | 10                  | 10                  | 1                              |
| Best accuracy (%)                    | 0.06                | 0.06                | 0.02                           |
| AC V (V max.)                        | 1000                | 1000                | 1000                           |
| Maximum resolution (μV)              | 10                  | 10                  | 10                             |
| Best accuracy (%)                    | 0.5                 | 0.5                 | 0.3                            |
| Resistance (MΩ)                      | 60                  | 60                  | 50                             |
| Maximum resolution (mΩ)              | 100                 | 100                 | 10                             |
| Best accuracy (%)                    | 0.1                 | 0.1                 | 0.07                           |
| Continuity and beeper                | •                   | •                   | •                              |
| Diode test                           | •                   | •                   | •                              |
| Capacitance                          | •                   | •                   | •                              |
| Frequency measurement                | •                   | •                   | •                              |
| Frequency response (Hz)              | 40-500              | 40-500              | 20-100 k                       |
| Temperature (T1)                     |                     |                     | •                              |
| Temperature (Dual T1, T2)            |                     |                     | •                              |
| Display type                         | Digital             | Digital             | Digital                        |
| Display of updating rate (x/s)       | 5                   | 5                   | 5                              |
| Coverage                             |                     |                     | 50.000 AC/500.000              |
| Analogue bar chart                   | •                   | •                   | •                              |
| Updating rate analogue (x/s)         | 41                  | 41                  | 41 segments                    |
| Updating rate analogue (x/s)         | 60                  | 60                  | 60                             |
| Conductance 0.01 nS ~ 100 nS         | •                   | •                   | •                              |
| Computer Interface                   | USB                 | USB                 | USB                            |
| Automatic and manual range selection | •                   | •                   | •                              |
| Automatic stop                       |                     |                     | yes                            |
| Peak hold                            |                     |                     | •                              |
| Data Hold (measured data memory)     | •                   | •                   | •                              |
| Minimum value / maximum value        |                     |                     | yes                            |
| Relative compensation function       | •                   | •                   | •                              |
| Operating clearance                  |                     |                     | •                              |
| Safety category classification       | CAT IV 1000 V       | CAT IV 1000 V       | CAT IV 600 V<br>CAT III 1000 V |
| CE                                   | •                   | •                   | •                              |
| Limited lifetime warranty            | •                   | •                   | •                              |

**DM-810A Digital multimeter, True RMS**



**Characteristics**

- PC interface
- Automatic and manual range selection
- Large, backlit LC-display
- Automatic stop
- Analogue bar chart
- Optical and audible warning in the event of incorrect handling

| Technical data      |                        |
|---------------------|------------------------|
| Capacitance         | 0,01 nF - 25 mF        |
| Voltage measurement | 0,01 mV - 1000 V AC/DC |
| Current measurement | 0.1µA - 10A AC/DC      |
| Resistance          | 0.1Ω - 60MΩ            |
| Frequency           | 5 Hz - 1 MHz           |
| Measuring category  | CAT IV, 1,000V         |

| Item                                                                    | Part No.        |      |
|-------------------------------------------------------------------------|-----------------|------|
| DM-810A Digital multimeter, True RMS                                    | <b>52047805</b> |      |
| Scope of supply                                                         |                 | Page |
| TSG-3 test leads                                                        | 50120344        |      |
| TC-20 Nylon carrying case with carrying strap for measuring instruments | 50075357        | 633  |
| Battery 9 V                                                             |                 |      |

| Accessories                                                | Part No. | Page |
|------------------------------------------------------------|----------|------|
| DMSC-9U Interface kit, for downloading data                | 52047948 | 633  |
| TSGF Measuring cable set with fuses (500 mA) CAT IV 1,000V | 52034235 | 644  |



## DM-820A Digital multimeter, True RMS

### Characteristics

- PC interface (DMSC-9U) USB cable and software for data logging via PC software (accessories optional)
- Recording of peak value (5 ms peak hold) max, min and max/min results
- Automatic and manual range selection
- Large, backlit LC-display
- Automatic stop
- Analogue bar chart
- Optical and audible warning in the event of incorrect handling



| Technical data                                                          |                        |      |
|-------------------------------------------------------------------------|------------------------|------|
| Capacitance                                                             | 0,01 nF - 25 mF        |      |
| Voltage measurement                                                     | 0,01 mV - 1000 V AC/DC |      |
| Current measurement                                                     | 0.1 µA - 10A AC/DC     |      |
| Resistance                                                              | 0.1 Ω - 60MΩ           |      |
| Frequency                                                               | 5 Hz - 1 MHz           |      |
| Measuring category                                                      | CAT IV, 1,000V         |      |
| Temperature measurement                                                 | -50°C - 1000°C         |      |
| Item                                                                    | Part No.               |      |
| DM-820A Digital multimeter, True RMS                                    | 52047806               |      |
| Scope of supply                                                         | Part No.               | Page |
| TSG-3 test leads                                                        | 50120344               |      |
| TC-20 Nylon carrying case with carrying strap for measuring instruments | 50075357               | 633  |
| Battery 9 V                                                             |                        |      |
| Temperature sensor, bright finish                                       |                        |      |
| Accessories                                                             | Part No.               | Page |
| TSGF Measuring cable set with fuses (500 mA) CAT IV 1,000V              | 52034235               | 644  |
| DMSC-9U Interface kit, for downloading data                             | 52047948               | 633  |

**DM-860A Industrial digital multimeter, True RMS**



**Characteristics**

- Recording of maximum, minimum and maximum/minimum results
- Recording of peak value (peak hold) max, min and max/min display
- 5 5/6-place display with a display range of 500,000 for greater precision
- Carrying out frequency, temperature and capacitance measurements as well as diode tests and continuity checks
- Display of the relative measured value offset for checking the relative measured value changes
- Automatic range selection
- Analogue 42-segment bar chart
- Large, backlit LC-display
- Temperature measurements up to 1000 °C

| Technical data                                                          |                                                                 |      |
|-------------------------------------------------------------------------|-----------------------------------------------------------------|------|
| Capacitance                                                             | 50.00; 500.0nF; 5.000, 50.00, 500.0µF; 5000, 25.00mF            |      |
| Voltage measurement                                                     | 500 mV - 1000 V                                                 |      |
| Current measurement                                                     | 500.00, 5000.0µA; 50.000, 500.00mA; 5.0000, 10.000A             |      |
| Resistance                                                              | 500.00Ω; 5.0000, 50.000, 500.00kΩ; 5.0000, 50.000MΩ             |      |
| Frequency                                                               | 5 Hz - 200 kHz sinus wave; 5 Hz - 2 MHz square wave logic level |      |
| Measuring category                                                      | CAT IV 1000V                                                    |      |
| Temperature measurement                                                 | K-type, -50 °C to 1,000°C (-58°F - 1832°F)                      |      |
| Item                                                                    | Part No.                                                        |      |
| DM-860A Industrial digital multimeter, True RMS                         | 50077970                                                        |      |
| Scope of supply                                                         | Part No.                                                        | Page |
| TSG-3 test leads                                                        | 50120344                                                        |      |
| TC-20 Nylon carrying case with carrying strap for measuring instruments | 50075357                                                        | 633  |
| Battery 9 V                                                             |                                                                 |      |
| Temperature sensor, bright finish                                       |                                                                 |      |
| Accessories                                                             | Part No.                                                        | Page |
| DMSC-9U Interface kit, for downloading data                             | 52047948                                                        | 633  |
| TSGF Measuring cable set with fuses (500 mA) CAT IV 1,000V              | 52034235                                                        | 644  |

## DMSC-2U Interface kit, for downloading data (DM-200A, DM-210A, DM-510A)

### Characteristics

- For connecting to a serial PC port for saving the data recorded by digital multimeters
- For recording and graphically representing data in real time
- For exporting data for analysis with every type of table calculation program

| Technical data                              |                                                                                      |
|---------------------------------------------|--------------------------------------------------------------------------------------|
| Connection                                  | Free series COM connector with 9-pin plug/USB.                                       |
| Monitor                                     | Minimum resolution 640 x 480, 800 x 600 recommended                                  |
| Fixes disc                                  | Minimum 20 megabyte free memory                                                      |
| Hardware requirements                       | Processor and working memory must correspond at least to the requirements of Windows |
| Software requirements                       | Windows ME/98/95 or Windows XP/2000/NT4/Vista                                        |
| Item                                        | Part No.                                                                             |
| DMSC-2U Interface kit, for downloading data | <b>52047947</b>                                                                      |



## DMSC-9U Interface kit, for downloading data (DM-810A / DM-820A / DM-860)

### Characteristics

- For connecting to a serial PC port for saving the data recorded by digital multimeters
- For recording and graphically representing data in real time
- For exporting data for analysis with every type of table calculation program

| Technical data                              |                                                                                      |
|---------------------------------------------|--------------------------------------------------------------------------------------|
| Connection                                  | Free series COM connector with 9-pin plug/USB                                        |
| Monitor                                     | Minimum resolution 640 x 480, 800 x 600 recommended                                  |
| Fixes disc                                  | Minimum 20 megabyte free memory                                                      |
| Hardware requirements                       | Processor and working memory must correspond at least to the requirements of Windows |
| Software requirements                       | Windows ME/98/95 or Windows XP/2000/NT4/Vista                                        |
| Item                                        | Part No.                                                                             |
| DMSC-9U Interface kit, for downloading data | <b>52047948</b>                                                                      |



## TC-20 Nylon carrying case with carrying strap for measuring instruments

### Characteristics

- With inner pocket for test leads

### Suitable for

- Series 200, Series 500 and Series 800 measuring instruments

| Item                                                                    | Part No.        |
|-------------------------------------------------------------------------|-----------------|
| TC-20 Nylon carrying case with carrying strap for measuring instruments | <b>50075357</b> |



## *Take the current to the meter.*

### **Clamp meters for DC and AC.**

Our clamp meters are set apart by their versatile functions. The displays allow measured values to be read quickly, even under difficult conditions.

Most devices conform to IEC CAT IV and are able to safely measure currents up to 1,000 A.

**If handled correctly, we offer a lifetime limited warranty on these products.**



*Clamp meters  
available  
for diverse  
applications  
and conductor  
diameters.*

- For DC and AC.
- For DC and AC voltage.
- With digital and analogue display.
- For measuring categories III and IV.
- With true effective value measurement.

## ■ Also suitable for DC: CM-950

- ▶ Instrument for measuring direct and alternating voltage and direct and alternating current.
- ▶ With **double hall sensor for optimised accuracy** with direct current measurements.
- ▶ With residual compensation during direct current measurements.

### Benefits:

- ▶ Just one measuring device for both DC and AC.
- ▶ Highly accurate measurements.
- ▶ Measuring errors are practically impossible.



## ■ Analogue bar display for fast indication: CM-1300

- ▶ Also with analogue display.
- ▶ **With acoustic continuity test.**

### Benefits:

- ▶ Variances are indicated immediately as the analogue bar display responds faster than conventional digital displays.
- ▶ Fast testing of contact faults with the acoustic continuity function.



## ■ Measures direct and alternating current to 1000 A: CM-1550

- ▶ Approved for measuring categories CAT III and CAT IV.
- ▶ For DC and AC.
- ▶ **For true effective value measurement** even with distorted current flows.

### Benefits:

- ▶ Current measurements in all application ranges up to 1000 A.
- ▶ Safe and accurate voltage and current measurement thanks to true RMS effective value measurement.



## ■ Features of clamp meters.

|         | True effective value | DC A (A max.) | AC A (A max.) | DC V (V max.) | AC V (V max.) | Resistance (Ω) | Frequency Hz | Bar display | Measuring category       |
|---------|----------------------|---------------|---------------|---------------|---------------|----------------|--------------|-------------|--------------------------|
| CM-330  |                      |               | 400           |               |               |                |              |             | III, 600 V               |
| CM-410  |                      |               | 400           | 600           | 600           | 2000           |              |             | III, 600 V               |
| CM-600  |                      |               | 600           |               | 600           | 2000           |              |             | III, 600 V               |
| CM-800  |                      |               | 600           | 600           | 600           | 400            | ✓            | ✓           | III, 600 V               |
| CM-850  | ✓                    |               | 600           | 600           | 600           | 400            | ✓            | ✓           | III, 600 V               |
| CM-900  |                      | 600           | 600           | 600           | 600           | 400            | ✓            | ✓           | III, 600 V               |
| CM-950  | ✓                    | 600           | 600           | 600           | 600           | 400            | ✓            | ✓           | III, 600 V               |
| CM-1300 |                      |               | 1000          | 1000          | 750           | 400            | ✓            | ✓           | IV, 600 V<br>III, 1000 V |
| CM-1350 | ✓                    |               | 1000          | 1000          | 750           | 400            | ✓            | ✓           | IV, 600 V<br>III, 1000 V |
| CM-1500 |                      | 1000          | 1000          | 1000          | 750           | 400            | ✓            | ✓           | IV, 600 V<br>III, 1000 V |
| CM-1550 | ✓                    |               | 1000          | 1000          | 750           | 400            | ✓            | ✓           | IV, 600 V<br>III, 1000 V |

Clamp meters

CMT-80 Clamp-on multimeter



Characteristics

- Jaw size 27 mm
- Trouble-free, automatic measurement of current strength, voltage and resistance
- Compact design for measuring in tight spaces
- Low impedance rules out measurement of stray voltage from
- 400 A AC~, 600 V AC/DC measurements
- Data Hold function for recording important measurement results
- Longer battery service life due to automatic shut-off

| Technical data                                                    |                                                   |      |
|-------------------------------------------------------------------|---------------------------------------------------|------|
| Display                                                           | LCD (6000 display range)                          |      |
| Voltage measurement                                               | AC V: 1.3, 600.0; DC V: 2.1 - 600.0; 0.7 - 600.0V |      |
| Current measurement                                               | 0.9-400.0A AC                                     |      |
| Resistance                                                        | 2 K $\Omega$ with beeper for continuity check     |      |
| Measuring category                                                | CAT III, 600V                                     |      |
| Jaw size                                                          | 27 mm                                             |      |
| Item                                                              | Part No.                                          |      |
| CMT-80 Clamp-on multimeter                                        | <b>50077350</b>                                   |      |
| Scope of supply                                                   | Part No.                                          | Page |
| TSG-3 test leads                                                  | 50120344                                          |      |
| TC-5 Nylon carrying case for measuring instruments with belt loop | 50075888                                          | 645  |
| Battery 9 V                                                       |                                                   |      |

**CM Series in detail**


| Part No.                             | 50118650      | 52022030      | 52066379      | 52066378      | 52066376      | 52066374                       | 52066372                       | 52020887                       |
|--------------------------------------|---------------|---------------|---------------|---------------|---------------|--------------------------------|--------------------------------|--------------------------------|
| Catalog-no.                          | CM-330        | CM-410        | CM-660        | CM-860        | CM-960        | CM-1360                        | CM-1560                        | CSJ-100                        |
| True RMS                             |               |               | •             | •             | •             | •                              | •                              |                                |
| AmpTip™                              |               |               | •             | •             | •             | •                              | •                              |                                |
| DC A (A max.)                        |               |               |               |               | 600           |                                | 1000                           |                                |
| Maximum resolution (µA)              |               |               |               |               | 0.1           |                                | 0.1                            |                                |
| Best accuracy (%)                    |               |               |               |               | 1.2           |                                | 1.2                            |                                |
| AC A (A max.)                        | 400           | 400           | 600           | 600           | 600           | 1000                           | 1000                           | 200                            |
| Maximum resolution (µA)              | 0.01          | 0.1           | 0.1           | 0.1           | 0.1           | 0.1                            | 0.1                            | 0.1                            |
| Best accuracy (%)                    | 2.0           | 1.9           | 1.9           | 1.9           | 1.9           | 1.9                            | 1.9                            | 3.0                            |
| DC V (V max.)                        |               | 600           |               | 600           | 600           | 1000                           | 1000                           | 1000                           |
| Maximum resolution (µV)              |               | 0.1           |               | 0.1           | 0.1           | 0.1                            | 0.1                            | 0.1                            |
| Best accuracy (%)                    |               | 1.0           |               | 0.7           | 0.7           | 0.7                            | 0.7                            | 1.0                            |
| AC V (V max.)                        |               | 600           | 600           | 600           | 600           | 750                            | 750                            | 1000                           |
| Maximum resolution (µV)              |               | 0.1           | 1             | 0.1           | 0.1           | 0.1                            | 0.1                            | 0.1                            |
| Best accuracy (%)                    |               | 1.0           | 1.2           | 1.0           | 1.0           | 1.0                            | 1.0                            | 1.5                            |
| Resistance (MΩ)                      |               | 20MΩ          | 2000Ω         | 400Ω          | 400Ω          | 400Ω                           | 400Ω                           | 20MΩ                           |
| Maximum resolution (mΩ)              |               | 0.1           | 1             | 0.1           | 0.1           | 0.1                            | 0.1                            | 0.1                            |
| Best accuracy (%)                    |               | 0.7           | 1.5           | 1.0           | 1.0           | 1.0                            | 1.0                            | 1.0                            |
| Continuity and beeper                |               | •             | •             | •             | •             | •                              | •                              | •                              |
| Frequency measurement                |               |               |               | •             | •             | •                              | •                              |                                |
| Frequency threshold value (Hz)       | 50-60         | 50-500        | 40-500        | 50-400        | 50-500        | 50-400                         | 50-500                         | 50-500                         |
| Jaw size                             | 30mm          | 27mm          | 35mm          | 34mm          | 35mm          | 51mm                           | 51mm                           | 16mm                           |
| Display type                         | Digital       | Digital       | Digital       | Digital       | Digital       | Digital                        | Digital                        | Digital                        |
| Display of updating rate (x/s)       | 25            | 1.5           | 4             | 2.5           | 2.5           | 2.5                            | 2.5                            | 1.5                            |
| Count                                | 2000          | 2000          | 2000          | 4000          | 4000          | 4000                           | 4000                           | 2000                           |
| Analogue bar chart                   |               |               |               | 42 segments   | 42 segments   | 42 segments                    | 42 segments                    |                                |
| Updating rate analogue (x/s)         |               |               |               | 13            | 13            | 13                             | 13                             |                                |
| Low battery indicator                | •             | •             | •             | •             | •             | •                              | •                              | •                              |
| Automatic and manual range selection |               | •             |               | •             | •             | •                              | •                              | •                              |
| Automatic stop                       |               |               | yes           | yes           | yes           | yes                            | yes                            | yes                            |
| Peak Hold                            |               |               |               | •             | •             | •                              | •                              |                                |
| Data Hold (measured data memory)     | •             | •             | •             | •             | •             | •                              | •                              | •                              |
| Minimum value / maximum value        |               |               |               | yes           | yes           | yes                            | yes                            |                                |
| Safety category classification       | CAT III 600 V | CAT III 600 V | CAT III 600 V | CAT III 600 V | CAT III 600 V | CAT IV 600 V<br>CAT III 1000 V | CAT IV 600 V<br>CAT III 1000 V | CAT IV 600 V<br>CAT III 1000 V |
| CE                                   | •             | •             | •             | •             | •             | •                              | •                              | •                              |
| Limited lifetime warranty            | •             | •             | •             | •             | •             | •                              | •                              | •                              |

## Clamp meters

## CM-330 Clamp-on multimeter



## Characteristics

- Jaw size 30 mm
- Compact, ergonomic design for measuring in tight spaces
- Measurement of alternating currents to 400 A
- Max Hold function for recording peak values
- Data Hold function for recording important measurement results

| Technical data                                                    |                   |      |
|-------------------------------------------------------------------|-------------------|------|
| Display                                                           | LCD               |      |
| Current measurement                                               | 0,01 A - 400 A AC |      |
| Measuring category                                                | CAT III, 600V     |      |
| Jaw size                                                          | 30 mm             |      |
| Item                                                              | Part No.          |      |
| CM-330 Clamp-on multimeter                                        | 50118650          |      |
| Scope of supply                                                   | Part No.          | Page |
| TC-5 Nylon carrying case for measuring instruments with belt loop | 50075888          | 645  |
| Battery 9 V                                                       |                   |      |

## CM-410 Clamp-on multimeter



## Characteristics

- Jaw size 27 mm
- Narrow, compact design for measuring in tight spaces
- Measurement of resistances up to 20 MΩ
- Data Hold function for recording important measurement results
- Automatic device switch-off
- Continuity test

| Technical data                                                    |                                                |      |
|-------------------------------------------------------------------|------------------------------------------------|------|
| Display                                                           | LCD                                            |      |
| Continuity test                                                   | Yes                                            |      |
| Voltage measurement                                               | 200.0 - 600V AC/DC                             |      |
| Current measurement                                               | 200.0 - 400 A AC                               |      |
| Resistance                                                        | 200.0Ω, 2.000, 20.00, 200.0kΩ, 2.000, 20.000MΩ |      |
| Measuring category                                                | CAT III, 600V                                  |      |
| Jaw size                                                          | 27 mm                                          |      |
| Item                                                              | Part No.                                       |      |
| CM-410 Clamp-on multimeter                                        | 52022030                                       |      |
| Scope of supply                                                   | Part No.                                       | Page |
| TC-5 Nylon carrying case for measuring instruments with belt loop | 50075888                                       | 645  |
| Battery 2 x 1.5 V AAA                                             |                                                |      |



## CM-660 Clamp-on multimeter, True RMS

### Characteristics

- Jaw size 30 mm
- AmpTip™ provides increased accuracy on small wires carrying 60 amps or less
- Variable Frequency Drive ACV, Hz Measurements
- Measurement of alternating voltage and alternating current
- Resistance measurement up to 60 kΩ
- Non-contact AC voltage detection
- Longer battery service life due to automatic shut-off



| Technical data      |                   |
|---------------------|-------------------|
| Display             | LCD               |
| Voltage measurement | 0 V - 600 V AC/DC |
| Current measurement | 600 A AC          |
| Resistance          | 60kΩ              |
| Measuring category  | CAT III, 600V     |
| Jaw size            | 30 mm             |

| Item                                                               | Part No.        |      |
|--------------------------------------------------------------------|-----------------|------|
| CM-660 Clamp-on multimeter, True RMS                               | <b>52066379</b> |      |
| Scope of supply                                                    | Part No.        | Page |
| TSG-3 test leads                                                   | 50120344        |      |
| TC-10 Nylon carrying case for measuring instruments with belt loop | 50075349        | 645  |
| Battery 9 V                                                        |                 |      |



### CM-860 Clamp-on multimeter, True RMS



#### Characteristics

- Jaw size 30 mm
- True RMS actual effective value for the most precise measurements
- AmpTip™ provides increased accuracy on small wires carrying 60 amps or less
- Variable Frequency Drive ACV, Hz Measurements
- Measurement of alternating current, direct and alternating voltage, frequency and resistance
- Easy-to-read backlit display for poor lighting conditions
- Peak Hold and Data Hold function for recording measurement results
- Non-contact AC voltage detection
- MIN/MAX function for more versatile applications
- Analogue bar chart for checking fast changes
- Longer battery service life due to selectable automatic shut-off

| Technical data                                                     |                 |      |
|--------------------------------------------------------------------|-----------------|------|
| Display                                                            | LCD             |      |
| Voltage measurement                                                | 0 - 600 V AC/DC |      |
| Current measurement                                                | 0 - 600 A AC    |      |
| Resistance                                                         | 60kΩ            |      |
| Frequency                                                          | 0,02 - 400 Hz   |      |
| Measuring category                                                 | CAT III 600V    |      |
| Jaw size                                                           | 30 mm           |      |
| Item                                                               | Part No.        |      |
| CM-860 Clamp-on multimeter, True RMS                               | <b>52066378</b> |      |
| Scope of supply                                                    | Part No.        | Page |
| TSG-3 test leads                                                   | 50120344        |      |
| TC-10 Nylon carrying case for measuring instruments with belt loop | 50075349        | 645  |
| Battery                                                            |                 |      |

## CM-960 Clamp-on multimeter, True RMS

### Characteristics

- Jaw size 35 mm
- True RMS actual effective value for the most precise measurements
- AmpTip™ provides increased accuracy on small wires carrying 60 amps or less
- Variable Frequency Drive ACV, Hz Measurements
- Measurement of direct and alternating current, direct and alternating voltage, frequency, resistance and capacitance
- Non-contact AC voltage detection
- Dual reverberation sensor ensures precision during direct current measurement
- Non-Contact AC voltage detection
- Easy-to-read backlit display for poor lighting conditions
- Peak Hold and Data Hold function for recording measurement results
- Diode test
- MIN/MAX function for more versatile applications
- Analogue bar chart for checking fast changes
- Automatic zero-point setting for direct current measurement
- Longer battery service life due to selectable automatic shut-off



| Technical data                                                     |                 |      |
|--------------------------------------------------------------------|-----------------|------|
| Display                                                            | LCD             |      |
| Voltage measurement                                                | 0 - 600 V AC/DC |      |
| Current measurement                                                | 0 - 600 A AC/DC |      |
| Resistance                                                         | 60kΩ            |      |
| Frequency                                                          | 0,02 - 400 Hz   |      |
| Measuring category                                                 | CAT III 600V    |      |
| Jaw size                                                           | 35 mm           |      |
| Item                                                               | Part No.        |      |
| CM-960 Clamp-on multimeter, True RMS                               | 52066376        |      |
| Scope of supply                                                    | Part No.        | Page |
| TSG-3 test leads                                                   | 50120344        |      |
| TC-10 Nylon carrying case for measuring instruments with belt loop | 50075349        | 645  |
| Battery 9 V                                                        |                 |      |

### CM-1360 Clamp-on multimeter, True RMS



#### Characteristics

- Jaw size 51 mm
- True RMS actual effective value for the most precise measurements
- AmpTip™ provides increased accuracy on small wires carrying 60 amps or less.
- Variable Frequency Drive ACV, Hz Measurements
- Measurement of alternating current, direct and alternating voltage, frequency, resistance, capacitance and Diode test
- Flashlight aids in positioning when working in dark areas
- Easy-to-read backlit display for poor lighting conditions
- Peak Hold and Data Hold function for recording measurement results
- MIN/MAX function for more versatile applications
- Analogue bar chart for checking fast changes
- Audible continuity check
- Longer battery service life due to selectable automatic shut-off

| Technical data                                                     |                            |      |
|--------------------------------------------------------------------|----------------------------|------|
| Display                                                            | LCD                        |      |
| Voltage measurement                                                | 1000V AC / DC              |      |
| Current measurement                                                | 1000 A AC                  |      |
| Resistance                                                         | 60kΩ                       |      |
| Frequency                                                          | 0.02 - 400 Hz              |      |
| Measuring category                                                 | CAT IV 600V, CAT III 1000V |      |
| Jaw size                                                           | 51 mm                      |      |
| Item                                                               | Part No.                   |      |
| CM-1360 Clamp-on multimeter, True RMS                              | <b>52066374</b>            |      |
| Scope of supply                                                    | Part No.                   | Page |
| TSG-3 test leads                                                   | 50120344                   |      |
| TC-30 Nylon carrying case for measuring instruments with belt loop | 50075365                   | 645  |
| Battery 9 V                                                        |                            |      |

## CM-1560 Clamp-on multimeter, True RMS

### Characteristics

- Jaw size 51 mm
- True RMS actual effective value for the most precise measurements
- AmpTip™ provides increased accuracy on small wires carrying 60 amps or less
- Variable Frequency Drive ACV, Hz Measurements
- Measurement of direct and alternating current, direct and alternating voltage, frequency and resistance
- Flashlight aids in positioning when working in dark areas
- Crest (Peak) Max / Min
- Dual reverberation sensor ensures precision during direct current measurement
- Easy-to-read backlit display for poor lighting conditions
- Peak Hold and Data Hold function for recording measurement results
- MIN/MAX function for more versatile applications
- Analogue bar chart for checking fast changes
- Audible continuity check



| Technical data                                                     |                            |      |
|--------------------------------------------------------------------|----------------------------|------|
| Display                                                            | LCD                        |      |
| Voltage measurement                                                | 1000 V AC / DC             |      |
| Current measurement                                                | 0 - 1000 A AC/DC           |      |
| Resistance                                                         | 60kΩ                       |      |
| Frequency                                                          | 0,02 - 400 Hz              |      |
| Measuring category                                                 | CAT III 1000V, CAT IV 600V |      |
| Jaw size                                                           | 51 mm                      |      |
| Item                                                               | Part No.                   |      |
| CM-1560 Clamp-on multimeter, True RMS AC/DC                        | <b>52066372</b>            |      |
| Scope of supply                                                    | Part No.                   | Page |
| TSG-3 test leads                                                   | 50120344                   |      |
| TC-30 Nylon carrying case for measuring instruments with belt loop | 50075365                   | 645  |
| Battery 9 V                                                        |                            |      |

Clamp meters

CSJ-100 Jaw meter, open



Characteristics

- Jaw size 16 mm
- For easy, quick voltage measurement of AC, DC and alternating voltage
- Resistance measurement up to 20 M $\Omega$
- Audible continuity test and diode test
- Alarm and LED for contactless voltage detection
- Automatic shut-off for longer service life
- Data Hold for recording the measured values

| Technical data                                                    |                                                                         |      |
|-------------------------------------------------------------------|-------------------------------------------------------------------------|------|
| Display                                                           | LCD                                                                     |      |
| Voltage measurement                                               | 200.0, 1,000V                                                           |      |
| Current measurement                                               | 0 A - 200 A AC                                                          |      |
| Resistance                                                        | 200.0 $\Omega$ ; 2,000, 20.00, 200.0k $\Omega$ ; 2,000, 20.00M $\Omega$ |      |
| Frequency                                                         | 50 - 500 Hz                                                             |      |
| Measuring category                                                | CAT III 1000V, CAT IV 600V                                              |      |
| Jaw size                                                          | 16 mm                                                                   |      |
| Item                                                              | Part No.                                                                |      |
| CSJ-100 Jaw meter, open                                           | 52020887                                                                |      |
| Scope of supply                                                   | Part No.                                                                | Page |
| TC-5 Nylon carrying case for measuring instruments with belt loop | 50075888                                                                | 645  |
| Battery 2 x 1.5 V AAA                                             |                                                                         |      |
| Test leads                                                        |                                                                         |      |

TSGF Measuring cable set with fuses CAT IV 1,000V



Characteristics

- Suitable for Greenlee jaw meters and digital multimeter
- Double insulated Silicon conductors with two coatings
- Superfine stranded copper cable, highly flexible
- 1.2 m cable length
- Fuses 6.3 x 32 mm FF 500 mA

| Item                                                       | Part No. |
|------------------------------------------------------------|----------|
| TSGF Measuring cable set with fuses (500 mA) CAT IV 1,000V | 52034235 |

### TC-5 Nylon carrying case for measuring instruments with belt loop

**Suitable for**

- CMT-80 / CM-330 / CM-410 / CSJ-100

| Item                                                              | Part No.        |
|-------------------------------------------------------------------|-----------------|
| TC-5 Nylon carrying case for measuring instruments with belt loop | <b>50075888</b> |



### TC-10 Nylon carrying case for measuring instruments with belt loop

**Suitable for**

- CM-600 / CM-800 / CM-850 / CM-900 / CM-950

| Item                                                               | Part No.        |
|--------------------------------------------------------------------|-----------------|
| TC-10 Nylon carrying case for measuring instruments with belt loop | <b>50075349</b> |



### TC-30 Nylon carrying case for measuring instruments with belt loop

**Suitable for**

- CM-1300 / CM-1350 / CM-1500 / CM-1550
- Voltage tester GT-55NE / GT-85NE

| Item                                                               | Part No.        |
|--------------------------------------------------------------------|-----------------|
| TC-30 Nylon carrying case for measuring instruments with belt loop | <b>50075365</b> |



# *The right test* **for every installation.**

## **VDE tester to VDE 0100.**

All you need to do to satisfy the requirements of VDE 0100 is respect a broad range of values. The Greenlee ETest series ensures you meet all these requirements. No matter whether with the multifunctional installation tester or the special tools for earthing and insulation resistances. To the highest possible level of safety and simple operation.



*The ETest series is extremely safe to use as the display is always within view.*

- **VDE tester to VDE 0100.**
- **Continuity test.**
- **Voltage measurements.**
- **Insulation resistance tests.**
- **RCD/FI measurements.**
- **Earthing resistance measurements.**



## ■ All measurements in just one action: *ETest Multi*

- ▶ One measuring device for measuring earth continuity and insulation from 100 V – 500 V loop impedance, frequency and voltage.
- ▶ Handy design weighing just 900 g.
- ▶ With unique integrated measuring head and cordless probe.

### Benefits:

- ▶ Being multifunctional, the ETest Multi is several tools in one.
- ▶ The simple operation increases both comfort and safety when in use.
- ▶ The cordless probe enables use even at relatively inaccessible measuring points.



## ■ Measures the earthing resistance at every voltage: *ETest R<sub>E</sub>*



- ▶ Suitable for use at 110 Volt, 230 Volt and electrical 3-phase systems.
- ▶ Earth resistance measurement according to 2, 3 and 4-wire method.
- ▶ With flexible USB interface and storage capacity for 500 test results.

### Benefits:

- ▶ The ETest R<sub>E</sub> can be used at all standard voltages.
- ▶ Regardless of the applicable requirements, earth resistance can be measured according to any method.
- ▶ The test results can be quickly and easily archived on the PC.



### ETest Multi, multi-functional installation tester



#### Characteristics

- DIN VDE 0100 tester for: Continuity test, voltage measurement, insulation resistance test, line and earth loop impedance measurement, automatic RCD/RCCB test sequence, test of RCD/RCCB response time, test of RCD/RCCB trip current
- Uniquely integrated measuring head (wireless probe)
- Loop impedance measurement optionally without triggering the RCCB
- Slim tester with the lightest weight of its class
- Auto test function for RCD/RCCB measurement
- Large LC display and analogue bar display
- Extremely easy to use
- More safety when working under voltage - display is located directly in field of vision during use
- Fast and precise cutting

#### Technical data

|                                         |                                                                  |
|-----------------------------------------|------------------------------------------------------------------|
| Earth continuity check                  |                                                                  |
| Test current at                         | > 200 mA                                                         |
| Scale range of the display              | 0.00 $\Omega$ - 199 $\Omega$                                     |
| Resolution (Earthing)                   | 0,01 $\Omega$ maximum                                            |
| Insulation resistance                   |                                                                  |
| Test voltage                            | 100 V, 250 V, 500 V                                              |
| Test current                            | 1 mA> 1 mA with UN x (1000W/V)                                   |
| Short circuit-Test current              | > 2 mA                                                           |
| Scale range of the display (Isolation)  | 0.05 M $\Omega$ - 199 M $\Omega$                                 |
| Resolution (Isolation)                  | 0.01 M $\Omega$ maximum                                          |
| RCD                                     |                                                                  |
| Mains voltage                           | 195 - 253 V / 195 - 440 V, 40 Hz - 65 Hz V                       |
| Nominal Test current                    | 15 mA                                                            |
| Scale range of the display (Impedance): | 0.01 $\Omega$ - 2000 $\Omega$                                    |
| Resolution (Impedance)                  | 0,01 $\Omega$ maximum                                            |
| Scale range                             | 0 - 26 kA                                                        |
| RCD                                     |                                                                  |
| Mains voltage RDC                       | 195 - 253 V, 40 Hz - 65 Hz                                       |
| Nominal Test current RDC                | 10 mA, 30 mA, 100 mA, 300 mA, 500 mA                             |
| Scale range of the increase in current: | $\frac{1}{2}$ I $\Delta$ n up to 1.1 I $\Delta$ n                |
| Measurement of voltage / frequency      |                                                                  |
| Display scale range                     | 0 V - 400 V                                                      |
| Resolution (Voltage/Freq)               | 1 V                                                              |
| Accuracy                                | $\pm 5\% \pm 2$ Digits                                           |
| Frequency range                         | 45 Hz - 65 Hz                                                    |
| General information                     |                                                                  |
| Safety guidelines                       | IEC61010-1 300V Cat III, EN 61557                                |
| Dimension                               | 260 x 100 x 55 mm mm                                             |
| Weight                                  | 0,950 kg                                                         |
| Power supply system                     | Battery - AA 1.5 V alkali, IEC-LR14 (6 incl. in scope of supply) |

| Item                                              | Part No.        |
|---------------------------------------------------|-----------------|
| ETest Multi, multi-functional installation tester | <b>52045014</b> |

| Scope of supply          | Part No. | Page |
|--------------------------|----------|------|
| Test lead set            | 52046756 |      |
| Power lead               | 52046757 |      |
| Wireless measuring probe | 52046758 |      |
| Robust plastic case      | 52046759 |      |

## ETest RE, earth resistance measuring device

### Characteristics

- Test options: Earth resistance measurement with 2, 3 and 4 - Wire Method, Earth resistance measurement with jaw meter, measurement of the specific earth resistance
- USB interface
- Large LC display
- Compact design
- Comfortable operation by rotary switch and push buttons
- Memory for 500 test results
- Simple downloading options to PC via USB



| Technical data                      |                                                                  |
|-------------------------------------|------------------------------------------------------------------|
| Earth continuity check              |                                                                  |
| Scale range of the display          | 0,00 $\Omega$ - 50,0 k $\Omega$                                  |
| General information                 |                                                                  |
| Safety guidelines                   | IEC 61010-1 300 V CAT II, EN 61557                               |
| Dimension                           | 260 x 100 x 55 mm mm                                             |
| Weight                              | 0,800 kg                                                         |
| Power supply system                 | Battery - AA 1.5 V alkali, IEC-LR14 (6 incl. in scope of supply) |
| Measured frequency                  | 125 Hz $\pm$ 1 Hz                                                |
| Measured frequency earth resistance | 125 Hz $\pm$ 1 Hz                                                |
| Measured frequency clamp method     | 125 Hz $\pm$ 1 Hz                                                |
| Measured voltage earth resistance   | < 30 V effective sinusoidal                                      |
| Measured voltage jaw method         | < 30 V effective sinusoidal                                      |
| Measuring current jaw method        | < 20 mA effective                                                |
| Measuring current earth resistance  | < 20 mA effective                                                |
| Measuring voltage                   | < 30 V effective sinusoidal                                      |
| Measurement current                 | < 20 mA effective                                                |
| Interface                           | USB                                                              |
| scale range jaw method              | 0,00 $\Omega$ - 2.0 k $\Omega$                                   |
| Storage spaces                      | 500                                                              |

| Item                                        | Part No. |      |
|---------------------------------------------|----------|------|
| ETest RE, earth resistance measuring device | 52045013 |      |
| Scope of supply                             | Part No. | Page |
| Test lead set                               | 52046753 |      |
| Connecting cable USB to MINI DIN            | 52046754 |      |
| Ground spike (4)                            |          |      |
| Carrying bag                                | 52046755 |      |

| Accessories   | Part No. | Page |
|---------------|----------|------|
| Current probe | 52046834 |      |

# *Measuring heat* *where nobody goes.*

## Temperature measuring devices for tight areas.

Temperature measuring devices can measure temperatures quickly and safely from a distance. The products are set apart by extreme precision. The compact device design also permits measurements in tight areas.

**If handled correctly, we offer a lifetime limited warranty on these products.**



*High optical resolution for sharp measurement.*

- For measurements from -60 °C to +625 °C.
- Accuracy to  $\pm 2$  °C.
- With laser for locating target area.
- With adjustable emissivity.



## ■ For highly-precise temperature measurement: *TG-2000*.



- ▶ Highly-precise temperature measurements from a distance and in tight areas.
- ▶ **Precise focussing on measuring points even from long distances.**
- ▶ Connection port for type K temperature sensors.

### Benefits:

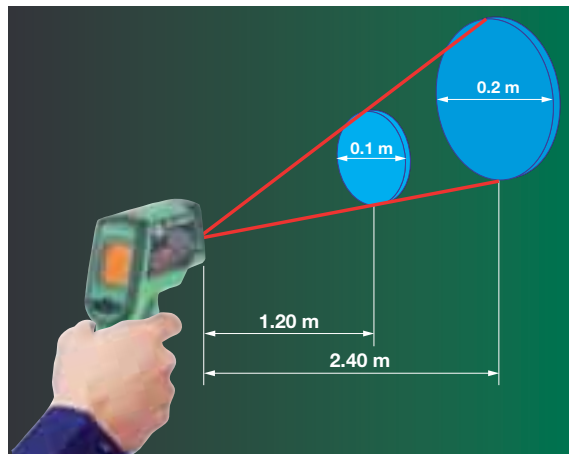
- ▶ Injuries and short circuits eliminated due to the distance during measurement.
- ▶ Temperature measurements can easily be taken even while the machine is operating.

## ■ Temperature measurement for constrained areas and from a safe distance.

- ▶ Adjustable emissivity for optimising measuring accuracy for numerous materials and surfaces.

### Benefits:

- ▶ With an optical resolution of 12:1, you can measure accurate to 20 cm from a distance of 2.4 m.
- ▶ Under-ceiling measurements, for example, can easily be taken without a ladder.



Optical resolution 12:1 and associated measuring ranges.

## ■ The TG-1000 and TG-2000 in numbers.

|                | Optical resolution | Temperature measurement range         | Accuracy              | Laser  | Type K sensors |
|----------------|--------------------|---------------------------------------|-----------------------|--------|----------------|
| <b>TG-1000</b> | 12:1               | -60 °C - 550 °C<br>(-76 °F - 1022 °F) | ±2% or<br>±2 °C (4°F) | single |                |
| <b>TG-2000</b> | 16:1               | -60 °C - 625 °C<br>(-76 °F - 1157 °F) | ±2% or<br>±2 °C (4°F) | dual   | Yes            |

### TG-1000 Infra-red thermometer



#### Characteristics

- Safe, non-contact temperature measurement
- Display with background illumination for comfortable read-off in all work areas
- Temperature display selectable in Celsius (°C) or Fahrenheit (°F)
- Maximum/minimum temperature, difference and average measurements
- Laser pilot light for identification of the centre of the target measuring area

#### Suitable for

- A variety of materials through adjustable emissivity for optimising the measuring accuracy

| Technical data                |                 |
|-------------------------------|-----------------|
| Monitor                       | LCD             |
| Optical resolution            | 12:1            |
| Temperature measurement       | -60 °C - 550 °C |
| Item                          | Part No.        |
| TG-1000 Infra-red thermometer | 52059365        |

### TG-2000 Dual laser infra-red thermometer



#### Characteristics

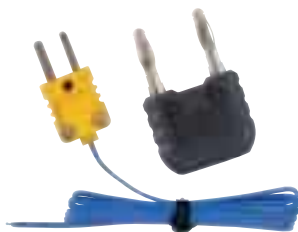
- Safe, non-contact temperature measurement
- Display with background illumination for comfortable read-off in all work areas
- Temperature display selectable in Celsius (°C) or Fahrenheit (°F)
- Maximum/minimum temperature, difference and average measurements
- Twin laser for identification of the approximate diameters of the target measuring area
- Bush for type K thermoelement

#### Suitable for

- A variety of materials through adjustable emissivity for optimising the measuring accuracy

| Technical data                           |                 |
|------------------------------------------|-----------------|
| Monitor                                  | LCD             |
| Optical resolution                       | 16:1            |
| Temperature measurement                  | -60 °C - 625 °C |
| Item                                     | Part No.        |
| TG-2000 Dual laser infra-red thermometer | 52059364        |

### TPB Temperature probe for temperatures of -40° C to +204° C



#### Suitable for

- Surfaces, air and gases.
- Not for use with fluids and gels.

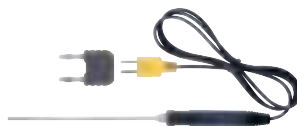
| Technical data                                              |                                        |
|-------------------------------------------------------------|----------------------------------------|
| Sensor length                                               | 1 m ±5 mm (39.4" ±0.2")                |
| Temperature measurement                                     | -40°C to +204°C (-40.00°C to 203.89°C) |
| Thermoelement                                               | Thermoelement type K                   |
| Item                                                        | Part No.                               |
| TPB Temperature probe for temperatures of -40° C to +204° C | 50075926                               |

## TPI-1 Temperature probe for temperatures of -40° C to +800° C

### Suitable for

- Use in liquids and gels.

| Technical data                                                |                                                            |
|---------------------------------------------------------------|------------------------------------------------------------|
| Accuracy                                                      | 0.75% or $\pm 2.2^{\circ}\text{C}$ ( $4^{\circ}\text{F}$ ) |
| Sensor length                                                 | 120 mm $\pm$ 5 mm (4.72" $\pm$ 0.2")                       |
| Temperature measurement                                       | -40°C to 800°C (-40°F to 775.00°C)                         |
| Thermoelement                                                 | Thermoelement type K                                       |
| Item                                                          | Part No.                                                   |
| TPI-1 Temperature probe for temperatures of -40° C to +800° C | <b>50065696</b>                                            |



## TPFSC Temperature probe for temperatures of -40° C to +500° C

### Suitable for

- Measurement of flat or bevelled surfaces

| Technical data                                                |                                                            |
|---------------------------------------------------------------|------------------------------------------------------------|
| Accuracy                                                      | 0.75% or $\pm 2.2^{\circ}\text{C}$ ( $4^{\circ}\text{F}$ ) |
| Sensor length                                                 | 120 mm $\pm$ 5 mm (4.72" $\pm$ 0.2")                       |
| Temperature measurement                                       | -40°C to +500°C (-40°F to 932°F)                           |
| Thermoelement                                                 | Thermoelement type K                                       |
| Item                                                          | Part No.                                                   |
| TPFSC Temperature probe for temperatures of -40° C to +500° C | <b>50065700</b>                                            |



# Cables on course.

## Sound testing sensors for sheathed and unsheathed cables.

Sound testing sensors for cable and conductor identification allow cables to be detected within a bundle at a cross-connect point or at the remote end.

- ▶ In some cases using various tones for several conductors at the same time.
- ▶ Also without metallic contact with the receiver.

The devices enable cables and conductors to be quickly traced along a wall in full control panels and equipment rooms.



*Simply connect the transmitter and cables can be quickly detected.*

- Sound testing sensors for twisted pair, coaxial and contactless cables.
- For continuity tests and tracking cores and cables.
- Various sensitivities can be set for precise identification.





## Acoustic testing sensor kit 701K-G

### Characteristics

- For the identification of individual conductors or cables
- Talk battery supply
- Tone generator with crocodile terminals and RJ-11 plug
- 3-colour LED display (identifies WS call voltages)
- Weather-resistant design
- Tone generator with interchangeable tips
- Selectable wobble tone
- Polarity test
- Continuity test



| Item                               | Part No.        |      |
|------------------------------------|-----------------|------|
| Acoustic testing sensor kit 701K-G | <b>52047869</b> |      |
| Scope of supply                    | Part No.        | Page |
| High-power sound generator 77HPCE  | 52055781        |      |
| Inductive amplifier 200 EP         | 52055782        |      |
| Bag                                | 50086839        |      |
| Battery 9 V                        |                 |      |

## Premium Tone and Probe Kit 801K

### Characteristics

- Talk battery supply
- Tone generator with crocodile terminals with pincushion and RJ-11 plug
- 3-colour LED display (identifies WS call voltage).
- Weather-resistant design
- Selectable wobble tone
- Continuity test
- Polarity test
- 50Hz filter function



| Item                            | Part No.        |      |
|---------------------------------|-----------------|------|
| Premium Tone and Probe Kit 801K | <b>50604660</b> |      |
| Scope of supply                 | Part No.        | Page |
| 77HP/6A Tone generator          | 50605034        |      |
| 200FP filter sensor             | 50604678        |      |
| Bag 700C                        | 50086839        |      |
| Battery 9 V                     |                 |      |

## Secure communication in the network.

### Network measuring devices and testers.

Fast, precise and easy to use - these features make Greenlee's wiring and network service testers indispensable for technicians who install and maintain networks. The NETcat® Micro NC-100 is a wiring tester for testing data voice and video applications. The result is clearly shown on a backlit LCD display. In twisted-pair mode, even "split-pairs" faults can be found. An integrated sound generator combined with an inductive receiver enables laid cables to be quickly identified. The NETcat® Pro NC-500 also offers the option of TDR calibration - enabling you to determine the length of the cable without a problem.



Greenlee measuring devices and testers for the fast and simple testing of networks.

- Network cable tester.
- Built-in tone generator.
- Length measurement via TDR function.
- Backlit touchscreen display.



## NETcat® Micro NC-100 is a wiring tester for testing data, voice and video cables

### Characteristics

- Built-in tone generator
- Testing of twisted pair (UTP, STP) and coaxial cables
- Locating short-circuits, breaks, incorrect wiring and split pair errors
- Surge warning feature
- Digital, backlit display
- Telephone (RJ-12), LAN (RJ-45) and coaxial connector (F type) ports
- Integrated remote unit
- Three selectable sound signals for cable identification

| Item                                                    | Part No.        |      |
|---------------------------------------------------------|-----------------|------|
| NETcat® Micro NC-100                                    | <b>52024541</b> |      |
| Scope of supply                                         | Part No.        | Page |
| Twisted pair, coax and crocodile clips/connecting cable |                 |      |
| Battery 9 V                                             |                 |      |



## NETcat® Micro NC-100 in combination with inductive receiver 200EP for cable identification

### Characteristics

- Telephone (RJ-12), LAN (RJ-45) and coaxial connector (F type) ports
- Integrated remote unit
- Three selectable tone signals for cable conductor identification
- Testing of twisted pair (UTP, STP) and coaxial cables
- Locating short-circuits, breaks, incorrect wiring and split pair errors

| Item                         | Part No.       |      |
|------------------------------|----------------|------|
| NETcat® Micro NC-100 + 200EP | <b>NC100EP</b> |      |
| Scope of supply              | Part No.       | Page |
| NETcat® Micro NC-100         | 52024541       | 657  |
| Inductive amplifier 200 EP   | 52055782       |      |
| Carrying bag                 |                |      |
| Battery 9 V                  |                |      |



**NETcat® Pro NC-500, wiring and network service tester with TDR function**



**Characteristics**

- Length measurement using TDR function up to 600 m
- Four selectable tone signals for cable identification
- Displays active network devices (PC or hub) in 10/100 Base-T networks
- NVP calibration
- ID detection of up to eight remote units with optional NC-510 accessory kit
- Testing of twisted pair (UTP, STP) and coaxial cables
- Locating short-circuits, breaks, incorrect wiring and split pair errors

| Item                                                    | Part No. |      |
|---------------------------------------------------------|----------|------|
| NETcat® Pro NC-500                                      | 52024556 |      |
| Scope of supply                                         | Part No. | Page |
| Twisted pair, coax and crocodile clips/connecting cable |          |      |
| Battery 9 V                                             |          |      |

| Accessories                                  | Part No. | Page |
|----------------------------------------------|----------|------|
| 7 Remote units ID2 - ID8, carrying bag incl. | 52024661 |      |






**Technical notes on the various crimping types**
**i-2**
**Legend of pictograms used for connecting materials**
**i-3**
**Special properties of connecting materials**
**i-4**

|                                     |     |
|-------------------------------------|-----|
| Material properties                 | i-4 |
| Electrical properties               | i-4 |
| Mechanical properties               | i-4 |
| Assignment of cables and conductors | i-5 |

**Processing instructions for connecting materials**
**i-6**

|                                                                                 |     |
|---------------------------------------------------------------------------------|-----|
| Assembly instructions for cable lugs and connectors                             | i-6 |
| Assembly instructions for sleeves for type VHR and VHD compacted conductors     | i-7 |
| Processing instructions for reduction sleeves                                   | i-7 |
| Assembly instructions for full tension Al/steel connectors to DIN 48085, part 3 | i-7 |
| General notes                                                                   | i-8 |

**Processing instructions for screw connectors**
**i-9**
**Processing instructions for cable junction tap connectors**
**i-10**

|                                                                                                             |      |
|-------------------------------------------------------------------------------------------------------------|------|
| Assembly instructions KSK1503                                                                               | i-10 |
| Assembly instructions KSK504                                                                                | i-11 |
| Assembly instructions for SKR1503 / SKR1204 / SKR1304 / SKR1504 / SKR150/1504 / SKR1854 / KSK1504 / KSK1854 | i-12 |
| Structure of tap connectors SKR1204, SKR150/504, SKR150/1504 and SKR1854 for four conductor cables          | i-13 |
| Structure of tap connector SKR1503 for three conductor cables                                               | i-13 |
| Structure of tap connector KSK15041504 for four conductor cables                                            | i-13 |

**Conversion tables**
**i-14**
**Check-list for custom made cable lugs and connectors**
**i-15**

**General technical information**
**i-16**

|                                                 |      |
|-------------------------------------------------|------|
| Cable pulling technology – Typical applications | i-16 |
| Measuring categories                            | i-17 |
| Metric cable glands EN 50262                    | i-18 |
| Holemaking systems                              | i-18 |
| Hydraulic punches                               | i-18 |
| Standards and norms                             | i-19 |

**Alphabetical Index**
**i-20**
**Alphanumeric Index**
**i-24**

## ■ Technical notes on the various crimping types

|                                                                                    | Crimp                             | Description                                                                                                                                                                                                                                                                                                                                                                          | Scope of application                                          |
|------------------------------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|    | <b>Hexagonal crimping</b>         | for crimping tubular copper cable lugs and connectors "standard type", tubular cable lugs for switchgear connections, compression cable lugs and connectors to DIN 46235/DIN 46267, aluminum cable lugs and connectors                                                                                                                                                               | 6 - 1000 mm <sup>2</sup>                                      |
|    | <b>Indent crimping</b>            | for crimping tubular copper cable lugs and connectors "standard type", tubular cable lugs for switchgear connections, solderless terminals to DIN 46234 and pin cable lugs to DIN 46230, insulated solderless terminals, tubular cable lugs and connectors for fine stranded conductors, nickel tubular cable lugs and connectors, stainless steel tubular cable lugs and connectors | 0.75 - 400 mm <sup>2</sup>                                    |
|    | <b>Oval crimping</b>              | for crimping tubular double compression cable lugs, C-clamps, insulated tubular cable lugs and connectors, insulated pin cable lugs and compression joints to DIN 48217, insulated cable connectors                                                                                                                                                                                  | 0.1 - 185 mm <sup>2</sup>                                     |
|    | <b>Indent crimping</b>            | for crimping copper tubular cable lugs and connectors "standard type", tubular cable lugs for switchgear connections, tubular cable lugs and connectors for fine stranded conductors                                                                                                                                                                                                 | 6 - 400 mm <sup>2</sup>                                       |
|    | <b>Indent crimping</b>            | for crimping copper tubular cable lugs and connectors "standard type", tubular cable lugs for switchgear connections, nickel tubular cable lugs and connectors, stainless steel tubular cable lugs and connectors                                                                                                                                                                    | 4 - 95 mm <sup>2</sup>                                        |
|    | <b>Trapezoid crimping</b>         | for crimping cable end-sleeves and twin cable end-sleeves                                                                                                                                                                                                                                                                                                                            | 0.14 - 240 mm <sup>2</sup>                                    |
|    | <b>Indent crimping</b>            | for crimping cable end-sleeves and twin cable end-sleeves                                                                                                                                                                                                                                                                                                                            | 0.5 - 35 mm <sup>2</sup>                                      |
|    | <b>Square crimping</b>            | for crimping cable end-sleeves and twin cable end-sleeves                                                                                                                                                                                                                                                                                                                            | 0.14 - 16 mm <sup>2</sup>                                     |
|    | <b>Roll crimping</b>              | for crimping non-insulated receptacles and cable end-sleeves<br>DIN 46228, part 2                                                                                                                                                                                                                                                                                                    | 0.1 - 6 mm <sup>2</sup>                                       |
|  | <b>Round crimping</b>             | for crimping cable end-sleeves and twin cable end-sleeves<br>of 90° and 120° sector-shaped conductors                                                                                                                                                                                                                                                                                | 0.14 - 16 mm <sup>2</sup><br>10 sm – 300 sm<br>35 se – 300 se |
|  | <b>Quad-point indent crimping</b> | for crimping copper tubular cable lugs and connectors "standard type", tubular cable lugs for switchgear connections, tubular cable lugs and connectors for fine stranded conductors                                                                                                                                                                                                 | 10 - 300 mm <sup>2</sup>                                      |
|  | <b>Four point crimping</b>        | for crimping turned pin receptacles and pin connectors                                                                                                                                                                                                                                                                                                                               | 0.1 - 4 mm <sup>2</sup>                                       |
|  | <b>Special trapezoid crimping</b> | particularly for crimping cable end-sleeves with compacted fine stranded conductors                                                                                                                                                                                                                                                                                                  | 10 - 240 mm <sup>2</sup>                                      |
|  | <b>Gas-tight oval crimping</b>    | Crimp quality according to automotive standards                                                                                                                                                                                                                                                                                                                                      |                                                               |



## ■ Legend of pictograms used for connecting materials

|                                                                                                     | Designation                                                        |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
|                    | Tubular cable lugs and connectors, blue connection – Cu            |
|                    | Tubular cable lugs and connectors – Cu, standard design            |
|                    | Insulated cable lugs and connectors; “standard type”               |
|                    | Tubular cable lugs and connectors for fine stranded conductors     |
|                    | Tubular cable lugs and connectors for solid conductors             |
| <b>VA</b><br>      | Tubular cable lugs and connectors – stainless steel                |
| <b>Ni</b><br>      | Tubular cable lugs and connectors – Ni                             |
| <b>DIN</b><br>     | Compression cable lugs and connectors to DIN – Cu                  |
|                    | Solderless terminals, connectors and pin terminals to DIN – Cu     |
|                    | Insulated solderless terminals                                     |
|                    | Sleeves for compacted conductors and sector-shaped conductors – Cu |
| <b>Aldrey</b><br>  | Compression cable lugs and connectors for Aldrey cables            |
| <b>Al/St</b><br> | Compression cable lugs and connectors for Al/St cables             |
| <b>Al</b><br>    | Compression cable lugs and connectors to DIN – Al                  |
| <b>Al/Cu</b><br> | Compression cable lugs and connectors – Al/Cu                      |
|                  | C-clamps                                                           |
|                  | H-clamps                                                           |
|                  | Cable end-sleeves                                                  |
|                  | Twin cable end-sleeves                                             |
|                  | Insulated cable connections                                        |
|                  | Non-insulated receptacles                                          |

### ■ Material properties

#### Information on materials used for copper and aluminum cable lugs and connectors

- All copper tubular cable lugs, solderless terminals, pin terminals and the corresponding connectors are manufactured from Cu to DIN 13600.
- Cable end-sleeves to DIN 46228 part 1 and part 4 are manufactured from Cu to DIN EN 13600.
- Aluminum compression cable lugs and connectors are manufactured from E-Al 99.5 to DIN 1712.

### ■ Electrical properties

- The maximum current load of our cable connections in conjunction with insulated conductors can be found in the chart below.

|                                             | Group 1<br>One or more single-core<br>conductors laid in conduits |           | Group 2<br>Multi-core conductors,<br>e. g. sheathed conductors,<br>conduit wires, lead-sheathed<br>conductors, flat webbed<br>conductors, flexible cables |           | Group 3<br>Overhead single-core<br>conductors with clearance<br>of at least their diameter |           |
|---------------------------------------------|-------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------|-----------|
| Nominal<br>cross-section<br>mm <sup>2</sup> | Cu<br>(A)                                                         | Al<br>(A) | Cu<br>(A)                                                                                                                                                 | Al<br>(A) | Cu<br>(A)                                                                                  | Al<br>(A) |
| 0.75                                        | –                                                                 | –         | 12                                                                                                                                                        | –         | 15                                                                                         | –         |
| 1                                           | 11                                                                | –         | 15                                                                                                                                                        | –         | 19                                                                                         | –         |
| 1.5                                         | 15                                                                | –         | 18                                                                                                                                                        | –         | 24                                                                                         | –         |
| 2.5                                         | 20                                                                | –         | 26                                                                                                                                                        | –         | 32                                                                                         | –         |
| 4                                           | 25                                                                | –         | 34                                                                                                                                                        | –         | 42                                                                                         | –         |
| 6                                           | 33                                                                | –         | 44                                                                                                                                                        | –         | 54                                                                                         | –         |
| 10                                          | 45                                                                | –         | 61                                                                                                                                                        | 48        | 73                                                                                         | 57        |
| 16                                          | 61                                                                | 48        | 82                                                                                                                                                        | 64        | 98                                                                                         | 77        |
| 25                                          | 83                                                                | 65        | 108                                                                                                                                                       | 85        | 129                                                                                        | 103       |
| 35                                          | 103                                                               | 81        | 135                                                                                                                                                       | 105       | 158                                                                                        | 124       |
| 50                                          | 132                                                               | 103       | 168                                                                                                                                                       | 132       | 198                                                                                        | 155       |
| 70                                          | 165                                                               | –         | 207                                                                                                                                                       | 163       | 245                                                                                        | 193       |
| 95                                          | 197                                                               | –         | 250                                                                                                                                                       | 197       | 292                                                                                        | 230       |
| 120                                         | 235                                                               | –         | 292                                                                                                                                                       | 230       | 344                                                                                        | 268       |
| 150                                         | –                                                                 | –         | 335                                                                                                                                                       | 263       | 391                                                                                        | 310       |
| 185                                         | –                                                                 | –         | 383                                                                                                                                                       | 301       | 448                                                                                        | 353       |
| 240                                         | –                                                                 | –         | 453                                                                                                                                                       | 357       | 528                                                                                        | 414       |
| 300                                         | –                                                                 | –         | 504                                                                                                                                                       | 409       | 608                                                                                        | 479       |
| 400                                         | –                                                                 | –         | –                                                                                                                                                         | –         | 726                                                                                        | 569       |
| 500                                         | –                                                                 | –         | –                                                                                                                                                         | –         | 830                                                                                        | 649       |

Values applicable only at an ambient temperature of 30 °C

### ■ Mechanical properties

- The tensile strength of connections made in accordance with the processing instructions using our tools complies with DIN EN 61238-1.



**Please note** that crimping solderless cable connections using tools from other manufactures does not guarantee a proper connection. We recommend only the use of solderless cable connections from **Klauke®** using **Klauke®** tools.

## ■ Assignment of cables and conductors

### a) Copper

- Our copper cable lugs and connectors are suitable for connecting copper cables to DIN 48201, part 1 and copper conductors according to DIN EN 60228 (see chart).

### b) Aluminum

- Our aluminum cable lugs and connectors are suitable for connecting aluminum cables to DIN EN 50182 and aluminum conductors to DIN EN 60228 (see chart).

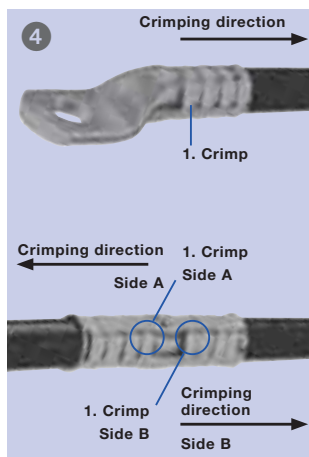


*Sector-shaped conductors must be rounded with pre-rounding tools before assembly.*

### Cross-section compatibility chart for cable lugs and connectors for copper and aluminum conductors to

- VDE 0250
- DIN 48200
- DIN 48201 part 1, DIN EN 50182
- DIN EN 60228

| Cross-section   | Reference cross section        | Cable Cu and Al |              | Stranded round conductor | Compacted round conductor |                       | Solid conductor       |                       | Fine and superfine stranded conductor |
|-----------------|--------------------------------|-----------------|--------------|--------------------------|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------------------|
| mm <sup>2</sup> | DIN 48201 part 1, DIN EN 50182 |                 |              | VDE 0295, DIN EN 60228   |                           |                       |                       |                       |                                       |
|                 | (mm <sup>2</sup> )             | Number of wires | Cable Ø (mm) | Conductor Ø (mm)         | Conductor Ø min. (mm)     | Conductor Ø max. (mm) | Conductor Ø min. (mm) | Conductor Ø max. (mm) | Cable Ø max. (mm)                     |
| 0.5             | –                              | –               | –            | 1.1                      | –                         | –                     | –                     | 0.9                   | 1.1                                   |
| 0.75            | –                              | –               | –            | 1.2                      | –                         | –                     | –                     | 1                     | 1.3                                   |
| 1               | –                              | –               | –            | 1.4                      | –                         | –                     | –                     | 1.2                   | 1.5                                   |
| 1.5             | –                              | –               | –            | 1.7                      | –                         | –                     | –                     | 1.5                   | 1.8                                   |
| 2.5             | –                              | –               | –            | 2.2                      | –                         | –                     | –                     | 1.9                   | 2.3                                   |
| 4               | –                              | –               | –            | 2.7                      | –                         | –                     | –                     | 2.4                   | 2.9                                   |
| 6               | –                              | –               | –            | 3.3                      | –                         | –                     | –                     | 2.9                   | 3.9                                   |
| 10              | 10.02                          | 7               | 4.1          | 4.2                      | –                         | –                     | –                     | 3.7                   | 5.1                                   |
| 16              | 15.89                          | 7               | 5.1          | 5.3                      | –                         | –                     | –                     | 4.6                   | 6.3                                   |
| 25              | 24.25                          | 7               | 6.3          | 6.6                      | 5.6                       | 6.5                   | 5.2                   | 5.7                   | 7.8                                   |
| 35              | 34.36                          | 7               | 7.5          | 7.9                      | 6.6                       | 7.5                   | 6.1                   | 6.7                   | 9.2                                   |
| 50              | 49.48                          | 7               | 9            | 9.1                      | 7.7                       | 8.6                   | 7.2                   | 7.8                   | –                                     |
| 50              | 48.35                          | 19              | 9            | –                        | –                         | –                     | –                     | –                     | 11                                    |
| 70              | 65.81                          | 19              | 10.5         | 11                       | 9.3                       | 10.2                  | 8.7                   | 9.4                   | 13.1                                  |
| 95              | 93.27                          | 19              | 12.5         | 12.9                     | 11                        | 12                    | 10.3                  | 11                    | 15.1                                  |
| 120             | 116.99                         | 19              | 14           | 14.5                     | 12.5                      | 13.5                  | 11.6                  | 12.4                  | 17                                    |
| 150             | 147.11                         | 37              | 15.8         | 16.2                     | 13.9                      | 15                    | 12.9                  | 13.8                  | 19                                    |
| 185             | 181.62                         | 37              | 17.5         | 18                       | 15.5                      | 16.8                  | –                     | –                     | 21                                    |
| 240             | 242.54                         | 61              | 20.3         | 20.6                     | 17.8                      | 19.2                  | –                     | –                     | 24                                    |
| 300             | 299.43                         | 61              | 22.5         | 23.1                     | 20                        | 21.6                  | –                     | –                     | 27                                    |
| 400             | 400.14                         | 61              | 26           | 26.1                     | 22.9                      | 24.6                  | –                     | –                     | 31                                    |
| 500             | 499.83                         | 61              | 29.1         | 29.2                     | 25.7                      | 27.6                  | –                     | –                     | 35                                    |
| 625             | 626.2                          | 91              | 32.6         | 33.2                     | 29.3                      | 32.5                  | –                     | –                     | 39                                    |
| 800             | 802.09                         | 91              | 36.9         | 37.6                     | –                         | –                     | –                     | –                     | –                                     |
| 1000            | 999.71                         | 91              | 41.1         | 42.2                     | –                         | –                     | –                     | –                     | –                                     |



### ■ Assembly instructions for cable lugs and connectors

- ❶ Strip conductor in line with insertion depth (+ 10 % because of length change of crimp sleeve).
- ❷ The conductor ends must be cleaned mechanically prior to assembly.
- ❸ Insert conductor fully into cable lug or connector.
- ❹ Observing the crimping direction, crimp the cable lug or connector using the appropriate tools. The crimping direction for cable lug and connector is indicated in the diagram opposite.
- ❺ Remove excess compound emerging from aluminum cable lugs and connectors.

**We recommend the following number of crimps for individual cross sections:**

| Cross-section<br>mm <sup>2</sup> | Tubular cable lugs   |                        | Cable lugs to DIN 46235 |                            | Al cable lugs        |                        |
|----------------------------------|----------------------|------------------------|-------------------------|----------------------------|----------------------|------------------------|
|                                  | 5 mm<br>Crimping die | width<br>Crimping dies | 5 mm<br>Crimping die    | width<br>Crimping dies     | 7 mm<br>Crimping die | width<br>Crimping dies |
| 6                                | 1                    |                        | 2                       |                            |                      |                        |
| 10                               | 1                    |                        | 2                       |                            |                      |                        |
| 16                               | 1                    | 1                      | 2                       | 1                          | 4                    | 2                      |
| 25                               | 2                    | 1                      | 2                       | 1                          | 4                    | 2                      |
| 35                               | 2                    | 1                      | 2                       | 1                          | 5                    | 2                      |
| 50                               | 2                    | 1                      | 3                       | 1                          | 5                    | 2                      |
| 70                               | 2                    | 1                      | 3                       | 1                          | 6                    | 3                      |
| 95                               | 2                    | 1                      | 4                       | 2                          | 6                    | 3                      |
| 120                              | 2                    | 1                      | 4                       | 2                          | 6                    | 3                      |
| 150                              | 2                    | 1                      | 4                       | 2                          | 6                    | 3                      |
| 185                              | 2                    | 1*                     | 4                       | 2                          | 6                    | 3                      |
| 240                              | 4                    | 2                      | 5                       | 2                          | 8                    | 3                      |
| 300                              | 4                    | 2                      | 5                       | 2 (17 mm)**<br>5 (7 mm)*** | 8                    | 3                      |
| 400                              | 4                    | 2                      |                         | 3                          |                      | 4                      |
| 500                              |                      |                        |                         | 3                          |                      | 4                      |
| 625                              |                      |                        |                         | 3                          |                      |                        |
| 800                              |                      |                        |                         | 3                          |                      |                        |
| 1000                             |                      |                        |                         | 3                          |                      |                        |

\* when using quad-point indent crimping (HK60VP, EK 60 VP/FT-L etc.)  
Number of crimping operations: 2

\*\* Crimp with crimping dies of Series 25 and Series 45

\*\*\* Crimp with crimping dies of Series 13

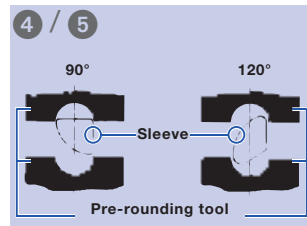
## ■ Processing instructions for sleeves for compacted and sector-shaped conductors, types VHR and VHD

We recommend the use of additional VHR and VHD sleeves for compacted round conductors to ensure that the tubular cable lugs and connectors fit accurately.

For sector-shaped conductors, we recommend the use of additional sector sleeves VHR 3 or VHR 4 and VHD 3 or VHD 4 with Cu cable lugs and connectors to prevent the conductor recoil. Sleeves need to be rounded with pre-rounding tools.

### Please note:

- ① Ensure that the conductor is deformed as little as possible when cutting to length.
- ② Strip the conductor insulation in line with the insertion length.
- ③ Slip the sleeve up to the front cut edge of the conductor.
- ④ Place the conductor and sleeve in the pre-rounding tool as per the diagram.
- ⑤ Crimp the sleeve
  - a) Crimping operation as per the diagram (1st pre-crimp)
  - b) Crimp turned through 90° (2nd pre-crimp)
  - c) Crimp turned through 30° (finish-crimp)
  - d) Crimp turned through 30° as required (finish-crimp)



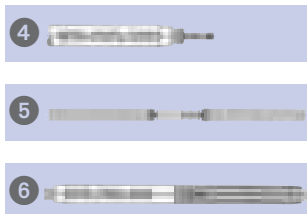
## ■ Instructions for fitting reduction sleeves

Only wide hydraulic crimping dies to be used when crimping more than two cross-sections.

## ■ Assembly instructions for full tension Al/steel connectors to DIN 48085, part 3

The connectors consist of an Al sleeve (E-Al 99.5) and a soft steel sleeve (St 52).

- ① Straighten cable ends, remove dirt and any oxide layer.
- ② Slip the Al-compression joint onto one of the cable ends.
- ③ Tie off the cable end and strip the Al cores.
- ④ Tie off Al and steel cores.
- ⑤ Slip on the steel sleeve and crimp through according to the crimping marks.
- ⑥ Slide the Al sleeve centrally over the crimped steel sleeve and crimp according to the crimping marks.
- ⑦ Remove excess compound after crimping the connector.



**Caution:** Do not crimp in the centre, in the area of the steel connector. Do not crimp in the area of the cones.



**Warning:** The compound must not be removed, either fully or partially, prior to assembly.

The tool dies can be assigned either by colour-coding, or preferably based on the code assigned to the cross-section. The dies for the steel sleeve have a black finish, those for the Al sleeve are zinc-coated.

### General information:

The crimping process has to be continued until the dies are completely closed, otherwise a proper crimp cannot be guaranteed.

### ■ General information

#### Crimping dies:

The dies of series K 18, EK 50/18-L, PK 18, HK 18 and THK 18 and series HK 252, PK 252, HK 252 EL correspond in terms of external dimensions to DIN 48083 parts 1 and part 3 respectively.

The hexagonal dimensions of all interchangeable dies for manual and hydraulic tools of series D (i. e. for DIN cable lugs and connectors 46235 and 46267) and A (Al cable lugs and connectors, as well as Al-Cu cable lugs and connectors) are to DIN 48083 part 4.

#### Surfaces:

All above mentioned dies are supplied "chrome-yellow" for copper and "galvanized" for aluminum and nickel.

**Respect the following maximum cross-sections when crimping connectors using crimping tools K18, PK18, EK 50/18-L and HK 120/30 and EK 120/30-L:**

| K 18, EK 50/18-L and PK 18<br>connector type / crimping dies | Max. cross<br>section<br>mm <sup>2</sup> | HK 120/30 and EK 120/30-L<br>connector type / crimping dies | Max. cross<br>section<br>mm <sup>2</sup> |
|--------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------|------------------------------------------|
| Cu standard version, R-series                                | 95                                       | Cu standard version, R-series                               | 185                                      |
| Cu DIN and high-tensile version,<br>D-series                 | 70                                       | Cu DIN version, D-series                                    | 150                                      |
| Al version,<br>A-series                                      | 70                                       | Al version, A-series                                        | 120                                      |
|                                                              |                                          | Al for high-tensile version,<br>A-series                    | 95                                       |



**The following tools do not provide a code no. on crimps:**

EK 60 VP-L, EK 60 VP/FT-L, HK 60 VP, HK 60 VPFT, PK 60 VP and PK 60 VPFT.

**The following tightening torques apply for screws and bolts of strength category 8.8 as specified by DIN EN 61238:**

| Size of thread | Tightening torque<br>(Nm) | Size of thread | Torque<br>(Nm) |
|----------------|---------------------------|----------------|----------------|
| M 5            | 5                         | M 12           | 75             |
| M 6            | 9                         | M 14           | 120            |
| M 7            | 15                        | M 16           | 190            |
| M 8            | 22                        | M 20           | 380            |
| M 10           | 44                        |                |                |

## ■ Assembly instruction for screw connectors

Because they are detachable connecting elements, screw connectors are used preferably for heat-shrunk or cast resin joints. However, they also can be used in all other types of cable joints. Four-screw connectors are especially suitable for multi-stranded conductors, since the longer connector length increases the transverse conductance of the individual wires and the contact resistance decreases accordingly. In addition, higher pull-out values are achieved. Barrier type four-screw connector clamps are suitable for cables with mass-impregnated paper insulation.

In an electrolyte-free, e.g. dry environment, aluminum as well as copper conductors can be combined. This also applies in combination with heat-shrunk hoses. If conductors of different materials (e.g. Cu and Al cables) have to be connected, a barrier type connector is recommended.

While identical types of cables (e.g. NAYY-NAVY) can be used with non-barrier types of connectors for unequal cables (e.g. NAYY-NAKBA), plastic or earth cables, the use of connectors with barrier as an oil stop is recommended.

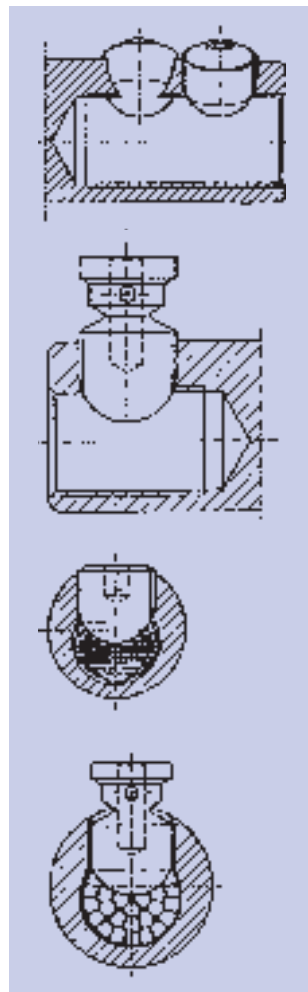
Insertion depth of conductors is controlled either by the conductor stop at the barrier, or by inspection hole on screw connectors without barrier.

In addition to the conventional screw connectors, we offer screw connectors with shear-off heads. The benefit of this design is the defined tightening torque, which is pre-determined by the maximum transferable torque at the rated breaking point. This contact force defined by the manufacturer guarantee optimum electrical and mechanical properties (DIN EN 61238). No torque wrenches are required for assembly of this connector type.

With standard screw connectors, the required contact pressures are reached at approx. 80 % of the specified torque. Over-crimping beyond the torque specified for the connector must be avoided.

The cross-grooves on the conductor channels allow high tensile forces to be transmitted. The tensile forces of our screw connectors correspond to compression joints to DIN 46267, part 2, with identical cross section.

The screws are treated with a high-gliding, molybdenum sulphide-based lubricant. This guarantees adequate contact pressure with a relatively low tightening torque.



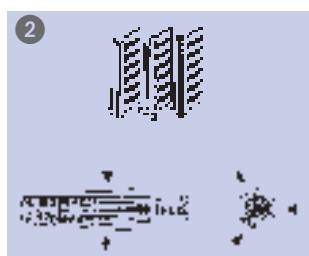
## ■ Assembly instructions KSK1503



1 Strip cable to DIN 47630.

Comes with open snap-closure.

If opening is required due to inadvertent closing, open ring parts by hand against snapping direction.



### Three conductor cable

| Cross-section            | Recommended bare length* |
|--------------------------|--------------------------|
| 50 - 95 mm <sup>2</sup>  | 200 mm                   |
| 50 - 185 mm <sup>2</sup> | 320 mm                   |

\* Observe assembly instructions of gland manufacturer! On sets with off-centre bulge (largest gland diameter), spacer wedges must also be placed off-centre.

2 Place spacer wedges between conductors.

Expander wedges help to spread the conductors.



3 (A) Place clamping ring on the main conductor cable.

(B) Push clamping ring halves against the wedges.

(C) Slip ring onto wedges hand-tight. It does not need to be pushed up to the stop.

4 (D) Strip tap conductor.

(E) Insert phase conductor into tap hole and tighten.



**Attention!** Insert wrench fully into hexagon screw! Tap conductors below 16 mm<sup>2</sup> are recommended to be clamped with kinked ends.

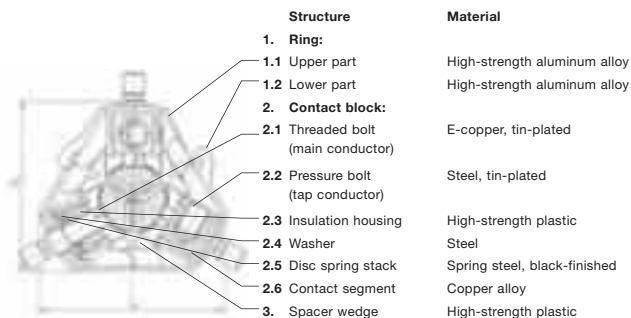
5 Shear-off screws to be tightened until seated on insulation.

■ Contact by alternating and uniform tightening until heads shear off.

■ Shear-off screws ease assembly operation. However, alternating and uniform tightening of screws is still required to ensure careful assembly. Remove sheared-off heads from gland. Once sheared-off, screws cannot be loosened.



### Structure of the tap connector KSK1503 for three conductor cable





## ■ Assembly instructions for KSK504

- ① Bare conductor and insert wedge. Make sure that wires are tight to wedge.

| Type   | Recommended bare length* |
|--------|--------------------------|
| KSK504 | 90 mm                    |

\* Observe assembly instructions of gland manufacturer!  
Comes with open snap-closure.

If opening is required due to inadvertent closing, open ring parts by hand against snapping direction.

- ② Place spacer wedges between conductors.  
Expander wedges help to spread the conductors.
- ③ (A) Place clamping ring on the main conductor cable.  
(B) Push clamping ring halves against the wedges.  
(C) Push ring onto spacers. If wedges or two piece insulator are used, push on ring only hand-tight.  
It does not need to be pushed up to the stop.
- ④ (D) Strip tap conductor.  
(E) Insert phase conductor into tap hole and tighten.

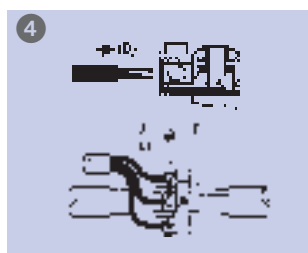
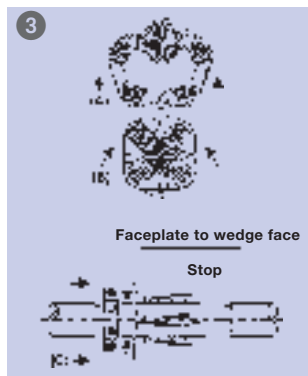
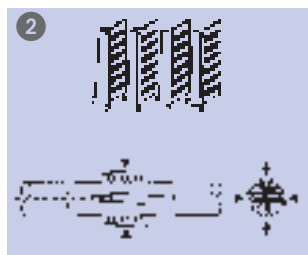


**Attention!** Insert wrench fully into hexagon screw! Tap conductors below 16 mm<sup>2</sup> are recommended to be clamped with kinked ends.

- ⑤ Shear-off screws to be tightened by alternating and uniform actions until seated on insulation.

Contact by alternating uniform tightening.

Maximum tightening force is achieved when a perceptible resistance is felt after cutting through insulation (stop), caused by penetration of bolt into conductor surface. Recommended tightening torque is approx. 15 Nm (1.5 kpm).



### Structure of the tap connector KSK504 for four connector cables

| Structure                          | Material                     |
|------------------------------------|------------------------------|
| 1. <b>Ring:</b>                    |                              |
| 1.1 Upper part                     | High-strength aluminum alloy |
| 1.2 Lower part                     | High-strength aluminum alloy |
| 2. <b>Contact block:</b>           |                              |
| 2.1 Threaded bolt (main conductor) | E-copper, tin-plated         |
| 2.2 Pressure bolt (tap conductor)  | Steel, tin-plated            |
| 2.3 Insulation housing             | High-strength plastic        |
| 2.4 Washer                         | Steel                        |
| 2.5 Disc spring stack              | Spring steel, black-finished |
| 2.6 Contact segment                | Copper alloy                 |
| 3. <b>Spacer</b>                   | High-strength plastic        |

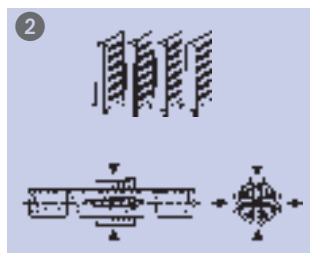
### ■ Assembly Instructions for:

**SKR1503 / SKR1204 / SKR1304 / SKR1504 /  
SKR150/1504 / SKR1854 / KSK1504 / KSK1854**



- 1 Strip cable to DIN 47630.

Comes with open snap-closure.  
If opening is required due to inadvertent closing,  
open ring parts by hand against snapping direction.



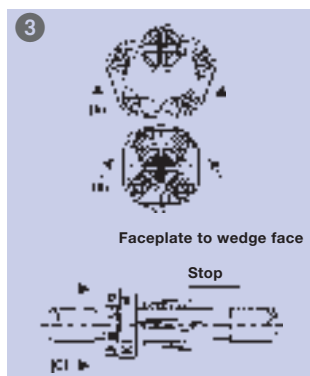
#### Three conductor cable

| Cross-section            | Recommended bare length* |
|--------------------------|--------------------------|
| 50 - 95 mm <sup>2</sup>  | 200 mm                   |
| 50 - 185 mm <sup>2</sup> | 320 mm                   |

#### Four conductor cable

| Cross-section            | Recommended bare length* |
|--------------------------|--------------------------|
| 50 - 120 mm <sup>2</sup> | 120 mm                   |
| 50 - 185 mm <sup>2</sup> | 160 mm                   |

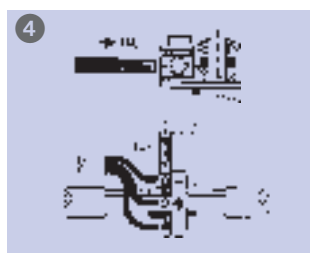
\* **Observe assembly instructions of gland manufacturer!** On sets with off-centre bulge (largest gland diameter), spacer wedges must also be placed off-centre.



- 2 Place spacer wedges between conductors.  
Expander wedges help to spread the conductors.
- 3 (A) Place clamping ring on the main conductor cable.  
(B) Push clamping ring halves against the wedges.  
(C) Slip ring onto wedges hand-tight.  
It does not need to be pushed up to the stop.
- 4 (D) Strip tap conductor.  
(E) Insert phase conductor into tap hole and tighten.



**Attention!** Insert wrench fully into hexagon screw! Tap conductors below 16 mm<sup>2</sup> are recommended to be clamped with kinked ends.



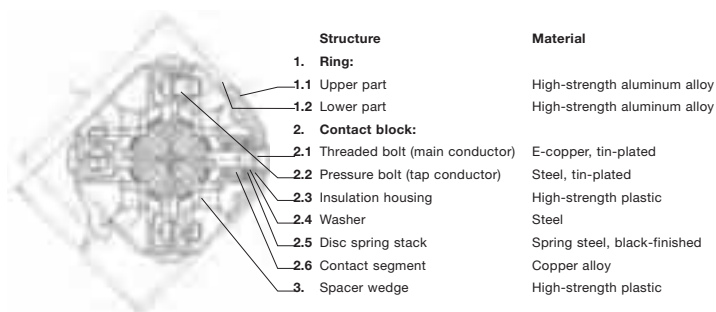
- 5 Shear-off screws to be tightened by alternating and uniform actions until seated on insulation.

Contact by alternating uniform tightening.

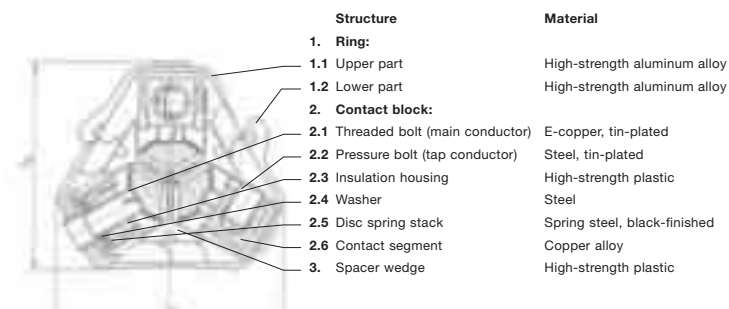
Maximum tightening force is achieved when a perceptible resistance is felt after cutting through insulation (stop), caused by penetration of bolt into conductor surface. Recommended tightening torque is approx. 20 Nm (2 kpm).



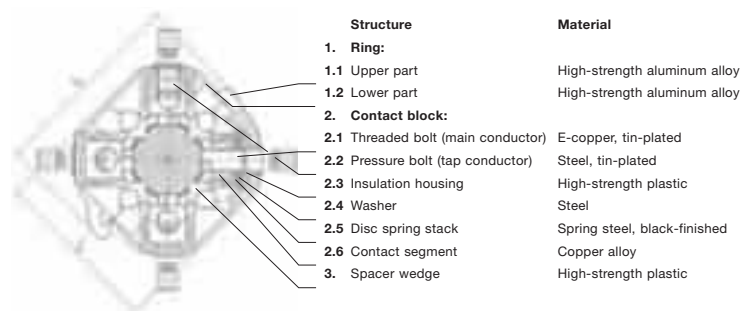
## ■ Structure of the tap connectors SKR1204, SKR150/504, SKR150/1504 and SKR1854 for four connector cables



## ■ Structure of the tap connector SKR1503 for three connector cables



## ■ Structure of the tap connector KSK1504 for four connector cables



### ■ Assignment of conductor cross sections (AWG or MCM sizes to mm<sup>2</sup>)

| AWG | Metric conductor cross-section mm <sup>2</sup> | Comparable conductor cross-section mm <sup>2</sup> | MCM  | Metric conductor cross-section mm <sup>2</sup> | Comparable conductor cross-section mm <sup>2</sup> |
|-----|------------------------------------------------|----------------------------------------------------|------|------------------------------------------------|----------------------------------------------------|
| 27  | 0.102                                          | –                                                  | 250  | 127                                            | 120                                                |
| 26  | 0.128                                          | 0.14                                               | 300  | 152                                            | 150                                                |
| 25  | 0.163                                          | –                                                  | 350  | 177                                            | 185                                                |
| 24  | 0.205                                          | 0.2                                                | 400  | 203                                            | –                                                  |
| 23  | 0.259                                          | 0.25                                               | 500  | 253                                            | 240                                                |
| 22  | 0.325                                          | 0.34                                               | 600  | 304                                            | 300                                                |
| 21  | 0.412                                          | –                                                  | 700  | 355                                            | –                                                  |
| 20  | 0.519                                          | 0.5                                                | 800  | 405                                            | 400                                                |
| 19  | 0.653                                          | –                                                  | 900  | 456                                            | –                                                  |
| 18  | 0.823                                          | 0.75                                               | 1000 | 507                                            | 500                                                |
| 17  | 1.04                                           | 1                                                  | 1250 | 633                                            | 625                                                |
| 16  | 1.31                                           | –                                                  | 1500 | 760                                            | 800                                                |
| 15  | 1.65                                           | 1.5                                                | 1750 | 887                                            | –                                                  |
| 14  | 2.08                                           | –                                                  | 2000 | 1010                                           | 1000                                               |
| 13  | 2.63                                           | 2.5                                                |      |                                                |                                                    |
| 12  | 3.31                                           | –                                                  |      |                                                |                                                    |
| 11  | 4.15                                           | 4                                                  |      |                                                |                                                    |
| 10  | 5.27                                           | 6                                                  |      |                                                |                                                    |
| 9   | 6.62                                           | –                                                  |      |                                                |                                                    |
| 8   | 8.35                                           | –                                                  |      |                                                |                                                    |
| 7   | 10.6                                           | 10                                                 |      |                                                |                                                    |
| 6   | 13.3                                           | –                                                  |      |                                                |                                                    |
| 5   | 16.8                                           | 16                                                 |      |                                                |                                                    |
| 4   | 21.2                                           | –                                                  |      |                                                |                                                    |
| 3   | 26.7                                           | 25                                                 |      |                                                |                                                    |
| 2   | 33.6                                           | 35                                                 |      |                                                |                                                    |
| 1   | 42.4                                           | –                                                  |      |                                                |                                                    |
| 1/0 | 53.4                                           | 50                                                 |      |                                                |                                                    |
| 2/0 | 67.5                                           | 70                                                 |      |                                                |                                                    |
| 3/0 | 85                                             | 95                                                 |      |                                                |                                                    |
| 4/0 | 107.2                                          | 120                                                |      |                                                |                                                    |

### ■ British and American units of measurement

| Length units |           | Area units |                       | Volume units |                        | Fluid volume units |           | Weight       |          |
|--------------|-----------|------------|-----------------------|--------------|------------------------|--------------------|-----------|--------------|----------|
| 1 mil        | 0.0254 mm | 1 sq. in.  | 645.1 mm <sup>2</sup> | 1 cu. in.    | 16.386 cm <sup>3</sup> | 1 pint             | 0.568 l   | 1 grain      | 0.059 g  |
| 1 inch       | 25.4 mm   | 1 sq. ft.  | 0.093 m <sup>2</sup>  | 1 cu. ft.    | 0.028 m <sup>3</sup>   | 1 quart            | 1.136 l   | 1 ounce      | 28.349 g |
| 1 foot       | 0.3048 m  | 1 sq. yd.  | 0.836 m <sup>2</sup>  | 1 cu. yd.    | 0.764 m <sup>3</sup>   | 1 brit. gallon     | 4.554 l   | 1 pound (lb) | 0.454 kg |
| 1 yard       | 0.9140 m  |            |                       |              |                        | 1 am. gallon       | 3.785 l   | 1 brit. ton  | 1.016 t  |
| 1 mile       | 1.6090 km |            |                       |              |                        | 1 quarter          | 290.790 l | 1 am. ton    | 0.907 t  |
|              |           |            |                       |              |                        | 1 bushel           | 36.350 l  |              |          |

**■ Check-list for custom made cable lugs and connectors**

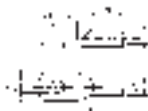
Customer / Company: ..... Customer No.: .....

Address: ..... Fax: .....

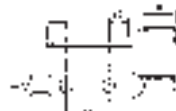
Contact person: ..... Tel.: .....

**Drawings and dimensions: Please fill in all required dimensions (see dimension chart) and necessary data.**

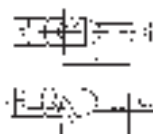
☐ Cable lug



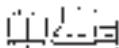
☐ Cable lug with two holes in palm



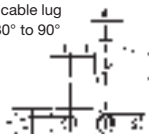
☐ Cable lug with hook  
right



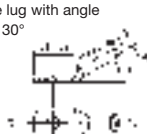
left



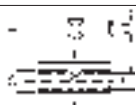
☐ Angle cable lug  
from 30° to 90°



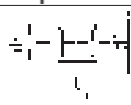
☐ Cable lug with angle  
up to 30°



☐ Connector



☐ Parallel connector



Number of butt marks: 0 / 1 / 2 / .....

Other types acc. to your sketches/remarks:

Dimension chart (please state nominal dimensions in "mm"):

Dimension d1 ..... Dimension l .....  
Dimension d4 ..... Dimension l1 .....  
Dimension d2 ..... Dimension l3 .....  
Dimension a .....  
Dimension b .....  
Dimension c1 ..... Angle x .....  
Dimension c2 .....

**Technical data**

Type of conductor (if known): .....

Cross-section (cable): .....

Inspection hole (on cable lugs): ☐ Tubular cable lug ☐ Compression cable lug

Surface: ☐ bright ☐ tin-plated ☐ nickel-plated

Other: .....

Material: ☐ Cu ☐ Al

Other: .....

**Commercial Data**

Batch size / Annual requirement: .....

Requested delivery date: .....

Sample: ☐ Yes ☐ No

Test report of first sample: ☐ Yes ☐ No

Additional agreements: .....

Date: ..... Signature (customer): .....

## ■ Cable pulling technology – Typical applications

| Type                                                                                            | Tape diameter                                                                     | Tube diameter                                                                     | Pressure energy                                                                   | Min. curve radius                                                                 | Breaking strength                                                                 | Tensile force with start/end sleeve                                               | Recommended length                                                                 |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                                                                                                 | ø mm                                                                              | ø mm                                                                              | Kg                                                                                | mm                                                                                | Kg                                                                                | Kg                                                                                | m                                                                                  |
|                                                                                                 |  |  |  |  |  |  |  |
|  Speedy Spinner | 3                                                                                 | 16 - 32                                                                           | +++                                                                               | 160                                                                               | 400                                                                               | 110                                                                               | 20-30 (+ 2-3)                                                                      |
|  Smart Butler   | 4.5                                                                               | 40 - 60                                                                           | +++                                                                               | 310                                                                               | 1200                                                                              | >200                                                                              | 40-60 (+ 3-5)                                                                      |
|  Smart Butler   | 6                                                                                 | 50 - 80                                                                           | +++                                                                               | 400                                                                               | 2000                                                                              | >300                                                                              | 40-80 (2-3)                                                                        |
|  Smart Butler   | 7.5                                                                               | 63 - 100                                                                          | +++                                                                               | 500                                                                               | 3000                                                                              | >400                                                                              | 20-30 (+ 3-5)                                                                      |
|                                                                                                 | 9                                                                                 | 63 - 125                                                                          | +++                                                                               | 620                                                                               | 4500                                                                              | >500                                                                              | 20-30 (+ 3-5)                                                                      |
|                                                                                                 | 11                                                                                | 63 - 150                                                                          | +++                                                                               | 770                                                                               | 7500                                                                              | >700                                                                              | 150-250 (+ 3-5)                                                                    |
|  Polyester      | 4.5                                                                               | 16 - 32                                                                           | +++                                                                               | 100                                                                               | 250                                                                               | 140                                                                               | 10-25                                                                              |
|  Nylon, Perlon® | 4                                                                                 | 16 - 25                                                                           | +                                                                                 | 80                                                                                | 280                                                                               | 120                                                                               | 10-20                                                                              |
|  Steel          | 4                                                                                 | 16 - 25                                                                           | +                                                                                 | 100                                                                               | 900                                                                               | 115                                                                               | 10-20                                                                              |

 for trade
  for industry

## Measurement Categories

Protective values which greatly exceed the nominal capacity of a system are stipulated in the standards of the IEC categories. Without this additional protection, transient overvoltages which occur with increasing regularity may cause serious or fatal injuries.

### Measurement Category I

is the signal level for telecommunications and electronic equipment.

### Measurement Category II

is the local level for permanently connected devices or devices not operated by means of a fixed connection - including all types of illumination from household devices to office equipment such as copy machines. Can also be used in Category I ranges.

### Measurement Category III

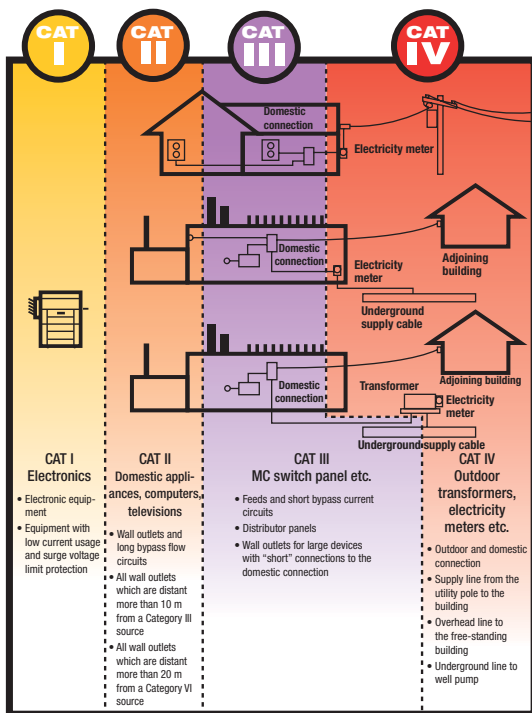
is the distribution level for fixed main or bypass flow circuits. These electric circuits are usually separated by at least one level of transformer barrier of Category IV (public utility or other high-voltage power source). Can also be used in Category II and Category I ranges.

### Measurement Category IV

is the main electric supply level. Greenlee is setting new standards by offering equipment that meets the highest protective values of IEC standards and which are certified accordingly. Can be used in all category ranges.

**Greenlee equipment** – checked and certified for compliance with norms by an independent party. This catalogue states the category for many Greenlee devices, indicating that these devices comply with the various IEC categories (II, III or IV). All these references represent the categories confirmed in tests by independent testing organisations – giving you additional assurance.

**The right type of protection for the task at hand.** No matter where you may need overvoltage protection – select a device which has at least the nominal capacity suitable for the work you are carrying out.



### ■ Metric cable glands for electrical installation EN 50262

The new European standard EN 50262 defines conditions for all manufacturers of electrical appliance housings and all electrical installation.

It's scope includes cables and conductors for control cabinets, distributor housings, junction boxes, domestic connections, installation boxes, equipment housings etc.

EN 50262 replaces the Pg thread (steel tank pipe thread) used for all housing designs for decades with a metric thread. Sizes Pg 7 to Pg 48 are being replaced by ISO M 6 to M75.

### Greenlee holemaking tools in ISO sizes acc. to EN 50262

| ISO sizes | mm   | Slug-Buster® punch | Slug-Splitter® punch | HSS hole saws | Step bits | Kwik Change® HM saws |
|-----------|------|--------------------|----------------------|---------------|-----------|----------------------|
| 12        | 12.5 | ✓                  |                      |               |           |                      |
| 16        | 16.5 | ✓                  | ✓                    |               | ✓         |                      |
| 20        | 20.5 | ✓                  | ✓                    | ✓             | ✓         | ✓                    |
| 25        | 25.5 | ✓                  | ✓                    | ✓             | ✓         | ✓                    |
| 32        | 32.5 | ✓                  | ✓                    |               | ✓         |                      |
| 40        | 40.5 | ✓                  | ✓                    |               | ✓         |                      |
| 50        | 50.5 | ✓                  | ✓                    | ✓             |           | ✓                    |
| 63        | 63.5 | ✓                  | ✓                    | ✓             |           | ✓                    |

### ■ Holemaking systems

| Round punch                   | Operation                 | Capacity                              | Hole size                           |
|-------------------------------|---------------------------|---------------------------------------|-------------------------------------|
| <b>Slug-Buster®</b>           | Manual, hydraulic punches | max. 3.0 mm in St 37                  | 12.5 to 64.0 mm                     |
| <b>Slug-Splitter®</b>         | Hydraulic punches         | max. 3.5 mm in V2A                    | 15.2 to 64.0 mm                     |
| <b>Speed Punch™</b>           | Hydraulic punches         | 3.5 mm in St 37                       | 16.2 to 64.0 mm                     |
| <b>Standard</b>               | Manual, hydraulic punches | max. 3.0 mm in St 37                  | 66.7 to 143.7 mm                    |
| Special shaped punches        | Operation                 | Capacity                              | Hole size                           |
| <b>Special shaped punches</b> | Manual, hydraulic punches | max. 3.0 mm in St 37 or 1.5 mm in V2A | See data for the individual punches |

### ■ Hydraulic punches

|                                                                                     |                                                         |           | Description                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------|---------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | LS 50-L Flex<br>Battery powered hydraulic punching tool | LS50LFLEX | - with micro-processor control<br>- 60 kN punching force<br>- punches up to 3.0 mm St 37 and up to 3.5 mm V2A, depending on hole size                                                                      |
|  | LS 60-L<br>Battery powered hydraulic punching tool      | LS60L     | - with micro-processor control<br>- 60 kN punching force<br>- punches up to 3.0 mm St 37 and up to 3.5 mm V2A, depending on hole size                                                                      |
|   | Hydraulic punch<br>Quick Draw™ 7804E                    | 50342916  | - ideal for fast, frontal punching<br>- 80 kN punching force<br>- punches up to 3.0 mm St 37 and up to 3.5 mm V2A, depending on hole size                                                                  |
|   | Hydraulic punch<br>Quick Draw 90™ 7904E                 | 50342991  | - rectangular cylinder head rotatable around 180°<br>- maximum flexibility in narrow working spaces<br>- 80 kN punching force<br>- punches up to 3.0 mm St 37 and up to 3.5 mm V2A, depending on hole size |
|  | Hydraulic punch with hand pump                          | 50159062  | - compact design of punch, pump and cylinder<br>- 110 kN punching force<br>- punches up to 3.0 mm St 37 and up to 3.5 mm V2A, depending on hole size                                                       |
|  | Hydraulic punch with foot pump                          | 50250973  | - foot pump leaves both hands free for operating the punch<br>- 110 kN punching force<br>- punches up to 3.0 mm St 37 and up to 3.5 mm V2A, depending on hole size                                         |
|   | Hand hydraulic punch Flex Draw                          | 52033843  | - rectangular cylinder head rotatable around 180°<br>- maximum flexibility in narrow working spaces<br>- 80 kN punching force<br>- punches up to 3.0 mm St 37 and up to 3.5 mm V2A, depending on hole size |



## ■ Standards for cabling

A number of standardisation committees that define the technical features of cabling systems have been in existence since 1993. These directives must be observed when planning and setting up networks. Full volumes can be obtained from specialist bookshops.

## ■ International standards

International Standards are published by the ISO (International Standards Organisation). In Europe these international directives are used for information purposes.

**ISO/IEC IS 11801** Description of the performance requirements for a general cabling system

**IEC 1156** Multi-core and symmetrical conductors for digital message transmission

**IEC 1156-1** Basic specification

**IEC 1156-2** Framework specification for service cables IEC1156-3 Framework specification for patch and equipment connecting cables

**IEC 1156-4** Framework specification for building connecting and rising cables

## ■ European standards

In collaboration with national standard institutes, the European Committee for Electrical Standardisation CENELEC (Comite Europeen de Normalisation Electrotechnique) has published European standards that are based on the international ISO/IEC 11801 and hence normative for Europe.

**EN 50173** Description of the performance requirements for a general cabling system (EN 50173 also refers to HD 608 and also EN 55022)

**608** General specification for symmetrical conductors for digital message transmission

**EN 50167** Framework specification for service cables

**EN 50168** Framework specification for patch and equipment connecting cables

**EN 50169** Framework specification for building connection and rising cables

**EN 55022** Framework specification for electromagnetic compatibility (EMC). This specification contains threshold values and measuring procedures for radio interference of data processing equipment.

## ■ American standards

The American standards are published by the EINTIA (Electronic Industries Association / Telecommunication Industries Association) an American Joint Venture.

**TSB 36** Framework specification for symmetrical data cables (100 Ohm, unsheathed)

**TSB 40** Framework specification for passive components (100 Ohm, unsheathed)

**EIA/TIA 568** Framework specification for cabling systems



|                                          |               |                                               |                |
|------------------------------------------|---------------|-----------------------------------------------|----------------|
| <b>A</b>                                 |               | Compression cable lugs to DIN                 | 72-73, 108-110 |
| Accessories for hydraulic pumps          | 402-407       | Compression joints to DIN                     | 79-83, 110-129 |
| Adapter 1/4" / 3/8"                      | 495           | Control cabinet key                           | 503            |
| Angle compression cable lugs             | 74-77         | Crimping dies blue connection®, Series 13     | 442            |
| Assortment box                           | 198-211       | Crimping dies blue connection®, Series 22     | 433            |
| Assortments and sets                     | 467-500       | Crimping dies blue connection®, Series 4      | 416            |
| <b>B</b>                                 |               | Crimping dies blue connection®, Series 5      | 422            |
| Ball-point head screwdriver              | 492, 498      | Crimping dies, Series 13                      | 443-448        |
| Basic tools                              | 503-507       | Crimping dies, Series 18                      | 427-432        |
| Batteries and mains sets                 | 397-399       | Crimping dies, Series 22                      | 434-441        |
| Batteries, Li-Ion                        | 398           | Crimping dies, Series 25                      | 449-454        |
| Batteries, NiMH                          | 397           | Crimping dies, Series 4                       | 417-421        |
| Battery chargers                         | 399-401       | Crimping dies, Series 45                      | 455            |
| Battery powered hydraulic bolt cutter    | 338-339       | Crimping dies, Series 5                       | 422-426        |
| Battery powered hydraulic crimping tool  | 308-334       | Crimping dies, Series 50                      | 414-415        |
| Battery powered hydraulic crimping tools | 308-334       | Crimping tool                                 | 524            |
| Battery powered hydraulic cutting tools  | 338-352       | Crimping tool for insulated cable connections | 232-234        |
| Battery powered universal tool           | 356-358       | Crimping tool, Multi-Contact-Plug-in system   | 253-254        |
| Bi-metallic washers                      | 129           | Cross-connectors, Cu                          | 43-53          |
| Bit sets                                 | 500           | Cutter knife                                  | 506            |
| Bits                                     | 493-495       | Cutting dies, series 18                       | 432            |
| Blue connection                          | 24            | <b>D</b>                                      |                |
| BNC Crimping tool                        | 252           | Designation rings                             | 161            |
| Butt connectors, Cu                      | 40, 50-52     | Digital display                               | 406            |
| Butt connectors, blue connection, Cu     | 28-29         | Digital multimeter                            | 624-632        |
| Butt connectors, Ni                      | 67            | Double compression cable lugs                 | 78             |
| Butt connectors, stainless steel         | 65            | <b>E</b>                                      |                |
| <b>C</b>                                 |               | E-Smart box                                   | 470            |
| C-Clamps                                 | 139-140       | Engineer's hammer                             | 504            |
| Cable cutters                            | 484           | <b>F</b>                                      |                |
| Cable end-sleeves to DIN                 | 154-156       | Face mask                                     | 471            |
| Cable end-sleeves to DIN, Cu             | 154-156       | Fitting wrench                                | 488            |
| Cable junction tap connectors            | 147-150       | Flexible circuit distributors                 | 192            |
| Cable knife                              | 474, 505, 520 | Flexible connectors                           | 190-192        |
| Cable lugs, punched Cu                   | 134           | Flexible connectors                           | 190-191        |
| Carburettor screwdriver                  | 492           | Folding rule                                  | 501            |
| Chalk                                    | 502           | Fully-insulated tools                         | 476-479        |
| Chalk line                               | 502           | <b>H</b>                                      |                |
| Clamp meters                             | 637-638       | H-Clamps                                      | 140            |
| Cleaning brush                           | 474           | Hand saw                                      | 505            |
| Coax wire stripper                       | 523           | Hand-operated cutting tool                    | 268-274        |
| Combination pliers, heavy duty           | 484           | Hand-operated hydraulic crimping tool         | 286-296        |
| Combination shears                       | 506           | Hand-operated hydraulic crimping tools        | 286-296        |
| Combination spanner set                  | 500           | Hand-operated hydraulic cutting tools         | 297            |
| Compound                                 | 140           | Hand-operated hydraulic universal tool        | 354            |
| Compression cable lugs - Al/Cu           | 124-126       | Hard-shell tool case                          | 512            |

|                                                     |                  |                                                     |                                                  |
|-----------------------------------------------------|------------------|-----------------------------------------------------|--------------------------------------------------|
| Hydraulic crimping heads                            | 362-374          | N                                                   |                                                  |
| Hydraulic crimping heads                            | 362-374          | NH safety handle with guard                         | 471                                              |
| Hydraulic crimping heads                            | 362-374          | Non-insulated multiple tabs                         | 189                                              |
| Hydraulic crimping tool                             | 388-391          | Non-insulated receptacles                           | 185-189                                          |
| Hydraulic cutting head                              | 375-379          | Non-insulated receptacles                           | 184-186                                          |
| Hydraulic cutting heads                             | 392-393          | Non-insulated tabs                                  | 186-189                                          |
| Hydraulic cutting heads                             | 375-379          | P                                                   |                                                  |
| Hydraulic cutting tool                              | 392-393          | Parallel connectors, Cu                             | 41                                               |
| Hydraulic oil, special                              | 402              | Parallel groove clamps for tap off connections - Cu | 137-138                                          |
| Hydraulic pumps                                     | 381-385          | Phase tester                                        | 466                                              |
| Hydraulic universal head                            | 355              | Photovoltaic crimping tools                         | 253-255                                          |
| I                                                   |                  | Pin terminals to DIN, Cu                            | 93                                               |
| Insulated butt connectors                           | 183              | Pipe screw sleeves                                  | 135                                              |
| Insulated butt connectors, Cu                       | 46               | Plastic case                                        | 216, 229                                         |
| Insulated cable connections                         | 174-184          | Plastic clamp                                       | 472                                              |
| Insulated cable end-sleeves                         | 157-162          | Pliers                                              | 460-488                                          |
| Insulated end-splices                               | 182              | Pliers set                                          | 495-496                                          |
| Insulated parallel connectors                       | 184              | Pocket boxes                                        | 200-205                                          |
| Insulated pin receptacles                           | 177-178          | Polyamide connectors                                | 191                                              |
| Insulated pin receptacles sleeves                   | 176-177          | POS packaging                                       | 26                                               |
| Insulated pin terminals                             | 91, 176          | Punched cable lugs, Cu                              | 134                                              |
| Insulated receptacles                               | 179-181          | R                                                   |                                                  |
| Insulated screw connector                           | 145-146          | Reducing sleeves, Cu                                | 83                                               |
| Insulated solderless terminals                      | 90-94, 174       | Reduction compression joints - Al                   | 112-116                                          |
| Insulated stand mat                                 | 472              | Rubber towel                                        | 472                                              |
| Insulated tabs                                      | 182              | S                                                   |                                                  |
| Insulated tubular cable lugs, Cu                    | 44-46            | Safety cutting devices                              | 394-395                                          |
| Insulated twin cable end-sleeves                    | 162-163          | Safety tools                                        | 472-475                                          |
| Insulating sleeves                                  | 187              | Screw connectors                                    | 141-147                                          |
| Interface kit, for downloading data                 | 633              | Screwdrivers                                        | 490-492                                          |
| L                                                   |                  | Screwdrivers, VDE                                   | 464-466                                          |
| Long nose pliers                                    | 485              | Side cutters                                        | 485-486, 489                                     |
| M                                                   |                  | Sledge hammer                                       | 504                                              |
| Magnetic holder                                     | 494              | Sleeves for compacted conductors                    | 103                                              |
| Mains adapter                                       | 399              | Sleeves for sector shaped conductors                | 104-105                                          |
| Marking pen                                         | 502              | Slotted screwdriver                                 | 490                                              |
| Measuring and marking                               | 501-502          | Solderless connector to DIN                         | 95-96                                            |
| Measuring tape                                      | 501              | Solderless terminals to DIN, Cu                     | 88-89                                            |
| Mechanical bit holder                               | 495              | Solderless terminals, fork and pin type             | 92-94                                            |
| Mechanical crimping tool                            | 222-234, 240-264 | Solderless terminals, insulated                     | 90-91                                            |
| Mechanical crimping tools                           | 222-234, 240-264 | SORTIMO                                             | 199, 211, 316, 318, 322, 328, 344, 356, 507, 550 |
| Mechanical crimping tools                           | 235-239          | Speed Nut                                           | 546                                              |
| Mechanical crimping tools with interchangeable dies | 256-264          | Speed Punch                                         | 558                                              |
| Mechanical cutting tools                            | 265-275          |                                                     |                                                  |

|                                                                |              |
|----------------------------------------------------------------|--------------|
| Spirit level                                                   | 501          |
| Steel carrying case                                            | 213-216      |
| Stripping tool                                                 | 520          |
| T                                                              |              |
| T-connectors, Cu                                               | 42, 52       |
| Telephone pliers                                               | 486-487      |
| Tool chest                                                     | 480, 508-525 |
| Torque wrench                                                  | 476          |
| Torque wrench set                                              | 498-499      |
| TORX® screwdriver set                                          | 497          |
| TORX® TR screwdriver                                           | 491          |
| Tubular angle cable lugs, Cu                                   | 36-39, 49-50 |
| Tubular cable lug, Ni                                          | 66-67        |
| Tubular cable lugs                                             | 32-35        |
| Tubular cable lugs and connectors - nickel                     | 66-67        |
| Tubular cable lugs and connectors - stainless steel            | 64-65        |
| Tubular cable lugs and connectors for fine stranded conductors | 47-50        |
| Tubular cable lugs and connectors for solid conductors         | 51-53        |
| Tubular cable lugs for switchgear connections                  | 54           |
| Tubular cable lugs, blue connection®                           | 26-27        |
| Tubular cable lugs, Cu                                         | 32-35, 47-51 |
| Tubular cable lugs, stainless steel                            | 64           |
| U                                                              |              |
| Universal knife                                                | 506          |
| USB adapter                                                    | 408          |
| V                                                              |              |
| VDE Cable cutter                                               | 460          |
| VDE High-leverage combination pliers                           | 460          |
| VDE Pliers set                                                 | 466-467      |
| VDE Pliers/Screwdriver set                                     | 467          |
| VDE Screwdriver set                                            | 468-469      |
| VDE Side cutters                                               | 461-462      |
| VDE Telephone pliers                                           | 462-463      |
| VDE Water pump pliers                                          | 463          |
| VDE Wire stripper                                              | 463-464      |
| W                                                              |              |
| Water pump pliers                                              | 487-488      |
| Wire stripper                                                  | 487, 516-517 |
| Wire strippers, coax                                           | 523          |
| Wire stripping tool                                            | 524          |
| with standard equipment for electrical installation            | 199          |
| Workshop screwdriver                                           | 490, 496     |



| Part No. | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|----------|------|----------|------|----------|------|----------|------|
| 101R5    | 72   | 107R16   | 72   | 10SG6    | 54   | 118R20   | 73   |
| 101R5BK  | 72   | 107R16BK | 72   | 10SG6MS  | 54   | 118R20BK | 73   |
| 101R6    | 72   | 107R8    | 72   | 10SG8    | 54   | 11R10    | 35   |
| 101R6BK  | 72   | 107R8BK  | 72   | 10SG8MS  | 54   | 11R10MS  | 35   |
| 101R8    | 72   | 108R10   | 72   | 110R10   | 73   | 11R12    | 35   |
| 101R8BK  | 72   | 108R10BK | 72   | 110R10BK | 73   | 11R12MS  | 35   |
| 1020     | 177  | 108R12   | 72   | 110R12   | 73   | 11R14    | 35   |
| 1020V    | 178  | 108R12BK | 72   | 110R12BK | 73   | 11R14MS  | 35   |
| 102R5    | 72   | 108R14   | 72   | 110R14   | 73   | 11R16    | 35   |
| 102R5BK  | 72   | 108R14BK | 72   | 110R14BK | 73   | 11R16MS  | 35   |
| 102R6    | 72   | 108R16   | 72   | 110R16   | 73   | 11R20    | 35   |
| 102R6BK  | 72   | 108R16BK | 72   | 110R16BK | 73   | 11R20MS  | 35   |
| 102R8    | 72   | 108R8    | 72   | 110R20   | 73   | 11SG10   | 54   |
| 102R8BK  | 72   | 108R8BK  | 72   | 110R20BK | 73   | 11SG10MS | 54   |
| 1030     | 177  | 109R10   | 73   | 111R10   | 73   | 11SG12   | 54   |
| 1030V    | 178  | 109R10BK | 73   | 111R10BK | 73   | 11SG12MS | 54   |
| 103R10   | 72   | 109R12   | 73   | 111R12   | 73   | 11SG16   | 54   |
| 103R10BK | 72   | 109R12BK | 73   | 111R12BK | 73   | 11SG16MS | 54   |
| 103R12   | 72   | 109R14   | 73   | 111R14   | 73   | 120B     | 28   |
| 103R12BK | 72   | 109R14BK | 73   | 111R14BK | 73   | 120B10   | 27   |
| 103R6    | 72   | 109R16   | 73   | 111R16   | 73   | 120B1045 | 27   |
| 103R6BK  | 72   | 109R16BK | 73   | 111R16BK | 73   | 120B1090 | 27   |
| 103R8    | 72   | 109R20   | 73   | 111R20   | 73   | 120B10MS | 27   |
| 103R8BK  | 72   | 109R20BK | 73   | 111R20BK | 73   | 120B10SB | 27   |
| 104R10   | 72   | 10B      | 28   | 112R12   | 73   | 120B12   | 27   |
| 104R10BK | 72   | 10B10    | 26   | 112R12BK | 73   | 120B1245 | 27   |
| 104R12   | 72   | 10B1045  | 26   | 112R14   | 73   | 120B1290 | 27   |
| 104R12BK | 72   | 10B1090  | 26   | 112R14BK | 73   | 120B12MS | 27   |
| 104R6    | 72   | 10B10MS  | 26   | 112R16   | 73   | 120B12SB | 27   |
| 104R6BK  | 72   | 10B5     | 26   | 112R16BK | 73   | 120B16   | 27   |
| 104R8    | 72   | 10B545   | 26   | 112R20   | 73   | 120B1645 | 27   |
| 104R8BK  | 72   | 10B590   | 26   | 112R20BK | 73   | 120B1690 | 27   |
| 1050     | 177  | 10B5MS   | 26   | 1130     | 182  | 120B16MS | 27   |
| 1050V    | 178  | 10B6     | 26   | 113R14   | 73   | 120BSB   | 28   |
| 105R10   | 72   | 10B645   | 26   | 113R14BK | 73   | 121R     | 79   |
| 105R10BK | 72   | 10B690   | 26   | 113R16   | 73   | 121RBK   | 79   |
| 105R12   | 72   | 10B6MS   | 26   | 113R16BK | 73   | 122R     | 79   |
| 105R12BK | 72   | 10B6SB   | 26   | 113R20   | 73   | 122RBK   | 79   |
| 105R14   | 72   | 10B8     | 26   | 113R20BK | 73   | 123R     | 79   |
| 105R14BK | 72   | 10B845   | 26   | 114R14   | 73   | 123RBK   | 79   |
| 105R6    | 72   | 10B890   | 26   | 114R14BK | 73   | 124R     | 79   |
| 105R6BK  | 72   | 10B8MS   | 26   | 114R16   | 73   | 124RBK   | 79   |
| 105R8    | 72   | 10B8SB   | 26   | 114R16BK | 73   | 125R     | 79   |
| 105R8BK  | 72   | 10B5B    | 28   | 114R20   | 73   | 125RBK   | 79   |
| 106R10   | 72   | 10R10    | 35   | 114R20BK | 73   | 126R     | 79   |
| 106R10BK | 72   | 10R10MS  | 35   | 1150     | 182  | 126RBK   | 79   |
| 106R12   | 72   | 10R12    | 35   | 115R16   | 73   | 127R     | 79   |
| 106R12BK | 72   | 10R12MS  | 35   | 115R16BK | 73   | 127RBK   | 79   |
| 106R14   | 72   | 10R14    | 35   | 115R20   | 73   | 128R     | 79   |
| 106R14BK | 72   | 10R14MS  | 35   | 115R20BK | 73   | 128RBK   | 79   |
| 106R16   | 72   | 10R16    | 35   | 116R16   | 73   | 129R     | 79   |
| 106R16BK | 72   | 10R16MS  | 35   | 116R16BK | 73   | 129RBK   | 79   |
| 106R8    | 72   | 10R20    | 35   | 116R20   | 73   | 12R10    | 35   |
| 106R8BK  | 72   | 10R20MS  | 35   | 116R20BK | 73   | 12R10MS  | 35   |
| 107R10   | 72   | 10R8     | 35   | 117R16   | 73   | 12R12    | 35   |
| 107R10BK | 72   | 10R8MS   | 35   | 117R16BK | 73   | 12R12MS  | 35   |
| 107R12   | 72   | 10SG10   | 54   | 117R20   | 73   | 12R14    | 35   |
| 107R12BK | 72   | 10SG10MS | 54   | 117R20BK | 73   | 12R14MS  | 35   |
| 107R14   | 72   | 10SG12   | 54   | 118R16   | 73   | 12R16    | 35   |
| 107R14BK | 72   | 10SG12MS | 54   | 118R16BK | 73   | 12R16MS  | 35   |

| Part No.  | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|-----------|------|----------|------|----------|------|----------|------|
| 12R20     | 35   | 14R16MS  | 35   | 162R645  | 76   | 16525    | 88   |
| 12R20MS   | 35   | 14R20    | 35   | 162R6BK  | 76   | 16526    | 88   |
| 12SG10    | 54   | 14R20MS  | 35   | 162R8    | 74   | 16528    | 88   |
| 12SG10MS  | 54   | 150B     | 28   | 162R845  | 76   | 16528SB  | 88   |
| 12SG12    | 54   | 150B10   | 27   | 162R8BK  | 76   | 1652C5   | 92   |
| 12SG12MS  | 54   | 150B1045 | 27   | 163010   | 88   | 1652C6   | 92   |
| 12SG16    | 54   | 150B1090 | 27   | 163012   | 88   | 1652K    | 95   |
| 12SG16MS  | 54   | 150B10MS | 27   | 16303    | 88   | 1652L    | 96   |
| 130R      | 79   | 150B12   | 27   | 163035   | 88   | 165310   | 88   |
| 130RBK    | 79   | 150B1245 | 27   | 16304    | 88   | 165312   | 88   |
| 131R      | 79   | 150B1290 | 27   | 16305    | 88   | 16535    | 88   |
| 131RBK    | 79   | 150B12MS | 27   | 16306    | 88   | 16536    | 88   |
| 132R      | 79   | 150B16   | 27   | 16308    | 88   | 16538    | 88   |
| 132RBK    | 79   | 150B1645 | 27   | 1630C3   | 92   | 16538SB  | 88   |
| 133R      | 79   | 150B1690 | 27   | 1630C35  | 92   | 1653C6   | 92   |
| 133RBK    | 79   | 150B16MS | 27   | 1630C4   | 92   | 1653C8   | 92   |
| 134R      | 79   | 150B20   | 27   | 1630C5   | 92   | 1653K    | 95   |
| 134RBK    | 79   | 150B2090 | 27   | 1630C6   | 92   | 1653L    | 96   |
| 135R      | 79   | 150B20MS | 27   | 1630K    | 95   | 165410   | 89   |
| 135RBK    | 79   | 150D212  | 77   | 1630L    | 96   | 165412   | 89   |
| 136DP12   | 78   | 150R     | 41   | 163R     | 41   | 165416   | 89   |
| 136DP212  | 78   | 151D212  | 77   | 163R10   | 74   | 16545    | 89   |
| 136R      | 79   | 151R     | 41   | 163R1045 | 76   | 16546    | 89   |
| 136RBK    | 79   | 152D212  | 77   | 163R10BK | 76   | 16548    | 89   |
| 137DP12   | 78   | 152R     | 41   | 163R12   | 74   | 16548SB  | 89   |
| 137DP212  | 78   | 153R     | 41   | 163R1245 | 76   | 1654K    | 95   |
| 137R      | 79   | 154R     | 41   | 163R12BK | 76   | 1654L    | 96   |
| 137RBK    | 79   | 155R     | 41   | 163R6    | 74   | 165510   | 89   |
| 138DP12   | 78   | 156R     | 41   | 163R645  | 76   | 165512   | 89   |
| 138DP212  | 78   | 157R     | 41   | 163R6BK  | 76   | 165516   | 89   |
| 138R      | 79   | 158R     | 41   | 163R8    | 74   | 16556    | 89   |
| 138RBK    | 79   | 159R     | 41   | 163R845  | 76   | 16558    | 89   |
| 139DP12   | 78   | 160R     | 41   | 163R8BK  | 76   | 16558SB  | 89   |
| 139DP212  | 78   | 161R     | 41   | 164R10   | 74   | 1655K    | 95   |
| 13R12     | 35   | 161R5    | 74   | 164R1045 | 76   | 1655L    | 96   |
| 13R12MS   | 35   | 161R545  | 76   | 164R10BK | 76   | 165610   | 89   |
| 13R14     | 35   | 161R5BK  | 76   | 164R12   | 74   | 165612   | 89   |
| 13R14MS   | 35   | 161R6    | 74   | 164R1245 | 76   | 165616   | 89   |
| 13R16     | 35   | 161R645  | 76   | 164R12BK | 76   | 16566    | 89   |
| 13R16MS   | 35   | 161R6BK  | 76   | 164R6    | 74   | 16568    | 89   |
| 13R20     | 35   | 162010   | 88   | 164R645  | 76   | 16568SB  | 89   |
| 13R20MS   | 35   | 162025   | 88   | 164R6BK  | 76   | 1656K    | 95   |
| 13SG10    | 54   | 16203    | 88   | 164R8    | 74   | 1656L    | 96   |
| 13SG10MS  | 54   | 162035   | 88   | 164R845  | 76   | 165710   | 89   |
| 13SG12    | 54   | 16204    | 88   | 164R8BK  | 76   | 165712   | 89   |
| 13SG12MS  | 54   | 16205    | 88   | 165010   | 88   | 165716   | 89   |
| 13SG16    | 54   | 16206    | 88   | 165012   | 88   | 16576    | 89   |
| 13SG16MS  | 54   | 16208    | 88   | 16504    | 88   | 16578    | 89   |
| 147D212   | 77   | 1620C3   | 92   | 16505    | 88   | 1657K    | 95   |
| 148D212   | 77   | 1620C35  | 92   | 16506    | 88   | 1657L    | 96   |
| 148D212BK | 77   | 1620C4   | 92   | 16506SB  | 88   | 165810   | 89   |
| 148R      | 41   | 1620C5   | 92   | 16508    | 88   | 165812   | 89   |
| 149D212   | 77   | 1620C6   | 92   | 1650C4   | 92   | 165816   | 89   |
| 149D212BK | 77   | 1620K    | 95   | 1650C5   | 92   | 16588    | 89   |
| 149R      | 41   | 1620L    | 96   | 1650C6   | 92   | 1658K    | 95   |
| 14R12     | 35   | 162R     | 41   | 1650C8   | 92   | 1658L    | 96   |
| 14R12MS   | 35   | 162R5    | 74   | 1650K    | 95   | 165910   | 89   |
| 14R14     | 35   | 162R545  | 76   | 1650L    | 96   | 165912   | 89   |
| 14R14MS   | 35   | 162R5BK  | 76   | 165210   | 88   | 165916   | 89   |
| 14R16     | 35   | 162R6    | 74   | 165212   | 88   | 16598    | 89   |

| Part No. | PAGE | Part No.   | PAGE | Part No.   | PAGE | Part No. | PAGE |
|----------|------|------------|------|------------|------|----------|------|
| 1659K    | 95   | 167R8BK    | 76   | 1706       | 160  | 172R2045 | 77   |
| 1659L    | 96   | 1686       | 160  | 1708       | 160  | 172R20BK | 77   |
| 165R10   | 74   | 1688       | 160  | 170R10     | 75   | 172RH    | 159  |
| 165R1045 | 76   | 168R10     | 74   | 170R1045   | 77   | 172RK    | 159  |
| 165R10BK | 76   | 168R1045   | 76   | 170R1045BK | 77   | 172RL    | 159  |
| 165R12   | 74   | 168R10BK   | 76   | 170R10BK   | 77   | 172RM    | 159  |
| 165R1245 | 76   | 168R12     | 74   | 170R12     | 75   | 172RO    | 159  |
| 165R12BK | 76   | 168R1245   | 76   | 170R1245   | 77   | 1730     | 184  |
| 165R14   | 74   | 168R12BK   | 76   | 170R12BK   | 77   | 1730AZ   | 185  |
| 165R1445 | 76   | 168R14     | 74   | 170R14     | 75   | 1730AZST | 185  |
| 165R14BK | 76   | 168R1445   | 76   | 170R1445   | 77   | 1730ST   | 185  |
| 165R8    | 74   | 168R14BK   | 76   | 170R14BK   | 77   | 17312    | 160  |
| 165R845  | 76   | 168R16     | 74   | 170R16     | 75   | 17318    | 160  |
| 165R8BK  | 76   | 168R1645   | 76   | 170R1645   | 77   | 1738     | 160  |
| 166010   | 89   | 168R16BK   | 76   | 170R16BK   | 77   | 173B     | 159  |
| 166012   | 89   | 168T       | 158  | 170R20     | 75   | 173BH    | 159  |
| 166016   | 89   | 168TL      | 158  | 170R2045   | 77   | 173BL    | 159  |
| 1660K    | 95   | 1696       | 160  | 170R2045BK | 77   | 17410    | 160  |
| 1660L    | 96   | 1698       | 160  | 170R20BK   | 77   | 17412    | 160  |
| 166112   | 89   | 1690       | 158  | 170W       | 159  | 17418    | 160  |
| 166116   | 89   | 1690H      | 158  | 170WH      | 159  | 174GR    | 159  |
| 166212   | 89   | 1690K      | 158  | 170WK      | 159  | 174GRH   | 159  |
| 166216   | 89   | 169R10     | 75   | 170WL      | 159  | 174GRL   | 159  |
| 1666     | 160  | 169R1045   | 77   | 1716       | 160  | 1750     | 184  |
| 1668     | 160  | 169R1045BK | 77   | 1718       | 160  | 1750ST   | 184  |
| 166GR    | 158  | 169R10BK   | 77   | 171G       | 159  | 17512    | 160  |
| 166GRL   | 158  | 169R12     | 75   | 171GH      | 159  | 17518    | 160  |
| 166R10   | 74   | 169R1245   | 77   | 171GK      | 159  | 175S     | 159  |
| 166R1045 | 76   | 169R1245BK | 77   | 171GL      | 159  | 175SL    | 159  |
| 166R10BK | 76   | 169R12BK   | 77   | 171R10     | 75   | 17612    | 160  |
| 166R12   | 74   | 169R14     | 75   | 171R1045   | 77   | 17618    | 160  |
| 166R1245 | 76   | 169R1445   | 77   | 171R10BK   | 77   | 176E     | 159  |
| 166R12BK | 76   | 169R14BK   | 77   | 171R12     | 75   | 176EL    | 159  |
| 166R14   | 74   | 169R16     | 75   | 171R1245   | 77   | 17712    | 160  |
| 166R1445 | 76   | 169R1645   | 77   | 171R12BK   | 77   | 17718    | 160  |
| 166R14BK | 76   | 169R1645BK | 77   | 171R14     | 75   | 177GR    | 159  |
| 166R16   | 74   | 169R16BK   | 77   | 171R1445   | 77   | 177GRL   | 159  |
| 166R1645 | 76   | 169R20     | 75   | 171R14BK   | 77   | 17816    | 161  |
| 166R16BK | 76   | 169R2045   | 77   | 171R16     | 75   | 17818    | 161  |
| 166R8    | 74   | 169R20BK   | 77   | 171R1645   | 77   | 17822    | 161  |
| 166R845  | 76   | 16B        | 28   | 171R20     | 75   | 178BR    | 159  |
| 166R8BK  | 76   | 16B10      | 26   | 171R2045   | 77   | 178BRL   | 159  |
| 1676     | 160  | 16B1045    | 26   | 171R20BK   | 77   | 179B     | 159  |
| 1678     | 160  | 16B1090    | 26   | 1720       | 184  | 179BL    | 159  |
| 167H     | 158  | 16B10MS    | 26   | 17210      | 160  | 17R      | 40   |
| 167HL    | 158  | 16B12      | 26   | 17212      | 160  | 17ROM    | 40   |
| 167R10   | 74   | 16B1245    | 26   | 17218      | 160  | 17RSB    | 40   |
| 167R1045 | 76   | 16B1290    | 26   | 1726       | 160  | 1800     | 159  |
| 167R10BK | 76   | 16B12MS    | 26   | 1728       | 160  | 1800L    | 159  |
| 167R12   | 74   | 16B6       | 26   | 172R12     | 75   | 181R     | 82   |
| 167R1245 | 76   | 16B645     | 26   | 172R1245   | 77   | 18201A   | 184  |
| 167R12BK | 76   | 16B690     | 26   | 172R1245BK | 77   | 18202    | 184  |
| 167R14   | 74   | 16B6MS     | 26   | 172R12BK   | 77   | 18203    | 184  |
| 167R1445 | 76   | 16B6SB     | 26   | 172R14     | 75   | 18203AZ  | 185  |
| 167R14BK | 76   | 16B8       | 26   | 172R1445   | 77   | 18251    | 184  |
| 167R16   | 74   | 16B845     | 26   | 172R14BK   | 77   | 18251A   | 184  |
| 167R1645 | 76   | 16B890     | 26   | 172R16     | 75   | 182R     | 82   |
| 167R16BK | 76   | 16B8MS     | 26   | 172R1645   | 77   | 1830     | 186  |
| 167R8    | 74   | 16B8SB     | 26   | 172R16BK   | 77   | 18303    | 184  |
| 167R845  | 76   | 16BSB      | 28   | 172R20     | 75   | 18303AZ  | 185  |



| Part No. | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|----------|------|----------|------|----------|------|----------|------|
| 183R     | 82   | 2060     | 188  | 235R     | 111  | 258B     | 26   |
| 184R     | 82   | 206R10   | 109  | 23R      | 40   | 258B45   | 26   |
| 185B     | 28   | 206R12   | 109  | 23ROM    | 40   | 258B90   | 26   |
| 185B10   | 27   | 2070     | 188  | 23RSB    | 40   | 258BMS   | 26   |
| 185B1045 | 27   | 2075     | 188  | 240B     | 28   | 258BSB   | 26   |
| 185B1090 | 27   | 207R10   | 109  | 240B12   | 27   | 25BSB    | 28   |
| 185B10MS | 27   | 207R12   | 109  | 240B1245 | 27   | 25R      | 40   |
| 185B12   | 27   | 2080     | 188  | 240B1290 | 27   | 25ROM    | 40   |
| 185B1245 | 27   | 2083     | 188  | 240B12MS | 27   | 25RSB    | 40   |
| 185B1290 | 27   | 208R10   | 109  | 240B16   | 27   | 263R10   | 108  |
| 185B12MS | 27   | 208R12   | 109  | 240B1645 | 27   | 263R10V  | 108  |
| 185B16   | 27   | 208R16   | 109  | 240B1690 | 27   | 263R8    | 108  |
| 185B1645 | 27   | 2090     | 188  | 240B16MS | 27   | 263R8V   | 108  |
| 185B1690 | 27   | 209R12   | 110  | 240B20   | 27   | 264R10   | 108  |
| 185B16MS | 27   | 209R16   | 110  | 240B2090 | 27   | 264R10V  | 108  |
| 185B20   | 27   | 20R      | 40   | 240B20MS | 27   | 264R12   | 108  |
| 185B2045 | 27   | 20ROM    | 40   | 243R     | 115  | 264R12V  | 108  |
| 185B2090 | 27   | 20RSB    | 40   | 244R     | 115  | 264R8    | 108  |
| 185B20MS | 27   | 2100     | 188  | 245R     | 115  | 264R8V   | 108  |
| 185R     | 82   | 2105     | 188  | 246R     | 115  | 265R10   | 108  |
| 186R     | 82   | 210R12   | 110  | 247R     | 115  | 265R10V  | 108  |
| 187R     | 82   | 210R16   | 110  | 248R     | 115  | 265R12   | 108  |
| 188R     | 82   | 210R20   | 110  | 249R     | 115  | 265R12V  | 108  |
| 189R     | 82   | 2115     | 188  | 24R      | 40   | 265R8    | 108  |
| 18R      | 40   | 211R12   | 110  | 24ROM    | 40   | 265R8V   | 108  |
| 18ROM    | 40   | 211R16   | 110  | 24RSB    | 40   | 266R10   | 108  |
| 18RSB    | 40   | 211R20   | 110  | 250R     | 115  | 266R10V  | 108  |
| 190R     | 82   | 2123     | 188  | 251R     | 115  | 266R12   | 108  |
| 191R     | 82   | 212R12   | 110  | 252R     | 115  | 266R12V  | 108  |
| 192R     | 82   | 212R16   | 110  | 253R     | 115  | 266R8    | 108  |
| 193R     | 82   | 212R20   | 110  | 254R10   | 116  | 266R8V   | 108  |
| 19R      | 40   | 213R16   | 110  | 254R12   | 116  | 267R10   | 108  |
| 19ROM    | 40   | 213R20   | 110  | 254R8    | 116  | 267R10V  | 108  |
| 19RSB    | 40   | 2140     | 188  | 255R10   | 116  | 267R12   | 108  |
| 1R10     | 34   | 2145     | 188  | 255R12   | 116  | 267R12V  | 108  |
| 1R10MS   | 34   | 214R16   | 110  | 256R10   | 116  | 267R8    | 108  |
| 1R12     | 34   | 214R20   | 110  | 256R12   | 116  | 267R8V   | 108  |
| 1R12MS   | 34   | 21R      | 40   | 256R16   | 116  | 268R10   | 108  |
| 1R5      | 34   | 21ROM    | 40   | 257R10   | 116  | 268R10V  | 108  |
| 1R5MS    | 34   | 21RSB    | 40   | 257R12   | 116  | 268R12   | 108  |
| 1R6      | 34   | 2220     | 186  | 257R16   | 116  | 268R12V  | 108  |
| 1R6MS    | 34   | 222R     | 110  | 258R12   | 116  | 268R16   | 108  |
| 1R6SB    | 34   | 2230     | 186  | 258R16   | 116  | 268R16V  | 108  |
| 1R8      | 34   | 2235     | 186  | 259R12   | 116  | 269R10   | 108  |
| 1R8MS    | 34   | 223R     | 110  | 259R16   | 116  | 269R10V  | 108  |
| 2010     | 189  | 224R     | 110  | 259R20   | 116  | 269R12   | 108  |
| 2020     | 189  | 2250     | 186  | 25B      | 28   | 269R12V  | 108  |
| 2025     | 189  | 225R     | 110  | 25B10    | 26   | 269R16   | 108  |
| 202R6    | 109  | 226R     | 110  | 25B1045  | 26   | 269R16V  | 108  |
| 202R8    | 109  | 227R     | 110  | 25B1090  | 26   | 26R      | 40   |
| 2030     | 189  | 228R     | 110  | 25B10MS  | 26   | 26ROM    | 40   |
| 2035     | 189  | 229R     | 110  | 25B10SB  | 26   | 26RSB    | 40   |
| 203R10   | 109  | 22R      | 40   | 25B12    | 26   | 270R10   | 108  |
| 203R8    | 109  | 22ROM    | 40   | 25B1245  | 26   | 270R10V  | 108  |
| 2040     | 188  | 22RSB    | 40   | 25B1290  | 26   | 270R12   | 108  |
| 2045     | 188  | 230R     | 110  | 25B12MS  | 26   | 270R12V  | 108  |
| 204R10   | 109  | 231R     | 110  | 25B6     | 26   | 270R16   | 108  |
| 204R8    | 109  | 232R     | 110  | 25B645   | 26   | 270R16V  | 108  |
| 205R10   | 109  | 233R     | 111  | 25B690   | 26   | 270R20   | 108  |
| 205R12   | 109  | 234R     | 111  | 25B6MS   | 26   | 270R20V  | 108  |

| Part No. | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|----------|------|----------|------|----------|------|----------|------|
| 271R10   | 108  | 289R35   | 114  | 308R12   | 125  | 329R70   | 127  |
| 271R10V  | 108  | 289R50   | 114  | 308R16   | 125  | 329R95   | 127  |
| 271R12   | 108  | 289R70   | 114  | 309R12   | 126  | 32R      | 40   |
| 271R12V  | 108  | 289R95   | 114  | 309R16   | 126  | 32ROM    | 40   |
| 271R16   | 108  | 28R      | 40   | 30R      | 40   | 330R120  | 127  |
| 271R16V  | 108  | 28RSB    | 40   | 30ROM    | 40   | 330R150  | 127  |
| 271R20   | 108  | 290R120  | 114  | 310R12   | 126  | 330R16   | 127  |
| 271R20V  | 108  | 290R35   | 114  | 310R16   | 126  | 330R25   | 127  |
| 2720     | 185  | 290R50   | 114  | 310R20   | 126  | 330R35   | 127  |
| 272R10   | 108  | 290R70   | 114  | 311R12   | 126  | 330R50   | 127  |
| 272R10V  | 108  | 290R95   | 114  | 311R16   | 126  | 330R70   | 127  |
| 272R12   | 108  | 291R120  | 114  | 311R20   | 126  | 330R95   | 127  |
| 272R12V  | 108  | 291R150  | 114  | 312R12   | 126  | 331R120  | 127  |
| 272R16   | 108  | 292R120  | 114  | 312R16   | 126  | 331R150  | 127  |
| 272R16V  | 108  | 292R150  | 114  | 312R20   | 126  | 331R185  | 127  |
| 272R20   | 108  | 292R95   | 114  | 313R16   | 126  | 331R50   | 127  |
| 272R20V  | 108  | 294AD    | 115  | 313R20   | 126  | 331R70   | 127  |
| 2730     | 185  | 295AD    | 115  | 314R16   | 126  | 331R95   | 127  |
| 273R12   | 109  | 296AD    | 115  | 314R20   | 126  | 332R120  | 127  |
| 273R12V  | 109  | 297AD    | 115  | 31R      | 40   | 332R150  | 127  |
| 273R16   | 109  | 298AD    | 115  | 31ROM    | 40   | 332R185  | 127  |
| 273R16V  | 109  | 29R      | 40   | 322R10   | 126  | 332R240  | 127  |
| 273R20   | 109  | 29RSB    | 40   | 322R16   | 126  | 332R50   | 127  |
| 273R20V  | 109  | 2R10     | 34   | 323R10   | 126  | 332R70   | 127  |
| 274R12   | 109  | 2R10MS   | 34   | 323R16   | 126  | 332R95   | 127  |
| 274R12V  | 109  | 2R12     | 34   | 324R10   | 126  | 333R120  | 128  |
| 274R16   | 109  | 2R12MS   | 34   | 324R16   | 126  | 333R150  | 128  |
| 274R16V  | 109  | 2R5      | 34   | 324R25   | 126  | 333R185  | 128  |
| 274R20   | 109  | 2R5MS    | 34   | 324R35   | 126  | 333R240  | 128  |
| 274R20V  | 109  | 2R6      | 34   | 324R416  | 126  | 333R300  | 128  |
| 2750     | 185  | 2R6MS    | 34   | 324R425  | 126  | 33R      | 40   |
| 2755     | 187  | 2R8      | 34   | 324R50   | 126  | 344R     | 128  |
| 275R12   | 109  | 2R8MS    | 34   | 325R16   | 127  | 345R     | 128  |
| 275R12V  | 109  | 2R8SB    | 34   | 325R25   | 127  | 346R     | 128  |
| 275R16   | 109  | 300B     | 28   | 325R35   | 127  | 347R     | 128  |
| 275R16V  | 109  | 300B12   | 27   | 325R50   | 127  | 348R     | 128  |
| 275R20   | 109  | 300B1245 | 27   | 325R616  | 127  | 349R     | 128  |
| 275R20V  | 109  | 300B1290 | 27   | 325R625  | 127  | 34R      | 40   |
| 2760     | 187  | 300B12MS | 27   | 325R635  | 127  | 350R     | 128  |
| 2765     | 187  | 300B16   | 27   | 326R16   | 127  | 351R     | 128  |
| 2770     | 187  | 300B1645 | 27   | 326R25   | 127  | 352R     | 128  |
| 2775     | 187  | 300B1690 | 27   | 326R35   | 127  | 353R     | 128  |
| 2780     | 187  | 300B16MS | 27   | 326R50   | 127  | 35B      | 28   |
| 2785     | 187  | 300B20   | 27   | 327R120  | 127  | 35B10    | 26   |
| 2790     | 187  | 300B2045 | 27   | 327R16   | 127  | 35B1045  | 26   |
| 27R      | 40   | 300B2090 | 27   | 327R25   | 127  | 35B1090  | 26   |
| 27ROM    | 40   | 300B20MS | 27   | 327R35   | 127  | 35B10MS  | 26   |
| 27RSB    | 40   | 302R6    | 125  | 327R50   | 127  | 35B10SB  | 26   |
| 284R16   | 114  | 302R8    | 125  | 327R70   | 127  | 35B12    | 26   |
| 285R25   | 114  | 303R10   | 125  | 327R95   | 127  | 35B1245  | 26   |
| 286R25   | 114  | 303R8    | 125  | 328R120  | 127  | 35B1290  | 26   |
| 286R35   | 114  | 304R10   | 125  | 328R16   | 127  | 35B12MS  | 26   |
| 287R25   | 114  | 304R8    | 125  | 328R25   | 127  | 35B8     | 26   |
| 287R35   | 114  | 305R10   | 125  | 328R35   | 127  | 35B845   | 26   |
| 287R50   | 114  | 305R12   | 125  | 328R50   | 127  | 35B890   | 26   |
| 288R25   | 114  | 306R10   | 125  | 328R70   | 127  | 35B8MS   | 26   |
| 288R35   | 114  | 306R12   | 125  | 328R95   | 127  | 35B8SB   | 26   |
| 288R50   | 114  | 307R10   | 125  | 329R120  | 127  | 35BSB    | 28   |
| 288R70   | 114  | 307R12   | 125  | 329R35   | 127  | 363R10   | 124  |
| 289R25   | 114  | 308R10   | 125  | 329R50   | 127  | 363R8    | 124  |

| Part No. | PAGE | Part No. | PAGE | Part No.  | PAGE | Part No.  | PAGE |
|----------|------|----------|------|-----------|------|-----------|------|
| 364R10   | 124  | 380L     | 161  | 420R      | 111  | 433R240   | 113  |
| 364R12   | 124  | 380M     | 161  | 421R      | 111  | 43410     | 162  |
| 364R8    | 124  | 380N     | 161  | 422R      | 111  | 434R185   | 113  |
| 365R10   | 124  | 380P     | 161  | 423R      | 111  | 434R240   | 113  |
| 365R12   | 124  | 380Q     | 161  | 424R      | 111  | 434R300   | 113  |
| 365R8    | 124  | 380R     | 161  | 425R25    | 112  | 43512     | 162  |
| 366R10   | 124  | 380S     | 161  | 426R25    | 112  | 43612     | 162  |
| 366R12   | 124  | 380T     | 161  | 426R35    | 112  | 43712     | 162  |
| 366R8    | 124  | 380U     | 161  | 427R25    | 112  | 43R10     | 36   |
| 367R10   | 124  | 380V     | 161  | 427R35    | 112  | 43R1045   | 38   |
| 367R12   | 124  | 380W     | 161  | 427R50    | 112  | 43R12     | 36   |
| 368R10   | 124  | 380X     | 161  | 428R25    | 112  | 43R1245   | 38   |
| 368R12   | 124  | 380Y     | 161  | 428R35    | 112  | 43R5      | 36   |
| 368R16   | 124  | 380Z     | 161  | 428R50    | 112  | 43R545    | 38   |
| 3698     | 161  | 3R10     | 34   | 428R70    | 112  | 43R6      | 36   |
| 369R12   | 124  | 3R10MS   | 34   | 429R25    | 112  | 43R645    | 38   |
| 369R16   | 124  | 3R12     | 34   | 429R35    | 112  | 43R8      | 36   |
| 3708     | 161  | 3R12MS   | 34   | 429R50    | 112  | 43R845    | 38   |
| 370R12   | 124  | 3R5      | 34   | 429R70    | 112  | 43R8MS    | 36   |
| 370R16   | 124  | 3R5MS    | 34   | 429R95    | 112  | 444R      | 117  |
| 370R20   | 124  | 3R6      | 34   | 42R10     | 36   | 445R      | 117  |
| 3718     | 161  | 3R6MS    | 34   | 42R1045   | 38   | 446R      | 117  |
| 371R10   | 124  | 3R8      | 34   | 42R1045MS | 38   | 447R      | 117  |
| 371R12   | 124  | 3R8MS    | 34   | 42R12     | 36   | 448R      | 117  |
| 371R16   | 124  | 3R8SB    | 34   | 42R1245   | 38   | 449R      | 117  |
| 371R20   | 124  | 400B     | 28   | 42R5      | 36   | 44R10     | 36   |
| 3720     | 186  | 400B16   | 27   | 42R545    | 38   | 44R1045   | 38   |
| 3725     | 186  | 400B1645 | 27   | 42R6      | 36   | 44R12     | 36   |
| 3728     | 161  | 400B1690 | 27   | 42R645    | 38   | 44R1245   | 38   |
| 372R10   | 124  | 400B16MS | 27   | 42R8      | 36   | 44R12MS   | 38   |
| 372R12   | 124  | 400B20   | 27   | 42R845    | 38   | 44R14     | 36   |
| 372R16   | 124  | 400B2045 | 27   | 42R845MS  | 38   | 44R1445   | 38   |
| 372R20   | 124  | 400B2090 | 27   | 42R8MS    | 36   | 44R5      | 36   |
| 3735     | 186  | 400B20MS | 27   | 430R120   | 112  | 44R545    | 38   |
| 3738     | 161  | 405R     | 111  | 430R25    | 112  | 44R6      | 36   |
| 373R12   | 125  | 406R     | 111  | 430R35    | 112  | 44R645    | 38   |
| 373R16   | 125  | 407R     | 111  | 430R50    | 112  | 44R8      | 36   |
| 373R20   | 125  | 408R     | 111  | 430R70    | 112  | 44R845    | 38   |
| 380-     | 161  | 409R     | 111  | 430R95    | 112  | 44R8MS    | 36   |
| 380+     | 161  | 410R     | 111  | 431R120   | 112  | 454R      | 117  |
| 3800     | 161  | 411R     | 111  | 431R150   | 112  | 455R      | 117  |
| 3801     | 161  | 412R     | 111  | 431R25    | 112  | 456R      | 117  |
| 3802     | 161  | 413R     | 111  | 431R35    | 112  | 457R      | 117  |
| 3803     | 161  | 414R     | 111  | 431R50    | 112  | 458R      | 117  |
| 3804     | 161  | 415R     | 111  | 431R70    | 112  | 459R      | 117  |
| 3805     | 161  | 416R     | 111  | 431R95    | 112  | 45R10     | 36   |
| 3806     | 161  | 417R     | 111  | 43210     | 162  | 45R1045   | 38   |
| 3807     | 161  | 418R     | 111  | 4328      | 162  | 45R1045MS | 38   |
| 3808     | 161  | 419R     | 111  | 432R120   | 113  | 45R12     | 36   |
| 3809     | 161  | 41R10    | 36   | 432R150   | 113  | 45R1245   | 38   |
| 380A     | 161  | 41R1045  | 38   | 432R185   | 113  | 45R14     | 36   |
| 380B     | 161  | 41R12    | 36   | 432R25    | 113  | 45R1445   | 38   |
| 380C     | 161  | 41R1245  | 38   | 432R35    | 113  | 45R16     | 36   |
| 380D     | 161  | 41R5     | 36   | 432R50    | 113  | 45R1645   | 38   |
| 380E     | 161  | 41R545   | 38   | 432R70    | 113  | 45R6      | 36   |
| 380F     | 161  | 41R6     | 36   | 432R95    | 113  | 45R645    | 38   |
| 380G     | 161  | 41R645   | 38   | 43312     | 162  | 45R645MS  | 38   |
| 380H     | 161  | 41R6MS   | 38   | 4338      | 162  | 45R8      | 36   |
| 380J     | 161  | 41R8     | 36   | 433R150   | 113  | 45R845    | 38   |
| 380K     | 161  | 41R845   | 38   | 433R185   | 113  | 46910     | 157  |

| Part No.  | PAGE | Part No.  | PAGE | Part No. | PAGE | Part No. | PAGE |
|-----------|------|-----------|------|----------|------|----------|------|
| 4696      | 157  | 47R12     | 37   | 50008650 | 607  | 50042505 | 530  |
| 4698      | 157  | 47R1245   | 39   | 50008722 | 608  | 50042513 | 530  |
| 46R10     | 36   | 47R14     | 37   | 50008730 | 608  | 50042521 | 531  |
| 46R1045   | 38   | 47R1445   | 39   | 50008749 | 608  | 50042530 | 586  |
| 46R12     | 36   | 47R16     | 37   | 50010697 | 607  | 50042564 | 530  |
| 46R1245   | 38   | 47R1645   | 39   | 50016644 | 603  | 50042572 | 530  |
| 46R14     | 36   | 47R20     | 37   | 50016962 | 605  | 50042580 | 531  |
| 46R1445   | 38   | 47R2045   | 39   | 50024086 | 530  | 50042599 | 531  |
| 46R16     | 36   | 47R6      | 37   | 50024094 | 530  | 50045989 | 533  |
| 46R1645   | 38   | 47R645    | 39   | 50024337 | 530  | 50045997 | 533  |
| 46R20     | 36   | 47R8      | 37   | 50024434 | 531  | 50046012 | 533  |
| 46R2045   | 39   | 47R845    | 39   | 50024450 | 531  | 50046020 | 533  |
| 46R6      | 36   | 48020     | 158  | 50028006 | 531  | 50046039 | 533  |
| 46R645    | 38   | 48025     | 158  | 50031708 | 535  | 50046055 | 533  |
| 46R645MS  | 38   | 48121     | 158  | 50031961 | 607  | 50046071 | 533  |
| 46R6MS    | 38   | 48225     | 158  | 50032488 | 547  | 50046080 | 533  |
| 46R8      | 36   | 48327     | 158  | 50035991 | 575  | 50046098 | 533  |
| 46R845    | 38   | 48432     | 158  | 50039865 | 553  | 50046110 | 533  |
| 47010     | 157  | 48R10     | 37   | 50039903 | 530  | 50046136 | 533  |
| 47012     | 157  | 48R1045   | 39   | 50039911 | 530  | 50046144 | 533  |
| 4706      | 157  | 48R12     | 37   | 50039989 | 530  | 50046381 | 536  |
| 4708      | 157  | 48R1245   | 39   | 50039997 | 530  | 50046527 | 531  |
| 4708SB    | 157  | 48R1245MS | 39   | 50040022 | 530  | 50046535 | 531  |
| 47110     | 157  | 48R14     | 37   | 50040030 | 530  | 50046543 | 531  |
| 47112     | 157  | 48R1445   | 39   | 50040103 | 530  | 50046551 | 531  |
| 4716      | 157  | 48R14MS   | 39   | 50040111 | 530  | 50046799 | 535  |
| 4718      | 157  | 48R16     | 37   | 50040138 | 530  | 50046853 | 531  |
| 4718SB    | 157  | 48R1645   | 39   | 50040405 | 535  | 50046861 | 531  |
| 47210     | 157  | 48R20     | 37   | 50040421 | 535  | 50047345 | 530  |
| 47212     | 157  | 48R2045   | 39   | 50040588 | 531  | 50047353 | 530  |
| 47218     | 157  | 48R8      | 37   | 50040596 | 531  | 50047361 | 530  |
| 4726      | 157  | 48R845    | 39   | 50040618 | 532  | 50052110 | 555  |
| 4728      | 157  | 49R10     | 37   | 50040626 | 531  | 50052128 | 589  |
| 4728SB    | 157  | 49R1045   | 39   | 50040634 | 531  | 50052144 | 591  |
| 47312     | 157  | 49R12     | 37   | 50041754 | 531  | 50052152 | 591  |
| 47318     | 157  | 49R1245   | 39   | 50041770 | 531  | 50052160 | 591  |
| 4738      | 157  | 49R1245MS | 39   | 50041800 | 531  | 50052241 | 589  |
| 4738SB    | 157  | 49R14     | 37   | 50041835 | 531  | 50052250 | 589  |
| 47410     | 157  | 49R1445   | 39   | 50041878 | 531  | 50052276 | 590  |
| 47410SB   | 157  | 49R16     | 37   | 50041886 | 535  | 50052284 | 590  |
| 47412     | 157  | 49R1645   | 39   | 50042181 | 535  | 50052292 | 590  |
| 47418     | 157  | 49R20     | 37   | 50042238 | 530  | 50052306 | 590  |
| 47512     | 157  | 49R2045   | 39   | 50042246 | 530  | 50052314 | 590  |
| 47512SB   | 157  | 49R8      | 37   | 50042254 | 530  | 50052322 | 590  |
| 47518     | 157  | 49R845    | 39   | 50042262 | 530  | 50052330 | 590  |
| 47612     | 157  | 4R10      | 34   | 50042297 | 530  | 50052349 | 590  |
| 47612SB   | 157  | 4R10MS    | 34   | 50042300 | 530  | 50052357 | 590  |
| 47618     | 157  | 4R12      | 34   | 50042327 | 530  | 50052365 | 590  |
| 47712     | 157  | 4R12MS    | 34   | 50042335 | 531  | 50052373 | 590  |
| 47712SB   | 157  | 4R14      | 34   | 50042343 | 531  | 50052381 | 590  |
| 47718     | 157  | 4R14MS    | 34   | 50042351 | 530  | 50052446 | 536  |
| 47816     | 158  | 4R5       | 34   | 50042378 | 530  | 50052659 | 531  |
| 47818     | 158  | 4R5MS     | 34   | 50042386 | 530  | 50052667 | 531  |
| 47822     | 158  | 4R6       | 34   | 50042408 | 530  | 50053027 | 540  |
| 47916     | 158  | 4R6MS     | 34   | 50042424 | 530  | 50053035 | 540  |
| 47918     | 158  | 4R8       | 34   | 50042459 | 531  | 50053043 | 543  |
| 47925     | 158  | 4R8MS     | 34   | 50042467 | 531  | 50053051 | 540  |
| 47R10     | 37   | 4R8SB     | 34   | 50042475 | 531  | 50053078 | 540  |
| 47R1045   | 39   | 50000420  | 535  | 50042483 | 530  | 50054473 | 531  |
| 47R1045MS | 39   | 50003550  | 586  | 50042491 | 530  | 50054481 | 531  |

| Part No.    | PAGE | Part No. | PAGE | Part No.    | PAGE | Part No.    | PAGE |
|-------------|------|----------|------|-------------|------|-------------|------|
| 50056930    | 572  | 50070444 | 530  | 50120859    | 553  | 50211153    | 530  |
| 50056956    | 572  | 50075349 | 645  | 50120867    | 553  | 50212141    | 531  |
| 50056964    | 572  | 50075357 | 633  | 50120875    | 553  | 50212168    | 531  |
| 50056972    | 572  | 50075365 | 645  | 50125630SET | 569  | 50213164    | 553  |
| 50056980    | 572  | 50075888 | 645  | 50125630SET | 570  | 50214896    | 531  |
| 50056999    | 572  | 50075926 | 652  | 50125699    | 588  | 50214918    | 531  |
| 50057006    | 572  | 50075934 | 640  | 50125869    | 524  | 50215191    | 531  |
| 50057014    | 572  | 50076647 | 640  | 50125940    | 524  | 50225634    | 530  |
| 50057022    | 572  | 50076647 | 640  | 50132660    | 554  | 50225642    | 530  |
| 50057030    | 572  | 50076663 | 640  | 50132679    | 554  | 50225650    | 530  |
| 50057057    | 572  | 50076663 | 640  | 50132687    | 554  | 50225669    | 530  |
| 50057073    | 572  | 50076990 | 641  | 50132768    | 553  | 50225677    | 530  |
| 50057529    | 573  | 50076990 | 641  | 50132776    | 553  | 50225685    | 531  |
| 50057537    | 573  | 50077007 | 641  | 50132849    | 592  | 50244590    | 553  |
| 50057618    | 573  | 50077007 | 641  | 50143921    | 603  | 50244620    | 530  |
| 50057626    | 573  | 50077325 | 642  | 50153323    | 608  | 50244760    | 530  |
| 50057669    | 573  | 50077325 | 642  | 50156772    | 592  | 50244779    | 530  |
| 50058207    | 573  | 50077333 | 642  | 50159062    | 551  | 50250973    | 552  |
| 50059599    | 572  | 50077333 | 642  | 50159119    | 553  | 50253417    | 530  |
| 50059602    | 572  | 50077350 | 636  | 50166344    | 553  | 50253425    | 530  |
| 50062590    | 572  | 50077970 | 632  | 50170910    | 551  | 50253441    | 530  |
| 50063022    | 551  | 50077988 | 643  | 50176870    | 530  | 50253492    | 530  |
| 50063626    | 531  | 50077988 | 643  | 50176900    | 531  | 50253506    | 530  |
| 50063634    | 531  | 50077996 | 643  | 50176978    | 553  | 50253514    | 530  |
| 50065696    | 653  | 50077996 | 643  | 50177001    | 530  | 50253603    | 531  |
| 50065866    | 530  | 50086839 | 655  | 50183311    | 530  | 50253611    | 531  |
| 50065874    | 530  | 50112899 | 593  | 50185578    | 553  | 50253727    | 531  |
| 50067273    | 532  | 50115286 | 590  | 50185586    | 553  | 50253832    | 531  |
| 50067281    | 532  | 50115294 | 590  | 50185594    | 553  | 50254030    | 531  |
| 50067290    | 532  | 50115308 | 590  | 50186353    | 531  | 50254278    | 530  |
| 50068920SET | 563  | 50115316 | 590  | 50188860    | 530  | 50254286    | 530  |
| 50069047    | 551  | 50115324 | 590  | 50188879    | 530  | 50265342    | 546  |
| 50069292    | 571  | 50115332 | 590  | 50188909    | 530  | 50265369    | 546  |
| 50069497SET | 569  | 50115340 | 590  | 50188917    | 530  | 50265385    | 546  |
| 50069519    | 533  | 50115359 | 590  | 50188925    | 531  | 50273353    | 554  |
| 50069527    | 533  | 50115367 | 590  | 50189050    | 531  | 50273612    | 554  |
| 50069535    | 533  | 50115375 | 590  | 50189069    | 531  | 50273833    | 609  |
| 50069543    | 533  | 50115383 | 590  | 50190946    | 608  | 50273841    | 609  |
| 50069551    | 533  | 50115391 | 590  | 50191314    | 568  | 50273868    | 609  |
| 50069560    | 533  | 50115413 | 586  | 50191772    | 569  | 50273884    | 609  |
| 50069578    | 533  | 50115421 | 586  | 50191780    | 569  | 50273892    | 609  |
| 50069586    | 533  | 50115430 | 586  | 50191799    | 569  | 50273906    | 609  |
| 50069594    | 533  | 50115448 | 586  | 50191802    | 569  | 50281542    | 533  |
| 50069608    | 533  | 50115456 | 586  | 50191810    | 569  | 50281550    | 533  |
| 50069616    | 533  | 50115472 | 552  | 50191829    | 569  | 50281569    | 533  |
| 50069624    | 533  | 50115537 | 586  | 50191837    | 569  | 50281577    | 533  |
| 50069632    | 533  | 50115723 | 537  | 50191845    | 569  | 50281585    | 533  |
| 50069640    | 533  | 50116304 | 580  | 50199757    | 531  | 50281593    | 533  |
| 50069659    | 533  | 50116312 | 580  | 50199765    | 531  | 50281607    | 533  |
| 50069667    | 533  | 50116320 | 580  | 50199773    | 531  | 50281615    | 533  |
| 50069691    | 571  | 50116339 | 580  | 50199781    | 531  | 50281623    | 533  |
| 50069780    | 530  | 50116347 | 580  | 50199803    | 531  | 50281631    | 533  |
| 50069845    | 579  | 50116355 | 580  | 50206672    | 530  | 50281658    | 533  |
| 50069853    | 579  | 50116363 | 580  | 50206680    | 530  | 50281666    | 533  |
| 50069861    | 579  | 50116371 | 580  | 50206702    | 530  | 50292099SET | 569  |
| 50069870    | 579  | 50117890 | 554  | 50206710    | 530  | 50293672    | 602  |
| 50069888    | 579  | 50117904 | 554  | 50206737    | 530  | 50294512    | 535  |
| 50069900    | 579  | 50117912 | 554  | 50206761    | 530  | 50294520    | 535  |
| 50069969    | 530  | 50118650 | 639  | 50206788    | 531  | 50300083    | 578  |
| 50069977    | 531  | 50120344 | 625  | 50206796    | 531  | 50305581    | 611  |

| Part No. | PAGE | Part No.    | PAGE | Part No.    | PAGE | Part No. | PAGE |
|----------|------|-------------|------|-------------|------|----------|------|
| 50305603 | 611  | 50319620    | 532  | 50351796    | 532  | 50383361 | 574  |
| 50305620 | 611  | 50319639    | 532  | 50351800    | 532  | 50383906 | 575  |
| 50305646 | 611  | 50319647    | 532  | 50351818    | 532  | 50385224 | 570  |
| 50305662 | 611  | 50319655    | 532  | 50351826    | 532  | 50450395 | 523  |
| 50305689 | 611  | 50319663    | 532  | 50351923    | 530  | 50450409 | 523  |
| 50305700 | 611  | 50319671    | 532  | 50351931    | 553  | 50455753 | 525  |
| 50305727 | 611  | 50319698    | 532  | 50352024    | 560  | 50455761 | 523  |
| 50305743 | 611  | 50319701    | 532  | 50352075    | 613  | 50455770 | 523  |
| 50305760 | 611  | 50319710    | 532  | 50352083    | 613  | 504R     | 81   |
| 50305786 | 611  | 50319736    | 532  | 50356119SET | 560  | 504RLD   | 81   |
| 50305808 | 611  | 50319752    | 532  | 50356143SET | 561  | 504RV    | 81   |
| 50305824 | 611  | 50319787    | 532  | 50356151SET | 561  | 505R     | 81   |
| 50305840 | 610  | 50319892    | 532  | 50356160SET | 563  | 505RLD   | 81   |
| 50305867 | 610  | 50319906    | 532  | 50356178SET | 564  | 505RV    | 81   |
| 50305883 | 610  | 50319914    | 532  | 50357468    | 604  | 50600010 | 537  |
| 50305905 | 610  | 50319930    | 532  | 50357476    | 604  | 50600028 | 532  |
| 50305921 | 610  | 50319957    | 532  | 50357506    | 604  | 50600036 | 532  |
| 50305948 | 610  | 50319965    | 532  | 50359193    | 604  | 50600168 | 537  |
| 50305964 | 610  | 50319981    | 532  | 50359304    | 604  | 50600176 | 537  |
| 50306588 | 612  | 50320025    | 532  | 50360183    | 578  | 50600184 | 537  |
| 50306600 | 612  | 50320033    | 532  | 50360205    | 578  | 50600192 | 537  |
| 50306626 | 612  | 50320041    | 532  | 50360221    | 578  | 50600206 | 537  |
| 50306642 | 612  | 50320068    | 532  | 50361716    | 532  | 50600214 | 537  |
| 50306669 | 612  | 50320084    | 532  | 50361724    | 532  | 50600230 | 537  |
| 50306685 | 612  | 50320114    | 532  | 50361732    | 532  | 50600249 | 537  |
| 50307584 | 612  | 50323989SET | 564  | 50362780    | 532  | 50600257 | 536  |
| 50308599 | 599  | 50328034SET | 564  | 50362798    | 532  | 50600265 | 536  |
| 50310100 | 611  | 50337866    | 561  | 50362828    | 553  | 50600273 | 536  |
| 50310127 | 611  | 50339672    | 535  | 50362844    | 532  | 50600303 | 536  |
| 50310143 | 611  | 50341367    | 608  | 50364022    | 578  | 50600311 | 536  |
| 50310240 | 612  | 50341375    | 608  | 50364146    | 578  | 50600320 | 536  |
| 50310267 | 612  | 50341383    | 608  | 50364898    | 533  | 50600338 | 536  |
| 50310283 | 612  | 50342886    | 561  | 50364901    | 533  | 50600346 | 536  |
| 50310305 | 612  | 50342916    | 547  | 50365061    | 530  | 50600354 | 536  |
| 50310321 | 612  | 50342991    | 547  | 50365088    | 532  | 50600362 | 536  |
| 50311174 | 533  | 50343629    | 608  | 50366858    | 556  | 50600370 | 536  |
| 50311190 | 533  | 50344013    | 578  | 50366882    | 556  | 50600389 | 536  |
| 50311204 | 533  | 50344030    | 578  | 50366904    | 556  | 50600397 | 536  |
| 50311220 | 533  | 50344102    | 578  | 50366912    | 557  | 50600400 | 536  |
| 50311239 | 533  | 50344110    | 578  | 50366920    | 556  | 50600419 | 536  |
| 50311247 | 533  | 50344200    | 541  | 50366939    | 557  | 50600427 | 536  |
| 50311255 | 533  | 50344293    | 541  | 50368826    | 530  | 50600435 | 536  |
| 50311263 | 533  | 50344366    | 541  | 50369105    | 530  | 50600451 | 536  |
| 50311280 | 533  | 50344374    | 541  | 50371037    | 553  | 50600460 | 536  |
| 50311298 | 533  | 50344447    | 541  | 50371541    | 571  | 50600478 | 536  |
| 50311310 | 533  | 50347330    | 536  | 50371550    | 570  | 50600486 | 536  |
| 50311328 | 533  | 50349414    | 556  | 50371568    | 571  | 50600494 | 536  |
| 50311336 | 533  | 50351583    | 532  | 50371576    | 570  | 50600508 | 536  |
| 50311352 | 533  | 50351591    | 532  | 50377299    | 593  | 50600524 | 536  |
| 50313533 | 592  | 50351605    | 532  | 50383167    | 593  | 50600532 | 536  |
| 50314823 | 612  | 50351613    | 532  | 50383248    | 574  | 50600540 | 536  |
| 50314831 | 612  | 50351621    | 532  | 50383264    | 574  | 50600559 | 536  |
| 50314840 | 612  | 50351630    | 532  | 50383272    | 574  | 50600567 | 536  |
| 50317563 | 532  | 50351648    | 532  | 50383280    | 574  | 50600583 | 536  |
| 50317571 | 532  | 50351656    | 532  | 50383299    | 574  | 50600591 | 536  |
| 50317580 | 532  | 50351664    | 532  | 50383302    | 574  | 50600605 | 536  |
| 50317598 | 532  | 50351680    | 532  | 50383310    | 574  | 50600613 | 536  |
| 50317601 | 532  | 50351699    | 532  | 50383329    | 574  | 50600621 | 536  |
| 50317610 | 532  | 50351770    | 532  | 50383337    | 574  | 50600630 | 536  |
| 50318721 | 535  | 50351788    | 532  | 50383345    | 574  | 50600656 | 536  |

| Part No. | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|----------|------|----------|------|----------|------|----------|------|
| 50600664 | 536  | 50610922 | 539  | 510RV    | 81   | 52034329 | 574  |
| 50600672 | 536  | 50610953 | 539  | 51147220 | 530  | 52034333 | 574  |
| 50600680 | 536  | 50611257 | 538  | 511R     | 81   | 52041108 | 574  |
| 50600702 | 536  | 50611264 | 538  | 511RLD   | 81   | 52041709 | 602  |
| 50600710 | 536  | 506R     | 81   | 511RV    | 81   | 52041741 | 602  |
| 50600729 | 536  | 506RLD   | 81   | 512R     | 81   | 52041743 | 602  |
| 50600737 | 536  | 506RV    | 81   | 512RLD   | 81   | 52041745 | 602  |
| 50600745 | 536  | 50766421 | 553  | 512RLDV  | 81   | 52041746 | 603  |
| 50600753 | 536  | 50766438 | 553  | 512RV    | 81   | 52041747 | 603  |
| 50600761 | 536  | 50766445 | 553  | 51300430 | 535  | 52041748 | 604  |
| 50600770 | 539  | 50766452 | 553  | 51319760 | 535  | 52041749 | 604  |
| 50600788 | 539  | 50766797 | 560  | 51320090 | 535  | 52041750 | 603  |
| 50600982 | 539  | 50766803 | 559  | 513R     | 81   | 52041751 | 603  |
| 50601016 | 540  | 50766810 | 559  | 513RLD   | 81   | 52041752 | 604  |
| 50601040 | 540  | 50766919 | 590  | 513RV    | 81   | 52041753 | 604  |
| 50601075 | 540  | 50767657 | 590  | 514R     | 81   | 52042827 | 535  |
| 50601105 | 540  | 507R     | 81   | 514RLD   | 81   | 52044594 | 602  |
| 50601121 | 540  | 507RLD   | 81   | 51601020 | 540  | 52045012 | 602  |
| 50601130 | 543  | 507RV    | 81   | 51601030 | 540  | 52045013 | 649  |
| 50601148 | 535  | 508R     | 81   | 51601050 | 540  | 52045014 | 648  |
| 50601156 | 543  | 508RLD   | 81   | 51601060 | 540  | 52045040 | 535  |
| 50601172 | 543  | 508RV    | 81   | 51601080 | 540  | 52045296 | 536  |
| 50601180 | 543  | 509R     | 81   | 51601090 | 540  | 52045297 | 536  |
| 50601202 | 540  | 509RLD   | 81   | 51601110 | 540  | 52046753 | 649  |
| 50601652 | 540  | 509RV    | 81   | 51601160 | 543  | 52046754 | 649  |
| 50601660 | 543  | 50B      | 28   | 51R10    | 37   | 52046755 | 649  |
| 50601679 | 535  | 50B10    | 26   | 51R1045  | 39   | 52046756 | 649  |
| 50601687 | 537  | 50B1045  | 26   | 51R12    | 37   | 52046757 | 649  |
| 50601695 | 537  | 50B1090  | 26   | 51R1245  | 39   | 52046758 | 649  |
| 50601709 | 537  | 50B10MS  | 26   | 51R14    | 37   | 52046759 | 649  |
| 50601717 | 537  | 50B10SB  | 26   | 51R1445  | 39   | 52046761 | 649  |
| 50601725 | 537  | 50B12    | 26   | 51R16    | 37   | 52046763 | 649  |
| 50601733 | 537  | 50B1245  | 26   | 51R1645  | 39   | 52046834 | 649  |
| 50601741 | 537  | 50B1290  | 26   | 51R20    | 37   | 52047028 | 588  |
| 50601776 | 537  | 50B12MS  | 26   | 51R2045  | 39   | 52047801 | 627  |
| 50601784 | 537  | 50B8     | 26   | 52020113 | 543  | 52047801 | 627  |
| 50601792 | 537  | 50B845   | 26   | 52020887 | 644  | 52047802 | 627  |
| 50602349 | 537  | 50B890   | 26   | 52022030 | 639  | 52047802 | 627  |
| 50602357 | 537  | 50B8MS   | 26   | 52024541 | 657  | 52047803 | 628  |
| 50602373 | 532  | 50B8SB   | 26   | 52024556 | 658  | 52047805 | 630  |
| 50602381 | 538  | 50B8SB   | 28   | 52033580 | 618  | 52047806 | 631  |
| 50602390 | 538  | 50R10    | 37   | 52033816 | 542  | 52047869 | 655  |
| 50602420 | 538  | 50R1045  | 39   | 52033817 | 542  | 52047947 | 633  |
| 50602438 | 538  | 50R12    | 37   | 52033818 | 542  | 52047948 | 633  |
| 50602462 | 532  | 50R1245  | 39   | 52033819 | 542  | 52049371 | 548  |
| 50602497 | 538  | 50R14    | 37   | 52033820 | 542  | 52049407 | 619  |
| 50602500 | 538  | 50R1445  | 39   | 52033831 | 542  | 52049408 | 619  |
| 50602586 | 538  | 50R16    | 37   | 52033832 | 542  | 52055270 | 599  |
| 50604660 | 655  | 50R1645  | 39   | 52033833 | 574  | 52055271 | 599  |
| 50604678 | 655  | 50R20    | 37   | 52033834 | 574  | 52055272 | 599  |
| 50608073 | 524  | 50R2045  | 39   | 52033835 | 574  | 52055273 | 599  |
| 50610045 | 537  | 50R8     | 37   | 52033836 | 542  | 52055274 | 599  |
| 50610076 | 537  | 50R845   | 39   | 52033837 | 574  | 52055275 | 599  |
| 50610106 | 537  | 51032490 | 551  | 52033839 | 570  | 52055276 | 598  |
| 50610137 | 537  | 51040060 | 553  | 52033843 | 548  | 52055277 | 598  |
| 50610281 | 536  | 51040080 | 553  | 52033844 | 536  | 52055278 | 598  |
| 50610809 | 539  | 51069720 | 530  | 52034233 | 562  | 52055279 | 598  |
| 50610830 | 539  | 51069740 | 530  | 52034234 | 619  | 52055280 | 598  |
| 50610861 | 539  | 510R     | 81   | 52034235 | 644  | 52055281 | 598  |
| 50610892 | 539  | 510RLD   | 81   | 52034328 | 574  | 52055282 | 599  |

| Part No. | PAGE | Part No.    | PAGE | Part No. | PAGE | Part No.    | PAGE |
|----------|------|-------------|------|----------|------|-------------|------|
| 52055283 | 599  | 52055349    | 606  | 52057723 | 568  | 52059258    | 570  |
| 52055284 | 599  | 52055350    | 606  | 52057724 | 568  | 52059292SET | 569  |
| 52055285 | 599  | 52055351    | 606  | 52057725 | 568  | 52059293SET | 569  |
| 52055286 | 599  | 52055352    | 606  | 52057726 | 568  | 52059294SET | 569  |
| 52055287 | 599  | 52055353    | 606  | 52057727 | 568  | 52059295SET | 569  |
| 52055288 | 598  | 52055354    | 606  | 52057728 | 568  | 52059364    | 652  |
| 52055289 | 601  | 52055355    | 606  | 52057729 | 568  | 52059365    | 652  |
| 52055290 | 601  | 52055356    | 606  | 52057730 | 568  | 52059476    | 625  |
| 52055291 | 601  | 52055357    | 606  | 52057731 | 568  | 52059477    | 625  |
| 52055292 | 598  | 52055358    | 606  | 52057732 | 568  | 52059478    | 626  |
| 52055293 | 598  | 52055359    | 606  | 52057733 | 568  | 52063422    | 618  |
| 52055294 | 598  | 52055360    | 606  | 52057734 | 568  | 523R        | 80   |
| 52055295 | 598  | 52055361    | 606  | 52057735 | 568  | 523RBK      | 80   |
| 52055296 | 598  | 52055362    | 606  | 52057736 | 568  | 524R        | 80   |
| 52055298 | 601  | 52055363    | 606  | 52057737 | 568  | 524RBK      | 80   |
| 52055299 | 601  | 52055364    | 606  | 52057738 | 568  | 525R        | 80   |
| 52055300 | 601  | 52055365    | 606  | 52057739 | 568  | 525RBK      | 80   |
| 52055303 | 601  | 52055366    | 606  | 52057740 | 568  | 526R        | 80   |
| 52055304 | 601  | 52055367    | 606  | 52057741 | 568  | 526RBK      | 80   |
| 52055305 | 601  | 52055368    | 606  | 52057742 | 568  | 527R        | 80   |
| 52055306 | 601  | 52055369    | 606  | 52057743 | 568  | 527RBK      | 80   |
| 52055308 | 601  | 52055370    | 606  | 52057744 | 568  | 528R        | 80   |
| 52055309 | 601  | 52055371    | 606  | 52057745 | 568  | 528RBK      | 80   |
| 52055310 | 601  | 52055372    | 606  | 52057746 | 568  | 529R        | 80   |
| 52055311 | 601  | 52055373    | 606  | 52057747 | 568  | 529RBK      | 80   |
| 52055313 | 605  | 52055374    | 606  | 52057748 | 568  | 52R10       | 37   |
| 52055315 | 605  | 52055375    | 606  | 52057749 | 568  | 52R1045     | 39   |
| 52055316 | 605  | 52055376    | 606  | 52057750 | 568  | 52R1045MS   | 39   |
| 52055317 | 606  | 52055377    | 606  | 52057751 | 568  | 52R10MS     | 39   |
| 52055318 | 606  | 52055378    | 613  | 52057752 | 568  | 52R12       | 37   |
| 52055319 | 606  | 52055379    | 613  | 52057753 | 568  | 52R1245     | 39   |
| 52055320 | 606  | 52055380    | 613  | 52057754 | 568  | 52R14       | 37   |
| 52055321 | 606  | 52055381    | 613  | 52057755 | 568  | 52R1445     | 39   |
| 52055322 | 606  | 52055382    | 613  | 52057756 | 568  | 52R16       | 37   |
| 52055323 | 606  | 52055383    | 607  | 52057757 | 568  | 52R1645     | 39   |
| 52055324 | 606  | 52055384    | 607  | 52057758 | 568  | 52R20       | 37   |
| 52055325 | 605  | 52055385    | 600  | 52057760 | 568  | 52R2045     | 39   |
| 52055326 | 605  | 52055386    | 600  | 52057761 | 568  | 530R        | 80   |
| 52055327 | 605  | 52055387    | 600  | 52057762 | 569  | 530RBK      | 80   |
| 52055328 | 605  | 52055388    | 600  | 52057763 | 569  | 531R        | 80   |
| 52055329 | 606  | 52055389    | 602  | 52057764 | 569  | 531RBK      | 80   |
| 52055330 | 606  | 52055390    | 602  | 52057765 | 569  | 532R        | 80   |
| 52055331 | 606  | 52055391    | 602  | 52057766 | 569  | 532RBK      | 80   |
| 52055332 | 606  | 52055392    | 602  | 52057767 | 569  | 533R        | 80   |
| 52055333 | 606  | 52055396    | 598  | 52057768 | 569  | 533RBK      | 80   |
| 52055334 | 606  | 52055397    | 602  | 52057769 | 569  | 534R        | 80   |
| 52055335 | 606  | 52055398    | 602  | 52057770 | 569  | 534RBK      | 80   |
| 52055336 | 606  | 52055439SET | 558  | 52057771 | 569  | 535R        | 80   |
| 52055337 | 605  | 52055440SET | 558  | 52057773 | 569  | 535RBK      | 80   |
| 52055338 | 605  | 52055431    | 534  | 52057774 | 569  | 536R        | 80   |
| 52055339 | 605  | 52055432    | 534  | 52057775 | 569  | 536RBK      | 80   |
| 52055340 | 606  | 52055433    | 534  | 52057776 | 569  | 53R12       | 37   |
| 52055341 | 606  | 52055434    | 534  | 52057777 | 569  | 53R1245     | 39   |
| 52055342 | 606  | 52055435    | 534  | 52057778 | 569  | 53R14       | 37   |
| 52055343 | 606  | 52055436    | 534  | 52057779 | 569  | 53R1445     | 39   |
| 52055344 | 606  | 52055437    | 534  | 52057780 | 570  | 53R16       | 37   |
| 52055345 | 606  | 52055438    | 534  | 52057781 | 571  | 53R1645     | 39   |
| 52055346 | 606  | 52055684    | 587  | 52057782 | 571  | 53R20       | 37   |
| 52055347 | 606  | 52055781    | 655  | 52058591 | 542  | 53R2045     | 39   |
| 52055348 | 606  | 52057722    | 568  | 52058592 | 542  | 54R12       | 37   |



| Part No. | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|----------|------|----------|------|----------|------|----------|------|
| 54R1245  | 39   | 588R12   | 134  | 603R12MS | 44   | 608R12MS | 45   |
| 54R14    | 37   | 588R12BK | 134  | 603R5    | 44   | 608R14   | 45   |
| 54R1445  | 39   | 589R10   | 134  | 603R5MS  | 44   | 608R14MS | 45   |
| 54R16    | 37   | 589R10BK | 134  | 603R6    | 44   | 608R16   | 45   |
| 54R1645  | 39   | 589R12   | 134  | 603R6MS  | 44   | 608R16MS | 45   |
| 54R20    | 37   | 589R12BK | 134  | 603R8    | 44   | 608R20   | 45   |
| 54R2045  | 39   | 589R16   | 134  | 603R8MS  | 44   | 608R20MS | 45   |
| 551R     | 135  | 589R16BK | 134  | 604R10   | 44   | 608R8    | 45   |
| 552R     | 135  | 58C4     | 67   | 604R10MS | 44   | 608R8MS  | 45   |
| 553R     | 135  | 58C5     | 67   | 604R12   | 44   | 609R10   | 45   |
| 554R     | 135  | 58C6     | 67   | 604R12MS | 44   | 609R10MS | 45   |
| 555R     | 135  | 58N4     | 66   | 604R14   | 44   | 609R12   | 45   |
| 556R     | 135  | 58N5     | 66   | 604R14MS | 44   | 609R12MS | 45   |
| 557R     | 135  | 58N6     | 66   | 604R5    | 44   | 609R14   | 45   |
| 558R     | 135  | 590R10   | 134  | 604R5MS  | 44   | 609R14MS | 45   |
| 559R     | 135  | 590R10BK | 134  | 604R6    | 44   | 609R16   | 45   |
| 560R     | 135  | 590R12   | 134  | 604R6MS  | 44   | 609R16MS | 45   |
| 561R     | 135  | 590R12BK | 134  | 604R8    | 44   | 609R20   | 45   |
| 562R     | 135  | 590R16   | 134  | 604R8MS  | 44   | 609R20MS | 45   |
| 563R     | 135  | 590R16BK | 134  | 605R10   | 44   | 609R8    | 45   |
| 56C4     | 67   | 590R20   | 134  | 605R10MS | 44   | 609R8MS  | 45   |
| 56C5     | 67   | 590R20BK | 134  | 605R12   | 44   | 60C5     | 67   |
| 56N4     | 66   | 592R12   | 134  | 605R12MS | 44   | 60C6     | 67   |
| 56N5     | 66   | 592R12BK | 134  | 605R14   | 44   | 60C8     | 67   |
| 572R6    | 134  | 592R16   | 134  | 605R14MS | 44   | 60N5     | 66   |
| 572R6BK  | 134  | 592R16BK | 134  | 605R16   | 44   | 60N6     | 66   |
| 573R6    | 134  | 592R20   | 134  | 605R16MS | 44   | 60N8     | 66   |
| 573R6BK  | 134  | 592R20BK | 134  | 605R6    | 44   | 610R10   | 45   |
| 573R8    | 134  | 59C5     | 67   | 605R6MS  | 44   | 610R10MS | 45   |
| 573R8BK  | 134  | 59C6     | 67   | 605R8    | 44   | 610R12   | 45   |
| 574R8    | 134  | 59N5     | 66   | 605R8MS  | 44   | 610R12MS | 45   |
| 574R8BK  | 134  | 59N6     | 66   | 606R10   | 44   | 610R14   | 45   |
| 575R8    | 134  | 5R10     | 34   | 606R10MS | 44   | 610R14MS | 45   |
| 575R8BK  | 134  | 5R10MS   | 34   | 606R12   | 44   | 610R16   | 45   |
| 57C4     | 67   | 5R12     | 34   | 606R12MS | 44   | 610R16MS | 45   |
| 57C5     | 67   | 5R12MS   | 34   | 606R14   | 44   | 610R20   | 45   |
| 57C6     | 67   | 5R14     | 34   | 606R14MS | 44   | 610R20MS | 45   |
| 57N4     | 66   | 5R14MS   | 34   | 606R16   | 44   | 610R8    | 45   |
| 57N5     | 66   | 5R16     | 34   | 606R16MS | 44   | 610R8MS  | 45   |
| 57N6     | 66   | 5R16MS   | 34   | 606R20   | 44   | 6192     | 174  |
| 584R10   | 134  | 5R6      | 34   | 606R6    | 44   | 61925    | 174  |
| 584R10BK | 134  | 5R6MS    | 34   | 606R6MS  | 44   | 6193     | 174  |
| 584R8    | 134  | 5R8      | 34   | 606R8    | 44   | 61935    | 174  |
| 584R8BK  | 134  | 5R8MS    | 34   | 606R8MS  | 44   | 6194     | 174  |
| 585R10   | 134  | 5R8SB    | 34   | 607R10   | 45   | 6195     | 174  |
| 585R10BK | 134  | 5SG6     | 54   | 607R10MS | 45   | 619C3    | 175  |
| 585R12   | 134  | 5SG6MS   | 54   | 607R12   | 45   | 61N6     | 66   |
| 585R12BK | 134  | 602R10   | 44   | 607R12MS | 45   | 61N8     | 66   |
| 585R8    | 134  | 602R10MS | 44   | 607R14   | 45   | 62010    | 174  |
| 585R8BK  | 134  | 602R12   | 44   | 607R14MS | 45   | 62025    | 174  |
| 586R10   | 134  | 602R12MS | 44   | 607R16   | 45   | 6203     | 174  |
| 586R10BK | 134  | 602R5    | 44   | 607R16MS | 45   | 62035    | 174  |
| 586R12   | 134  | 602R5MS  | 44   | 607R20   | 45   | 6204     | 174  |
| 586R12BK | 134  | 602R6    | 44   | 607R20MS | 45   | 6204SB   | 174  |
| 587R10   | 134  | 602R6MS  | 44   | 607R6    | 45   | 6205     | 174  |
| 587R10BK | 134  | 602R8    | 44   | 607R8    | 45   | 6206     | 174  |
| 587R12   | 134  | 602R8MS  | 44   | 607R8MS  | 45   | 6208     | 174  |
| 587R12BK | 134  | 603R10   | 44   | 608R10   | 45   | 620C3    | 175  |
| 588R10   | 134  | 603R10MS | 44   | 608R10MS | 45   | 620C35   | 175  |
| 588R10BK | 134  | 603R12   | 44   | 608R12   | 45   | 620C4    | 175  |

| Part No. | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|----------|------|----------|------|----------|------|----------|------|
| 620C5    | 175  | 65416    | 90   | 6B8MS    | 26   | 705F10   | 47   |
| 620C6    | 175  | 6545     | 90   | 6B8SB    | 26   | 705F10MS | 47   |
| 622R     | 46   | 6546     | 90   | 6BSB     | 28   | 705F12   | 47   |
| 623R     | 46   | 6548     | 90   | 6R10     | 34   | 705F12MS | 47   |
| 624R     | 46   | 65510    | 90   | 6R10MS   | 34   | 705F14   | 47   |
| 625R     | 46   | 65512    | 90   | 6R10SB   | 34   | 705F14MS | 47   |
| 626R     | 46   | 65516    | 90   | 6R12     | 34   | 705F6    | 47   |
| 627R     | 46   | 6556     | 90   | 6R12MS   | 34   | 705F6MS  | 47   |
| 628R     | 46   | 6558     | 90   | 6R14     | 35   | 705F8    | 47   |
| 629R     | 46   | 65610    | 90   | 6R14MS   | 35   | 705F8MS  | 47   |
| 62N6     | 66   | 65612    | 90   | 6R16     | 35   | 705K     | 176  |
| 62N8     | 66   | 65616    | 90   | 6R16MS   | 35   | 705V     | 154  |
| 62R      | 67   | 6566     | 90   | 6R20     | 35   | 706F10   | 47   |
| 63010    | 174  | 6568     | 90   | 6R20MS   | 35   | 706F10MS | 47   |
| 6303     | 174  | 65710    | 90   | 6R6      | 34   | 706F12   | 47   |
| 63035    | 174  | 65712    | 90   | 6R6MS    | 34   | 706F12MS | 47   |
| 6304     | 174  | 65716    | 90   | 6R8      | 34   | 706F14   | 47   |
| 6304SB   | 174  | 6576     | 90   | 6R8MS    | 34   | 706F14MS | 47   |
| 6305     | 174  | 6578     | 90   | 6SG10    | 54   | 706F16   | 47   |
| 6305SB   | 174  | 65810    | 90   | 6SG10MS  | 54   | 706f16MS | 47   |
| 6306     | 174  | 65812    | 90   | 6SG6     | 54   | 706F6    | 47   |
| 6308     | 174  | 65816    | 90   | 6SG6MS   | 54   | 706F6MS  | 47   |
| 630C3    | 175  | 65910    | 91   | 6SG8     | 54   | 706F8    | 47   |
| 630C35   | 175  | 65912    | 91   | 6SG8MS   | 54   | 706F8MS  | 47   |
| 630C4    | 175  | 65916    | 91   | 700      | 183  | 707      | 154  |
| 630C5    | 175  | 65N10    | 66   | 700SB    | 183  | 707F10   | 47   |
| 630C6    | 175  | 65N12    | 66   | 700WS    | 183  | 707F10MS | 47   |
| 630R     | 46   | 65R      | 67   | 702F10   | 47   | 707F12   | 47   |
| 63N10    | 66   | 66010    | 91   | 702F10MS | 47   | 707F12MS | 47   |
| 63N8     | 66   | 66012    | 91   | 702F12   | 47   | 707F14   | 47   |
| 63R      | 67   | 66016    | 91   | 702F12MS | 47   | 707F14MS | 47   |
| 64N10    | 66   | 669      | 183  | 702F5    | 47   | 707F16   | 47   |
| 64N12    | 66   | 66R      | 67   | 702F5MS  | 47   | 707F16MS | 47   |
| 64R      | 67   | 670      | 183  | 702F6    | 47   | 707F8    | 47   |
| 65010    | 174  | 670SB    | 183  | 702F6MS  | 47   | 707F8MS  | 47   |
| 6504     | 174  | 670WS    | 183  | 702F8    | 47   | 707V     | 154  |
| 6505     | 174  | 680      | 183  | 702F8MS  | 47   | 708F10   | 47   |
| 6506     | 174  | 680SB    | 183  | 703F10   | 47   | 708F10MS | 47   |
| 6506SB   | 174  | 680WS    | 183  | 703F10MS | 47   | 708F12   | 47   |
| 6508     | 174  | 695      | 154  | 703F12   | 47   | 708F12MS | 47   |
| 650C10   | 175  | 695V     | 154  | 703F12MS | 47   | 708F14   | 47   |
| 650C4    | 175  | 697      | 154  | 703F5    | 47   | 708F14MS | 47   |
| 650C5    | 175  | 697V     | 154  | 703F5MS  | 47   | 708F16   | 47   |
| 650C6    | 175  | 6B       | 28   | 703F6    | 47   | 708F16MS | 47   |
| 650C8    | 175  | 6B10     | 26   | 703F6MS  | 47   | 708F8    | 47   |
| 65210    | 90   | 6B1045   | 26   | 703F8    | 47   | 708F8MS  | 47   |
| 65212    | 90   | 6B1090   | 26   | 703F8MS  | 47   | 709F10   | 48   |
| 6525     | 90   | 6B10MS   | 26   | 704      | 176  | 709F10MS | 48   |
| 6526     | 90   | 6B5      | 26   | 704F10   | 47   | 709F12   | 48   |
| 6528     | 90   | 6B545    | 26   | 704F10MS | 47   | 709F12MS | 48   |
| 652C5    | 94   | 6B590    | 26   | 704F12   | 47   | 709F14   | 48   |
| 652C6    | 94   | 6B5MS    | 26   | 704F12MS | 47   | 709F14MS | 48   |
| 65310    | 90   | 6B6      | 26   | 704F5    | 47   | 709F16   | 48   |
| 65312    | 90   | 6B645    | 26   | 704F5MS  | 47   | 709F16MS | 48   |
| 6535     | 90   | 6B690    | 26   | 704F6    | 47   | 709F20   | 48   |
| 6536     | 90   | 6B6MS    | 26   | 704F6MS  | 47   | 709F20MS | 48   |
| 6538     | 90   | 6B6SB    | 26   | 704F8    | 47   | 70B      | 28   |
| 653C6    | 94   | 6B8      | 26   | 704F8MS  | 47   | 70B10    | 26   |
| 65410    | 90   | 6B845    | 26   | 705      | 154  | 70B1045  | 26   |
| 65412    | 90   | 6B890    | 26   | 7050     | 154  | 70B1090  | 26   |

| Part No. | PAGE | Part No. | PAGE | Part No. | PAGE | Part No.  | PAGE |
|----------|------|----------|------|----------|------|-----------|------|
| 70B10MS  | 26   | 715      | 176  | 730VSB   | 181  | 745F12    | 49   |
| 70B10SB  | 26   | 716      | 154  | 7310     | 154  | 745F1245  | 49   |
| 70B12    | 26   | 716V     | 154  | 7310V    | 154  | 745F14    | 49   |
| 70B1245  | 26   | 718      | 154  | 7312     | 154  | 745F6     | 49   |
| 70B1290  | 26   | 718V     | 154  | 7312V    | 154  | 745F645   | 49   |
| 70B12MS  | 26   | 71S10    | 154  | 7315     | 154  | 745F8     | 49   |
| 70B12SB  | 26   | 71S10V   | 154  | 7315V    | 154  | 745F845   | 49   |
| 70B16    | 26   | 71S6     | 154  | 7318     | 154  | 746F10    | 49   |
| 70B1645  | 26   | 71S6V    | 154  | 7318V    | 154  | 746F1045  | 49   |
| 70B1690  | 26   | 71S8     | 154  | 731F     | 50   | 746F10MS  | 49   |
| 70B16MS  | 26   | 71S8V    | 154  | 7320     | 154  | 746F12    | 49   |
| 70B8     | 26   | 720      | 179  | 7320V    | 154  | 746F1245  | 49   |
| 70b845   | 26   | 7208     | 179  | 735      | 189  | 746F12MS  | 49   |
| 70B890   | 26   | 720AZ    | 180  | 737      | 154  | 746F14    | 49   |
| 70B8MS   | 26   | 720BZ    | 180  | 737V     | 154  | 746F16    | 49   |
| 70BSB    | 28   | 720SB    | 180  | 738      | 154  | 746F1645  | 49   |
| 710      | 176  | 720V     | 181  | 738V     | 154  | 746F6     | 49   |
| 710F10   | 48   | 720VSB   | 181  | 7410     | 155  | 746F8     | 49   |
| 710F10MS | 48   | 7210     | 154  | 7410V    | 155  | 746F845   | 49   |
| 710F12   | 48   | 7210V    | 154  | 7412     | 155  | 747F10    | 49   |
| 710F12MS | 48   | 7212     | 154  | 7412V    | 155  | 747F1045  | 49   |
| 710F14   | 48   | 7212V    | 154  | 7415     | 155  | 747F12    | 49   |
| 710F14MS | 48   | 7215     | 154  | 7415V    | 155  | 747F1245  | 49   |
| 710F16   | 48   | 7215V    | 154  | 7418     | 155  | 747F14    | 49   |
| 710F16MS | 48   | 7218     | 154  | 7418V    | 155  | 747F16    | 49   |
| 710F20   | 48   | 7218V    | 154  | 7420     | 155  | 747F1645  | 49   |
| 710F20MS | 48   | 7220     | 154  | 7420V    | 155  | 747F8     | 49   |
| 710K     | 176  | 7220V    | 154  | 742F10   | 49   | 747F845   | 49   |
| 710L     | 176  | 722F     | 50   | 742F1045 | 49   | 747F845MS | 49   |
| 7110     | 154  | 723F     | 50   | 742F10MS | 49   | 748       | 155  |
| 7110V    | 154  | 724F     | 50   | 742F12   | 49   | 748F10    | 49   |
| 7112     | 154  | 725      | 189  | 742F1245 | 49   | 748F1045  | 49   |
| 7112V    | 154  | 725F     | 50   | 742F5    | 49   | 748F12    | 49   |
| 7115     | 154  | 726      | 154  | 742F545  | 49   | 748F1245  | 49   |
| 7115V    | 154  | 726F     | 50   | 742F6    | 49   | 748F12MS  | 49   |
| 711F12   | 48   | 726V     | 154  | 742F645  | 49   | 748F14    | 49   |
| 711F12MS | 48   | 727      | 154  | 742F8    | 49   | 748F16    | 49   |
| 711F14   | 48   | 727F     | 50   | 742F845  | 49   | 748F1645  | 49   |
| 711F14MS | 48   | 727V     | 154  | 743F10   | 49   | 748F8     | 49   |
| 711F16   | 48   | 728      | 154  | 743F1045 | 49   | 748F845   | 49   |
| 711F16MS | 48   | 728F     | 50   | 743F12   | 49   | 748V      | 155  |
| 711F20   | 48   | 728V     | 154  | 743F1245 | 49   | 749       | 155  |
| 711F20MS | 48   | 729F     | 50   | 743F5    | 49   | 749F10    | 50   |
| 712F10   | 48   | 72S10    | 50   | 743F545  | 49   | 749F1045  | 50   |
| 712F12   | 48   | 72S10V   | 154  | 743F6    | 49   | 749F12    | 50   |
| 712F12MS | 48   | 72S12    | 154  | 743F645  | 49   | 749F1245  | 50   |
| 712F14   | 48   | 72S12V   | 154  | 743F8    | 49   | 749F14    | 50   |
| 712F14MS | 48   | 72S15    | 154  | 743F845  | 49   | 749F16    | 50   |
| 712F16   | 48   | 72S15V   | 154  | 744F10   | 49   | 749F20    | 50   |
| 712F16MS | 48   | 72S6     | 154  | 744F1045 | 49   | 749V      | 155  |
| 712F20   | 48   | 72S6V    | 154  | 744F12   | 49   | 750       | 179  |
| 712F20MS | 48   | 72S8     | 154  | 744F1245 | 49   | 7509      | 179  |
| 713F12   | 48   | 72S8V    | 154  | 744F5    | 49   | 750AZ     | 180  |
| 713F12MS | 48   | 730      | 179  | 744F545  | 49   | 750BZ     | 180  |
| 713F14   | 48   | 7308     | 179  | 744F6    | 49   | 750F10    | 50   |
| 713F14MS | 48   | 730AZ    | 180  | 744F645  | 49   | 750F1045  | 50   |
| 713F16   | 48   | 730BZ    | 180  | 744F8    | 49   | 750F12    | 50   |
| 713F16MS | 48   | 730F     | 50   | 744F845  | 49   | 750F1245  | 50   |
| 713F20   | 48   | 730SB    | 50   | 745F10   | 49   | 750F14    | 50   |
| 713F20MS | 48   | 730V     | 181  | 745F1045 | 49   | 750F16    | 50   |

| Part No. | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|----------|------|----------|------|----------|------|----------|------|
| 750F20   | 50   | 7828     | 155  | 8030V    | 155  | 8302     | 179  |
| 750SB    | 50   | 7828V    | 155  | 8032     | 155  | 8302B    | 182  |
| 750V     | 181  | 7832     | 155  | 8032V    | 155  | 8302V    | 181  |
| 7510     | 155  | 7832V    | 155  | 8051     | 190  | 8303     | 179  |
| 7510V    | 155  | 790      | 184  | 80512    | 190  | 8303B    | 182  |
| 7512     | 155  | 7912     | 155  | 8052     | 190  | 8303V    | 181  |
| 7512V    | 155  | 7912V    | 155  | 80R      | 65   | 830SB    | 181  |
| 7515     | 155  | 7915     | 155  | 80V4     | 64   | 8330     | 156  |
| 7515V    | 155  | 7915V    | 155  | 80V5     | 64   | 8330V    | 156  |
| 7518     | 155  | 7918     | 155  | 80V6     | 64   | 8332     | 156  |
| 7518V    | 155  | 7918V    | 155  | 8101     | 190  | 8332V    | 156  |
| 751F12   | 50   | 7920     | 155  | 81012    | 190  | 8334     | 156  |
| 751F1245 | 50   | 7920V    | 155  | 8102     | 190  | 8334V    | 156  |
| 751F14   | 50   | 7922     | 155  | 8122     | 155  | 8338     | 156  |
| 751F16   | 50   | 7922V    | 155  | 8122V    | 155  | 8338V    | 156  |
| 751F20   | 50   | 7925     | 155  | 8125     | 155  | 8340     | 156  |
| 7520     | 155  | 7925V    | 155  | 8125V    | 155  | 8340V    | 156  |
| 7520V    | 155  | 7930     | 155  | 8130     | 155  | 83R      | 65   |
| 7525     | 155  | 7930V    | 155  | 8130V    | 155  | 83V5     | 64   |
| 7525V    | 155  | 7932     | 155  | 8132     | 155  | 83V6     | 64   |
| 752F16   | 50   | 7932V    | 155  | 8132V    | 155  | 83V8     | 64   |
| 755      | 189  | 79R      | 65   | 8151     | 192  | 8432     | 156  |
| 7610     | 155  | 79V4     | 64   | 81512    | 192  | 8432V    | 156  |
| 7610V    | 155  | 79V5     | 64   | 816      | 192  | 8434     | 156  |
| 7612     | 155  | 7R10     | 35   | 817      | 192  | 8434V    | 156  |
| 7612V    | 155  | 7R10MS   | 35   | 81R      | 65   | 8438     | 156  |
| 7615     | 155  | 7R10SB   | 35   | 81V4     | 64   | 8438V    | 156  |
| 7615V    | 155  | 7R12     | 35   | 81V5     | 64   | 8440     | 156  |
| 7618     | 155  | 7R12MS   | 35   | 81V6     | 64   | 8440V    | 156  |
| 7618V    | 155  | 7R14     | 35   | 820      | 182  | 84R      | 65   |
| 7620     | 155  | 7R14MS   | 35   | 8201     | 179  | 84V6     | 64   |
| 7620V    | 155  | 7R16     | 35   | 8201A    | 179  | 84V8     | 64   |
| 7625     | 155  | 7R16MS   | 35   | 8201AV   | 181  | 850      | 182  |
| 7625V    | 155  | 7R20     | 35   | 8201B    | 182  | 8502B    | 182  |
| 769      | 184  | 7R20MS   | 35   | 8201C    | 182  | 8502V    | 181  |
| 770      | 184  | 7R6      | 35   | 8201V    | 181  | 8503     | 179  |
| 7712     | 155  | 7R6MS    | 35   | 8202     | 179  | 8503B    | 182  |
| 7712V    | 155  | 7R8      | 35   | 8202B    | 182  | 8503V    | 181  |
| 7715     | 155  | 7R8MS    | 35   | 8202V    | 181  | 850SB    | 181  |
| 7715V    | 155  | 7SG10    | 54   | 8203     | 179  | 8532     | 156  |
| 7718     | 155  | 7SG10MS  | 54   | 8203B    | 182  | 8532V    | 156  |
| 7718V    | 155  | 7SG12    | 54   | 8203V    | 181  | 8540     | 156  |
| 7720     | 155  | 7SG12MS  | 54   | 820SB    | 181  | 8540V    | 156  |
| 7720V    | 155  | 7SG6     | 54   | 8225     | 156  | 85R      | 65   |
| 7725     | 155  | 7SG6MS   | 54   | 8225V    | 156  | 85V6     | 64   |
| 7725V    | 155  | 7SG8     | 54   | 8230     | 156  | 85V8     | 64   |
| 7732     | 155  | 7SG8MS   | 54   | 8230V    | 156  | 8634     | 156  |
| 7732V    | 155  | 8001     | 191  | 8232     | 156  | 8634V    | 156  |
| 775      | 189  | 80012    | 191  | 8232V    | 156  | 8640     | 156  |
| 780      | 184  | 8002     | 191  | 8234     | 156  | 8640V    | 156  |
| 7812     | 155  | 8011     | 191  | 8234V    | 156  | 8678     | 162  |
| 7812V    | 155  | 80112    | 191  | 82R      | 65   | 8688     | 162  |
| 7815     | 155  | 8012     | 191  | 82V5     | 64   | 8698     | 162  |
| 7815V    | 155  | 8018     | 155  | 82V6     | 64   | 86R      | 65   |
| 7818     | 155  | 8018V    | 155  | 82V8     | 64   | 86V10    | 64   |
| 7818V    | 155  | 8022     | 155  | 830      | 182  | 86V12    | 64   |
| 7820     | 155  | 8022V    | 155  | 8301     | 179  | 86V6     | 64   |
| 7820V    | 155  | 8025     | 155  | 8301A    | 179  | 86V8     | 64   |
| 7825     | 155  | 8025V    | 155  | 8301AV   | 181  | 87010    | 162  |
| 7825V    | 155  | 8030     | 155  | 8301V    | 181  | 8708     | 162  |

| Part No. | PAGE | Part No. | PAGE | Part No.   | PAGE | Part No. | PAGE |
|----------|------|----------|------|------------|------|----------|------|
| 87110    | 163  | 92R4     | 32   | 9R12SB     | 35   | AE25     | 431  |
| 8718     | 163  | 92R5     | 32   | 9R14       | 35   | AE35     | 431  |
| 87212    | 163  | 92R5SB   | 32   | 9R14MS     | 35   | AE50     | 431  |
| 8728     | 163  | 92R6     | 32   | 9R16       | 35   | AE501    | 414  |
| 87310    | 163  | 930      | 176  | 9R16MS     | 35   | AE502    | 414  |
| 87313    | 163  | 93C3     | 33   | 9R20       | 35   | AE503    | 414  |
| 87412    | 163  | 93C4     | 33   | 9R20MS     | 35   | AE70     | 431  |
| 87514    | 163  | 93C5     | 33   | 9R8        | 35   | AE95     | 431  |
| 87614    | 163  | 93C6     | 33   | 9R8MS      | 35   | AES10    | 431  |
| 87714    | 163  | 93R3     | 32   | 9SG10      | 54   | AES16    | 431  |
| 87R      | 65   | 93R4     | 32   | 9SG10MS    | 54   | AES2210  | 440  |
| 87V10    | 64   | 93R5     | 32   | 9SG12      | 54   | AES22120 | 440  |
| 87V12    | 64   | 93R5SB   | 32   | 9SG6       | 54   | AES22150 | 440  |
| 87V16    | 64   | 93R6     | 32   | 9SG8       | 54   | AES2216  | 440  |
| 87V8     | 64   | 93R8     | 32   | 9SG8MS     | 54   | AES22185 | 440  |
| 88R      | 65   | 94C4     | 33   | A10        | 430  | AES22240 | 440  |
| 88V10    | 64   | 94C5     | 33   | A150       | 430  | AES2225  | 440  |
| 88V12    | 64   | 94C6     | 33   | A1625      | 430  | AES2235  | 440  |
| 88V8     | 64   | 94C8     | 33   | A185       | 430  | AES2250  | 440  |
| 8R10     | 35   | 94R4     | 32   | A2210      | 438  | AES2270  | 440  |
| 8R10MS   | 35   | 94R5     | 32   | A22150     | 438  | AES2295  | 440  |
| 8R10SB   | 35   | 94R5SB   | 32   | A221625    | 438  | AES25    | 431  |
| 8R12     | 35   | 94R6     | 32   | A22185     | 438  | AES35    | 431  |
| 8R12MS   | 35   | 94R8     | 32   | A22240     | 438  | AES50    | 431  |
| 8R14     | 35   | 950      | 176  | A22300     | 438  | AES70    | 431  |
| 8R14MS   | 35   | 950V     | 177  | A2235      | 438  | AE595    | 431  |
| 8R16     | 35   | 95B      | 28   | A2250      | 438  | AH120120 | 140  |
| 8R16MS   | 35   | 95B10    | 26   | A2270      | 438  | AH7070   | 140  |
| 8R20     | 35   | 95B1045  | 26   | A2295120   | 438  | AH9595   | 140  |
| 8R20MS   | 35   | 95B1090  | 26   | A22SET     | 438  | AHP700L  | 385  |
| 8R8      | 35   | 95B10MS  | 26   | A300       | 161  | AS105FHP | 393  |
| 8R8MS    | 35   | 95B10SB  | 26   | A35        | 430  | AS120FHP | 393  |
| 8SG10    | 54   | 95B12    | 26   | A50        | 430  | AS65FHP  | 392  |
| 8SG10MS  | 54   | 95B1245  | 26   | A70        | 430  | AST22120 | 439  |
| 8SG12    | 54   | 95B1290  | 26   | A95120     | 430  | AST2225  | 439  |
| 8SG6     | 54   | 95B12MS  | 26   | AD22120    | 438  | AST2235  | 439  |
| 8SG8     | 54   | 95B12SB  | 26   | AD22150185 | 438  | AST2250  | 439  |
| 8SG8MS   | 54   | 95B16    | 26   | AD2225     | 438  | AST2270  | 439  |
| 90507606 | 593  | 95B1645  | 26   | AD2235     | 438  | AST2295  | 439  |
| 90508068 | 593  | 95B1690  | 26   | AD2250     | 438  | B2210    | 433  |
| 90508238 | 593  | 95B16MS  | 26   | AD2270     | 438  | B22120   | 433  |
| 90510593 | 593  | 95BSB    | 28   | AD2295     | 438  | B22150   | 433  |
| 90525159 | 593  | 95C4     | 33   | AD25       | 430  | B2216    | 433  |
| 90541693 | 593  | 95C5     | 33   | AD35       | 430  | B22185   | 433  |
| 90541707 | 593  | 95C6     | 33   | AD50       | 430  | B22240   | 433  |
| 90542657 | 554  | 95C8     | 33   | AD70       | 430  | B2225    | 433  |
| 91C3     | 33   | 95R4     | 32   | AD95       | 430  | B22300   | 433  |
| 91C4     | 33   | 95R5     | 32   | AE10       | 431  | B2235    | 433  |
| 91C5     | 33   | 95R6     | 32   | AE16       | 431  | B2250    | 433  |
| 91R3     | 32   | 95R8     | 32   | AE2210     | 440  | B226     | 433  |
| 91R3SB   | 32   | 96C5     | 33   | AE22120    | 440  | B2270    | 433  |
| 91R4     | 32   | 96C6     | 33   | AE22150    | 440  | B2295    | 433  |
| 91R5     | 32   | 96C8     | 33   | AE2216     | 440  | B22SET   | 433  |
| 920      | 176  | 97C5     | 33   | AE22185    | 440  | BAG9698  | 164  |
| 920V     | 177  | 97C6     | 33   | AE22240    | 440  | BAG9708  | 164  |
| 92C3     | 33   | 97C8     | 33   | AE2225     | 440  | BAG9718  | 164  |
| 92C4     | 33   | 9R10     | 35   | AE2235     | 440  | BAG9728  | 164  |
| 92C5     | 33   | 9R10MS   | 35   | AE2250     | 440  | BAG9738  | 164  |
| 92C6     | 33   | 9R12     | 35   | AE2270     | 440  | BAK9698  | 164  |
| 92R3     | 32   | 9R12MS   | 35   | AE2295     | 440  | BAK9708  | 164  |

| Part No. | PAGE | Part No.     | PAGE | Part No.  | PAGE | Part No.    | PAGE |
|----------|------|--------------|------|-----------|------|-------------|------|
| BAK9718  | 164  | DP2250       | 436  | ESG25L    | 342  | HA2510      | 452  |
| BAK9728  | 164  | DP2270       | 436  | ESG45EF   | 345  | HA25150     | 452  |
| BAK9738  | 164  | EBS12        | 338  | ESG45ES1  | 345  | HA251625    | 452  |
| BNC501   | 415  | EBS12L       | 339  | ESG45L    | 345  | HA25185     | 452  |
| C16      | 430  | EBS8         | 338  | ESG50EF1  | 346  | HA25240     | 452  |
| C2216    | 439  | EBS8L        | 339  | ESG50ES   | 346  | HA25300     | 452  |
| C2225    | 439  | EG1          | 395  | ESG50L    | 346  | HA2535      | 452  |
| C2235    | 439  | EHP2380      | 382  | ESG55EF   | 347  | HA25400     | 452  |
| C2250    | 439  | EHP3         | 383  | ESG55ES   | 347  | HA2550      | 452  |
| C25      | 430  | EHP4115      | 384  | ESG55L    | 347  | HA25500     | 452  |
| C35      | 430  | EHP4230      | 384  | ESG85EF1  | 349  | HA2570      | 452  |
| C50      | 430  | EK12030L     | 330  | ESG85ES1  | 349  | HA2595120   | 452  |
| CK16     | 139  | EK12042L     | 332  | ESG85L    | 349  | HA410       | 420  |
| CK25     | 139  | EK120IDL     | 329  | ESSG105L  | 395  | HA41625     | 420  |
| CK35     | 139  | EK120UL      | 334  | ESSG65I   | 395  | HA435       | 420  |
| CK35BK   | 139  | EK120UNVL    | 358  | ESSGG85L  | 395  | HA450       | 420  |
| CK50     | 139  | EK1550       | 308  | F10       | 428  | HA45150     | 455  |
| CK70     | 139  | EK1550G      | 310  | F16       | 428  | HA45185     | 455  |
| CK95     | 139  | EK354        | 314  | F2210     | 435  | HA45240     | 455  |
| CK95BK   | 139  | EK354L       | 316  | F2216     | 435  | HA45300     | 455  |
| CMGSK    | 139  | EK354SETHD   | 314  | F2225     | 435  | HA45400     | 455  |
| CR501    | 415  | EK354SETHR   | 314  | F2235     | 435  | HA45500     | 455  |
| CR502    | 415  | EK5018L      | 320  | F2250     | 435  | HA470       | 420  |
| CR503    | 415  | EK505L       | 318  | F2270     | 435  | HA510       | 425  |
| CR504    | 415  | EK505LSETHD  | 318  | F25       | 428  | HA5150      | 425  |
| CR505    | 415  | EK505LSETHR  | 318  | F35       | 428  | HA51625     | 425  |
| CS1022   | 129  | EK50ML       | 278  | F50       | 428  | HA535       | 425  |
| CS1228   | 129  | EK50MLL      | 278  | FHP2      | 381  | HA550       | 425  |
| CS1428   | 129  | EK6022L      | 324  | FTA1      | 402  | HA570       | 425  |
| CS1635   | 129  | EK6022LSETD  | 324  | FTA4      | 402  | HA595120    | 425  |
| CS818    | 129  | EK6022LSETR  | 324  | GR1698    | 160  | HAD13120    | 446  |
| D10      | 428  | EK60UNVL     | 357  | GR1690    | 158  | HAD13150185 | 446  |
| D120     | 428  | EK60UNVLSETR | 357  | GR1708    | 160  | HAD1325     | 446  |
| D150     | 428  | EK60VPFTL    | 327  | GR170W    | 159  | HAD1335     | 446  |
| D16      | 428  | EK60VPL      | 326  | GR1718    | 160  | HAD1350     | 446  |
| D185     | 428  | EKM6022L     | 322  | GR171G    | 159  | HAD1370     | 446  |
| D2210    | 436  | EKM60IDL     | 328  | GR1728    | 160  | HAD1395     | 446  |
| D22120   | 436  | EKM60UNVL    | 356  | GR172R0   | 159  | HAD25120    | 452  |
| D22150   | 436  | EKP1         | 312  | GR1738    | 160  | HAD25150185 | 452  |
| D2216    | 436  | ES105E       | 378  | GR1738    | 159  | HAD25240    | 452  |
| D22185   | 436  | ES105L       | 352  | GR4698    | 157  | HAD2525     | 452  |
| D22240   | 436  | ES120E       | 379  | GR4698D0  | 204  | HAD25300    | 452  |
| D2225    | 436  | ES20         | 340  | GR4708    | 157  | HAD2535     | 452  |
| D22300   | 436  | ES20E        | 340  | GR4708D0  | 204  | HAD2550     | 452  |
| D2235    | 436  | ES20L        | 341  | GR4718    | 157  | HAD2570     | 452  |
| D2250    | 436  | ES32         | 343  | GR4718D0  | 205  | HAD2595     | 452  |
| D226     | 436  | ES32E        | 343  | GR4728    | 157  | HAD425      | 420  |
| D2270    | 436  | ES32F        | 343  | GR4728D0  | 205  | HAD435      | 420  |
| D2295    | 436  | ES32FE       | 343  | GR4738    | 157  | HAD450      | 420  |
| D22SET   | 436  | ES32FL       | 344  | GR4738D0  | 205  | HAD45150185 | 455  |
| D25      | 428  | ES32L        | 344  | H2270     | 439  | HAD45240    | 455  |
| D35      | 428  | ES65E        | 348  | HA1310    | 446  | HAD45300    | 455  |
| D50      | 428  | ES65L        | 348  | HA13150   | 446  | HAD525      | 425  |
| D6       | 428  | ES85E        | 350  | HA131625  | 446  | HAD535      | 425  |
| D70      | 428  | ES85L        | 350  | HA13185   | 446  | HAD550      | 425  |
| D95      | 428  | ESG10SEF     | 351  | HA13240   | 446  | HAD570      | 425  |
| DNAW3    | 524  | ESG10SES     | 351  | HA1335    | 446  | HAD595      | 425  |
| DNAW3M   | 524  | ESG105L      | 351  | HA1350    | 446  | HAE13120    | 448  |
| DNK742   | 252  | ESG25EF      | 342  | HA1370    | 446  | HAE13150    | 448  |
| DNP2     | 403  | ESG25ES      | 342  | HA1395120 | 446  | HAE13185    | 448  |

| Part No.  | PAGE | Part No.  | PAGE | Part No. | PAGE | Part No. | PAGE |
|-----------|------|-----------|------|----------|------|----------|------|
| HAET13240 | 448  | HAH1395   | 447  | HC416    | 420  | HDP1395  | 444  |
| HAET1325  | 448  | HAH25120  | 453  | HC425    | 420  | HDP25120 | 450  |
| HAET1335  | 448  | HAH2570   | 453  | HC516    | 425  | HDP2550  | 450  |
| HAET1350  | 448  | HAH2595   | 453  | HC525    | 425  | HDP2570  | 450  |
| HAET1370  | 448  | HAST13120 | 446  | HC535    | 425  | HDP2595  | 450  |
| HAET1395  | 448  | HAST1325  | 446  | HD13120  | 444  | HF13120  | 444  |
| HAET25120 | 454  | HAST1335  | 446  | HD13150  | 444  | HF13150  | 444  |
| HAET25150 | 454  | HAST1350  | 446  | HD1316   | 444  | HF1316   | 444  |
| HAET25185 | 454  | HAST1370  | 446  | HD13185  | 444  | HF1325   | 444  |
| HAET25240 | 454  | HAST1395  | 446  | HD13240  | 444  | HF1335   | 444  |
| HAET2525  | 454  | HAST25120 | 452  | HD1325   | 444  | HF1350   | 444  |
| HAET2535  | 454  | HAST2525  | 452  | HD13300  | 444  | HF1370   | 444  |
| HAET2550  | 454  | HAST2535  | 452  | HD1335   | 444  | HF1395   | 444  |
| HAET2570  | 454  | HAST2550  | 452  | HD1350   | 444  | HF25120  | 450  |
| HAET2595  | 454  | HAST2570  | 452  | HD1370   | 444  | HF25150  | 450  |
| HAET410   | 420  | HAST2595  | 452  | HD1395   | 444  | HF2516   | 450  |
| HAET416   | 420  | HB13120   | 442  | HD25120  | 450  | HF25185  | 450  |
| HAET425   | 420  | HB13150   | 442  | HD25150  | 450  | HF25240  | 450  |
| HAET435   | 420  | HB1316    | 442  | HD2516   | 450  | HF2525   | 450  |
| HAET450   | 420  | HB13185   | 442  | HD25185  | 450  | HF25300  | 450  |
| HAET510   | 425  | HB13240   | 442  | HD25240  | 450  | HF2535   | 450  |
| HAET516   | 425  | HB1325    | 442  | HD2525   | 450  | HF2550   | 450  |
| HAET525   | 425  | HB13300   | 442  | HD25300  | 450  | HF2570   | 450  |
| HAET535   | 425  | HB1335    | 442  | HD2535   | 450  | HF2595   | 450  |
| HAET550   | 425  | HB13400   | 442  | HD25400  | 450  | HF410    | 418  |
| HAET570   | 425  | HB1350    | 442  | HD2550   | 450  | HF416    | 418  |
| HAET595   | 425  | HB136     | 442  | HD25500  | 450  | HF425    | 418  |
| HAES13120 | 448  | HB1370    | 442  | HD25625  | 450  | HF435    | 418  |
| HAES13150 | 448  | HB1395    | 442  | HD2570   | 450  | HF510    | 423  |
| HAES13185 | 448  | HB13SET   | 442  | HD2595   | 450  | HF516    | 423  |
| HAES13240 | 448  | HB410     | 416  | HD410    | 418  | HF525    | 423  |
| HAES1325  | 448  | HB4120    | 416  | HD4120   | 418  | HF535    | 423  |
| HAES1335  | 448  | HB4150    | 416  | HD416    | 418  | HF550    | 423  |
| HAES1350  | 448  | HB416     | 416  | HD425    | 418  | HIS1310  | 443  |
| HAES1370  | 448  | HB425     | 416  | HD435    | 418  | HIS13120 | 443  |
| HAES1395  | 448  | HB435     | 416  | HD450    | 418  | HIS13150 | 443  |
| HAES25120 | 454  | HB450     | 416  | HD451000 | 455  | HIS1316  | 443  |
| HAES25150 | 454  | HB46      | 416  | HD45120  | 455  | HIS1325  | 443  |
| HAES25185 | 454  | HB470     | 416  | HD45150  | 455  | HIS1335  | 443  |
| HAES25240 | 454  | HB495     | 416  | HD45185  | 455  | HIS1350  | 443  |
| HAES2525  | 454  | HB4SET    | 416  | HD45240  | 455  | HIS1370  | 443  |
| HAES2535  | 454  | HB51050   | 422  | HD45300  | 455  | HIS1395  | 443  |
| HAES2550  | 454  | HB5120    | 422  | HD45400  | 455  | HIS2510  | 449  |
| HAES2570  | 454  | HB5150    | 422  | HD45500  | 455  | HIS25120 | 449  |
| HAES2595  | 454  | HB51670   | 422  | HD45625  | 455  | HIS25150 | 449  |
| HAES410   | 421  | HB5185    | 422  | HD45800  | 455  | HIS2516  | 449  |
| HAES416   | 421  | HB52595   | 422  | HD46     | 418  | HIS2525  | 449  |
| HAES425   | 421  | HB5635    | 422  | HD470    | 418  | HIS2535  | 449  |
| HAES435   | 421  | HB5SET    | 422  | HD495    | 418  | HIS2550  | 449  |
| HAES450   | 421  | HC1316    | 447  | HD4SET   | 419  | HIS2570  | 449  |
| HAES510   | 426  | HC1325    | 447  | HD51050  | 423  | HIS2595  | 449  |
| HAES516   | 426  | HC1335    | 447  | HD5120   | 423  | HIS410   | 417  |
| HAES525   | 426  | HC1350    | 447  | HD5150   | 423  | HIS416   | 417  |
| HAES535   | 426  | HC1370    | 447  | HD51670  | 423  | HIS425   | 417  |
| HAES550   | 426  | HC2516    | 453  | HD5185   | 423  | HIS435   | 417  |
| HAES570   | 426  | HC2525    | 453  | HD52595  | 423  | HIS450   | 417  |
| HAES570   | 426  | HC2535    | 453  | HD5635   | 423  | HIS470   | 417  |
| HAES595   | 426  | HC2550    | 453  | HD5SET   | 424  | HIS510   | 423  |
| HAH13120  | 447  | HC2570    | 453  | HDP1350  | 444  | HIS516   | 423  |
| HAH1370   | 447  | HC2595    | 453  | HDP1370  | 444  | HIS525   | 423  |

| Part No.   | PAGE | Part No. | PAGE | Part No.    | PAGE | Part No.  | PAGE |
|------------|------|----------|------|-------------|------|-----------|------|
| HIS535     | 423  | HQ13150  | 445  | HR4SET      | 417  | HSD1      | 394  |
| HIS550     | 423  | HQ1316   | 445  | HR51050     | 422  | HSD2      | 394  |
| HIS570     | 423  | HQ1325   | 445  | HR5120      | 422  | HSD3      | 394  |
| HIS595     | 423  | HQ1335   | 445  | HR5150      | 422  | HSG45     | 300  |
| HISQ1310   | 445  | HQ1350   | 445  | HR51670     | 422  | HSG50     | 301  |
| HISQ1316   | 445  | HQ1370   | 445  | HR5185      | 422  | HSG55     | 302  |
| HISQ1325   | 445  | HQ1395   | 445  | HR5240      | 422  | HSG852    | 303  |
| HISQ1335   | 445  | HQ25120  | 451  | HR52595     | 422  | HSOEL10   | 403  |
| HISQ1350   | 445  | HQ25150  | 451  | HR5635      | 422  | HSOEL2    | 403  |
| HISQ1370   | 445  | HQ2516   | 451  | HR5SET      | 423  | HSOEL3    | 403  |
| HISQ1395   | 445  | HQ25185  | 451  | HRU1310     | 445  | HSOEL4    | 403  |
| HISQ2510   | 451  | HQ25240  | 451  | HRU1312095  | 445  | HSOEL5    | 403  |
| HISQ25120  | 451  | HQ2525   | 451  | HRU13150120 | 445  | HSOEL6    | 403  |
| HISQ25150  | 451  | HQ2535   | 451  | HRU1316     | 445  | HSOEL8    | 403  |
| HISQ2516   | 451  | HQ2550   | 451  | HRU13185150 | 445  | HST131215 | 447  |
| HISQ2525   | 451  | HQ2570   | 451  | HRU13240185 | 445  | HST1320   | 447  |
| HISQ2535   | 451  | HQ2595   | 451  | HRU13300240 | 445  | HST1346   | 447  |
| HISQ2550   | 451  | HQ410    | 419  | HRU13300SM  | 445  | HST138    | 447  |
| HISQ2570   | 451  | HQ416    | 419  | HRU133525   | 445  | HST251215 | 453  |
| HISQ2595   | 451  | HQ425    | 419  | HRU135035   | 445  | HST2520   | 453  |
| HISQ410    | 419  | HQ435    | 419  | HRU137050   | 445  | HST2546   | 453  |
| HISQ416    | 419  | HQ510    | 424  | HRU139570   | 445  | HST258    | 453  |
| HK12030    | 292  | HQ516    | 424  | HRU2510     | 451  | HTA4      | 404  |
| HK12042    | 294  | HQ525    | 424  | HRU2512095  | 451  | HZAE410   | 421  |
| HK120U     | 296  | HQ535    | 424  | HRU25150120 | 451  | HZAE416   | 421  |
| HK122EL380 | 390  | HQ550    | 424  | HRU2516     | 451  | HZAE44    | 421  |
| HK252      | 388  | HR13120  | 443  | HRU25185150 | 451  | HZAE46    | 421  |
| HK252EL380 | 391  | HR13150  | 443  | HRU25240185 | 451  | HZAE510   | 426  |
| HK45       | 389  | HR1316   | 443  | HRU25300240 | 451  | HZAE516   | 426  |
| HK6018     | 286  | HR13185  | 443  | HRU25300SM  | 451  | HZAE54    | 426  |
| HK6022     | 288  | HR13240  | 443  | HRU253525   | 451  | HZAE56    | 426  |
| HK6022SETD | 288  | HR1325   | 443  | HRU255035   | 451  | HZAES410  | 421  |
| HK6022SETR | 288  | HR13300  | 443  | HRU257050   | 451  | HZAES416  | 421  |
| HK6022W    | 288  | HR1335   | 443  | HRU259570   | 451  | HZAES44   | 421  |
| HK60UNV    | 354  | HR13400  | 443  | HRU410      | 419  | HZAES46   | 421  |
| HK60VP     | 290  | HR1350   | 443  | HRU412095   | 419  | HZAES510  | 426  |
| HK60VPFT   | 291  | HR1370   | 443  | HRU4150120  | 419  | HZAES516  | 426  |
| HM4154     | 418  | HR1395   | 443  | HRU416      | 419  | HZAES54   | 426  |
| HM416      | 418  | HR25120  | 449  | HRU43525    | 419  | HZAES56   | 426  |
| HM4610     | 418  | HR25150  | 449  | HRU45035    | 419  | IS10      | 427  |
| HMC1310    | 447  | HR2516   | 449  | HRU47050    | 419  | IS16      | 427  |
| HMC1335    | 447  | HR25185  | 449  | HRU49570    | 419  | IS2210    | 434  |
| HMC1350    | 447  | HR25240  | 449  | HRU510      | 424  | IS22120   | 434  |
| HMC1370    | 447  | HR2525   | 449  | HRU512095   | 424  | IS22150   | 434  |
| HMC25120   | 453  | HR25300  | 449  | HRU5150120  | 424  | IS2216    | 434  |
| HMC25150   | 453  | HR2535   | 449  | HRU516      | 424  | IS2225    | 434  |
| HMC25185   | 453  | HR25400  | 449  | HRU5185150  | 424  | IS2235    | 434  |
| HMC2535    | 453  | HR2550   | 449  | HRU5240185  | 424  | IS2250    | 434  |
| HMC2550    | 453  | HR2570   | 449  | HRU5300240  | 424  | IS2270    | 434  |
| HMC2570    | 453  | HR2595   | 449  | HRU53525    | 424  | IS2295    | 434  |
| HMC2595    | 453  | HR410    | 417  | HRU55035    | 424  | IS25      | 427  |
| HMC410     | 420  | HR4120   | 417  | HRU57050    | 424  | IS35      | 427  |
| HMC435     | 420  | HR4150   | 417  | HRU59570    | 424  | IS50      | 427  |
| HMC44      | 420  | HR416    | 417  | HS210       | 402  | IS501     | 415  |
| HN4051     | 418  | HR425    | 417  | HS22        | 402  | IS502     | 415  |
| HN410      | 418  | HR435    | 417  | HS23        | 402  | IS503     | 415  |
| HN41525    | 418  | HR450    | 417  | HS24        | 402  | IS504     | 415  |
| HN416      | 418  | HR46     | 417  | HS25        | 402  | IS505     | 415  |
| HN446      | 418  | HR470    | 417  | HS26        | 402  | IS5071    | 258  |
| HQ13120    | 445  | HR495    | 417  | HS28        | 402  | IS5071    | 278  |



| Part No. | PAGE | Part No.    | PAGE | Part No.     | PAGE | Part No.       | PAGE |
|----------|------|-------------|------|--------------|------|----------------|------|
| IS70     | 427  | K25         | 242  | K95          | 242  | KL050170       | 486  |
| IS95     | 427  | K250        | 273  | KF125        | 140  | KL050205       | 486  |
| ISQ10    | 429  | K271        | 230  | KK120L       | 324  | KL050205IS     | 462  |
| ISQ16    | 429  | K272        | 230  | KK120UNVL    | 357  | KL050205ISSB   | 462  |
| ISQ2210  | 437  | K28         | 231  | KK35B2       | 308  | KL055170       | 487  |
| ISQ2216  | 437  | K29         | 231  | KK50L        | 316  | KL055205       | 487  |
| ISQ2225  | 437  | K3          | 223  | KK50L FLEX   | 550  | KL055205IS     | 463  |
| ISQ2235  | 437  | K303        | 229  | KKEK50ML     | 278  | KL055205ISSB   | 463  |
| ISQ2250  | 437  | K32         | 225  | KKEKP1B      | 312  | KL060160       | 487  |
| ISQ2270  | 437  | K34         | 226  | KKESSGG85L   | 395  | KL060160IS     | 463  |
| ISQ25    | 429  | K35         | 223  | KKESSGL      | 395  | KL060160ISSB   | 463  |
| ISQ35    | 429  | K354        | 260  | KKLS60LGL    | 549  | KL070250       | 487  |
| ISQ50    | 429  | K36         | 225  | KKMUNVL      | 356  | KL070250G      | 487  |
| K02      | 241  | K37         | 226  | KKPE         | 216  | KL070250IS     | 463  |
| K04      | 246  | K382        | 227  | KKTC1B       | 406  | KL070250ISSB   | 463  |
| K05      | 247  | K38ERGO     | 228  | KL010160     | 484  | KL072180G      | 488  |
| K05BC    | 246  | K38ERGOSSET | 229  | KL010160IS   | 460  | KL072250       | 488  |
| K05D     | 247  | K39         | 227  | KL010160ISSB | 460  | KL072250G      | 488  |
| K05DSP   | 247  | K4          | 222  | KL010210     | 484  | KL072300G      | 488  |
| K05SP    | 247  | K400        | 520  | KL010210IS   | 460  | KL075250       | 488  |
| K06      | 249  | k400E       | 520  | KL010210ISSB | 460  | KL075250G      | 488  |
| K06BC    | 249  | K432        | 516  | KL020165     | 484  | KL078250G      | 488  |
| K06D     | 250  | K43290      | 516  | KL020165IS   | 460  | KL1000IS12     | 477  |
| K06DSP   | 250  | K432E       | 516  | KL020165ISSB | 460  | KL1000IS12NM25 | 476  |
| K06SP    | 249  | K432E2      | 516  | KL020180     | 484  | KL1000IS12NM27 | 476  |
| K07      | 244  | K432E3      | 516  | KL020180IS   | 460  | KL1000IS12NM50 | 476  |
| K07SP    | 244  | K44         | 516  | KL020180ISSB | 460  | KL1000IS38     | 477  |
| K08      | 248  | K46         | 222  | KL020205     | 484  | KL1000IS38NM25 | 476  |
| K08D     | 248  | K48         | 224  | KL020205IS   | 460  | KL1000IS38NM27 | 476  |
| K08DSP   | 248  | K5          | 243  | KL020205ISSB | 460  | KL1000IS38NM50 | 476  |
| K08SP    | 248  | K50         | 259  | KL026205     | 484  | KL10010030IS   | 464  |
| K09      | 251  | K507        | 258  | KL026205IS   | 460  | KL10010035     | 490  |
| K09bc    | 250  | K511        | 252  | KL030160     | 485  | KL10010035IS   | 464  |
| K09D     | 251  | K512        | 252  | KL035160     | 485  | KL10010040     | 490  |
| K09DSP   | 251  | K572        | 235  | KL040115EL   | 489  | KL10010040IS   | 464  |
| K09SP    | 251  | K582        | 236  | KL040115ELW  | 489  | KL10012555     | 490  |
| K1       | 224  | K592        | 236  | KL040128EL   | 489  | KL10012555IS   | 464  |
| K10      | 232  | K5SP        | 243  | KL040128ELH  | 489  | KL10015065     | 490  |
| K100     | 268  | K6          | 244  | KL040145     | 485  | KL10015065IS   | 464  |
| K1011    | 273  | K60         | 235  | KL040145IS   | 461  | KL10017580     | 490  |
| K1011E   | 273  | K610        | 475  | KL040145ISSB | 461  | KL10017580IS   | 464  |
| K1012    | 275  | K63         | 238  | KL040160     | 485  | KL1002555      | 492  |
| K1012E   | 275  | K64         | 238  | KL040160IS   | 461  | KL1007525      | 490  |
| K102     | 269  | K65         | 237  | KL040160ISSB | 461  | KL1007525IS    | 464  |
| K1031    | 270  | K67         | 237  | KL040180     | 485  | KL1008030      | 490  |
| K1041    | 271  | K68         | 239  | KL040180IS   | 461  | KL10510055     | 490  |
| K1051    | 274  | K6SP        | 244  | KL040180ISSB | 461  | KL10512565     | 490  |
| K1061    | 269  | K7          | 245  | KL042190IS   | 461  | KL10515080     | 490  |
| K1062    | 270  | K7SP        | 245  | KL042190ISSB | 461  | KL1100IS10     | 476  |
| K118     | 268  | K8          | 245  | KL044200IS   | 462  | KL1100IS11     | 476  |
| K13      | 240  | K80         | 233  | KL044200ISSB | 462  | KL1100IS12     | 476  |
| K130     | 271  | K81         | 233  | KL045180     | 486  | KL1100IS13     | 476  |
| K14      | 232  | K82A        | 234  | KL045180IS   | 462  | KL1100IS17     | 476  |
| K150     | 272  | K8SP        | 245  | KL045200     | 486  | KL1100IS19     | 476  |
| K16      | 234  | K907MCSet   | 255  | KL045200IS   | 486  | KL1100IS22     | 476  |
| K18      | 262  | K90MC32     | 253  | KL045200ISSB | 486  | KL1100IS6      | 476  |
| K2       | 241  | K90MC41     | 253  | KL045240IS   | 462  | KL1100IS7      | 476  |
| K2011    | 274  | K90MC42     | 254  | KL046200IS   | 462  | KL1100IS8      | 476  |
| K22      | 264  | K93         | 239  | KL046200ISSB | 462  | KL1102SPH1     | 492  |
| K230     | 272  | K94         | 240  | KL050115EL   | 489  | KL110PH1       | 491  |

| Part No.      | PAGE | Part No.    | PAGE | Part No.        | PAGE | Part No.   | PAGE |
|---------------|------|-------------|------|-----------------|------|------------|------|
| KL110PH1IS    | 464  | KL14070IS   | 465  | KL350           | 490  | KL602YELL  | 471  |
| KL110PH2      | 491  | KL14080IS   | 465  | KL361           | 497  | KL603      | 471  |
| KL110PH2IS    | 464  | KL145100IS  | 466  | KL365           | 500  | KL604      | 507  |
| KL110PH3      | 491  | KL145130IS  | 466  | KL370           | 497  | KL604S     | 507  |
| KL110PH3IS    | 464  | KL14555IS   | 466  | KL375           | 498  | KL60509    | 473  |
| KL1200IS1255  | 479  | KL14560IS   | 466  | KL380           | 496  | KL60510    | 473  |
| KL1200IS3855  | 479  | KL14570IS   | 466  | KL385           | 497  | KL60511    | 473  |
| KL120PZ1      | 491  | KL14580IS   | 466  | KL38715         | 498  | KL605U     | 473  |
| KL120PZ1IS    | 465  | KL150TR10   | 491  | KL38830         | 499  | KL620S1000 | 472  |
| KL120PZ2      | 491  | KL150TR15   | 491  | KL38954         | 499  | KL625A1000 | 472  |
| KL120PZ2IS    | 465  | KL150TR20   | 491  | KL390IS         | 469  | KL625A500  | 472  |
| KL120PZ3      | 491  | KL150TR25   | 491  | KL390TB9        | 470  | KL628      | 472  |
| KL120PZ3IS    | 465  | KL150TR30   | 491  | KL390TL         | 470  | KL640GK    | 474  |
| KL1210IS12PH2 | 479  | KL150TR40   | 491  | KL391IS         | 468  | KL642HK    | 474  |
| KL1210IS38PH2 | 479  | KL150TX10IS | 465  | KL392IS         | 468  | KL690130   | 474  |
| KL1230IS12PM1 | 479  | KL150TX15IS | 465  | KL393IS         | 468  | KL698      | 474  |
| KL1230IS12PM2 | 479  | KL150TX20IS | 465  | KL399IS         | 469  | KL710      | 521  |
| KL1230IS12PM3 | 479  | KL150TX25IS | 465  | KL400PH1170ISSB | 470  | KL720      | 523  |
| KL1230IS38PM1 | 479  | KL150TX30IS | 465  | KL400PH2170ISSB | 470  | KL730      | 521  |
| KL1230IS38PM2 | 479  | KL160KJ3    | 492  | KL400PM1170ISSB | 470  | KL735PV    | 521  |
| KL1230IS38PM3 | 479  | KL160KJ4    | 492  | KL400PM2170ISSB | 470  | KL740416   | 520  |
| KL1240IS1210  | 478  | KL160KJ5    | 492  | KL400PZ1170ISSB | 470  | KL740828   | 520  |
| KL1240IS1211  | 478  | KL160KJ6    | 492  | KL400PZ2170ISSB | 470  | KL745GK    | 520  |
| KL1240IS1212  | 478  | KL160KJ8    | 492  | KL400S35170ISSB | 470  | KL745HK    | 521  |
| KL1240IS1213  | 478  | KL19073IS   | 466  | KL400S40170ISSB | 470  | KL749ES    | 520  |
| KL1240IS1214  | 478  | KL2007335   | 493  | KL400S55170ISSB | 470  | KL760180   | 516  |
| KL1240IS1216  | 478  | KL2007340   | 493  | KL402           | 501  | KL760180IS | 464  |
| KL1240IS1217  | 478  | KL2007355   | 493  | KL403           | 501  | KL765FR215 | 517  |
| KL1240IS1219  | 478  | KL2007365   | 493  | KL420200        | 501  | KL765PV    | 517  |
| KL1240IS1222  | 478  | KL21073PH1  | 493  | KL425400        | 501  | KL850BS    | 508  |
| KL1240IS1224  | 478  | KL21073PH2  | 493  | KL425600        | 501  | KL850L     | 512  |
| KL1240IS1227  | 478  | KL22073PZ1  | 493  | KL440F          | 502  | KL860BM    | 508  |
| KL1240IS3810  | 478  | KL22073PZ2  | 493  | KL449           | 502  | KL860L     | 512  |
| KL1240IS3811  | 478  | KL23073PM1  | 494  | KL450           | 502  | KL870BL    | 509  |
| KL1240IS3812  | 478  | KL23073PM2  | 494  | KL451BLUE       | 502  | KL880B26IS | 480  |
| KL1240IS3813  | 478  | KL25073TX10 | 494  | KL451RED        | 502  | KL880L     | 480  |
| KL1240IS3814  | 478  | KL25073TX15 | 494  | KL500           | 503  | KL890TB88  | 510  |
| KL1240IS3817  | 478  | KL25073TX20 | 494  | KL505           | 503  | KL890TL    | 511  |
| KL1240IS3819  | 478  | KL25073TX25 | 494  | KL510           | 503  | KL905B15   | 511  |
| KL1260IS1214  | 478  | KL25073TX27 | 494  | KL515           | 503  | KL905L     | 512  |
| KL1260IS1215  | 478  | KL25073TX30 | 494  | KL520           | 503  | KL910L     | 513  |
| KL1260IS1216  | 478  | KL25073TX40 | 494  | KL540           | 505  | KL920L     | 512  |
| KL1260IS1218  | 478  | KL290       | 494  | KL542           | 506  | KL925L     | 512  |
| KL1260IS3814  | 478  | KL291       | 495  | KL542ES         | 506  | KL9300IS1  | 470  |
| KL1260IS3815  | 478  | KL295       | 495  | KL544           | 506  | KL9300IS10 | 470  |
| KL1260IS3816  | 478  | KL296       | 495  | KL544ES         | 506  | KL9300IS11 | 470  |
| KL1260IS3818  | 478  | KL301IS     | 470  | KL545           | 506  | KL9300IS12 | 470  |
| KL1290IS12125 | 477  | KL303       | 495  | KL550           | 505  | KL9300IS13 | 470  |
| KL1290IS12250 | 477  | KL303IS     | 466  | KL550ES         | 505  | KL9300IS14 | 470  |
| KL1290IS38125 | 477  | KL304       | 496  | KL550ES         | 505  | KL9300IS15 | 470  |
| KL1290IS38250 | 477  | KL304IS     | 467  | KL559           | 505  | KL9300IS3  | 470  |
| KL1299IS12    | 477  | KL305IS     | 467  | KL580300        | 504  | KL9300IS4  | 470  |
| KL1299IS38    | 477  | KL306IS     | 467  | KL580500        | 504  | KL9300IS5  | 470  |
| KL1300IS12B20 | 475  | KL310       | 496  | KL5821000       | 504  | KL9300IS6  | 470  |
| KL1300L       | 475  | KL315       | 496  | KL5821250       | 504  | KL9300IS7  | 470  |
| KL130PM1IS    | 465  | KL330       | 500  | KL584230        | 504  | KL9300IS8  | 470  |
| KL130PM2IS    | 465  | KL331       | 500  | KL585200        | 504  | KL9300IS9  | 470  |
| KL140100IS    | 465  | KL335       | 500  | KL585250        | 504  | KL93501    | 490  |
| KL14055IS     | 465  | KL340       | 500  | KL586           | 505  | KL93502    | 490  |
| KL14060IS     | 465  | KL345       | 500  | KL600           | 471  | KL93503    | 490  |

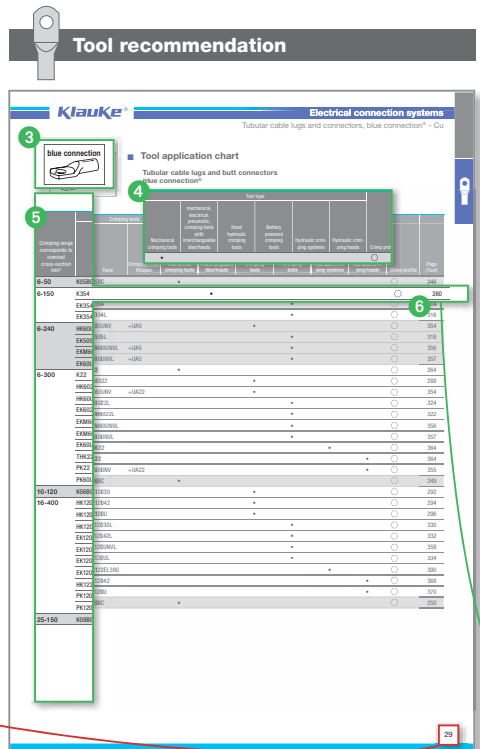
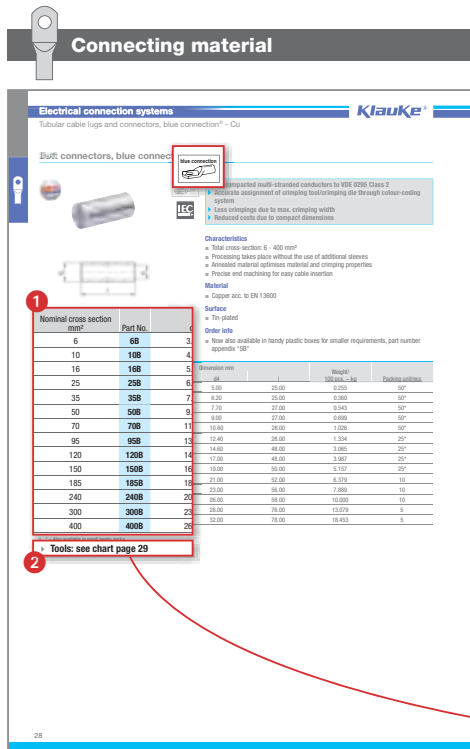
| Part No.   | PAGE | Part No.       | PAGE | Part No.  | PAGE | Part No. | PAGE |
|------------|------|----------------|------|-----------|------|----------|------|
| KLE3504    | 490  | KP82           | 256  | M22610    | 435  | MKCP1    | 216  |
| KLE3505    | 490  | KP83           | 256  | M50154    | 414  | MKSSG    | 216  |
| KLE3506    | 490  | KP90MC31       | 256  | M50610    | 414  | MKU      | 216  |
| KLE3507    | 490  | KPM15          | 282  | M610      | 428  | N2210    | 435  |
| KLE3601    | 497  | KPM15PRO       | 282  | MA120     | 428  | N2216    | 435  |
| KLE3602    | 497  | KPM15TH        | 282  | MA18      | 286  | N2225    | 435  |
| KLE3603    | 497  | KSK1503        | 147  | MA22      | 288  | N2235    | 435  |
| KLE3604    | 497  | KSK1504        | 148  | MA4       | 314  | N2250    | 435  |
| KLE3605    | 497  | KSK1854        | 148  | MA5       | 318  | NC100EP  | 657  |
| KLE3606    | 497  | KSK504         | 148  | MA50      | 308  | NG2115   | 399  |
| KLE3607    | 497  | KST2           | 403  | MAVP      | 326  | NG2230   | 399  |
| KLE387151  | 498  | KV10           | 43   | MC10      | 430  | PGA1     | 408  |
| KLE3871510 | 498  | KV120          | 43   | MC2210    | 439  | PHD2     | 381  |
| KLE3871511 | 498  | KV15           | 43   | MC2235    | 439  | pk1000   | 374  |
| KLE3871512 | 498  | KV150          | 43   | MC224     | 439  | PK12042  | 368  |
| KLE3871513 | 498  | KV16           | 43   | MC35      | 430  | PK120U   | 370  |
| KLE3871514 | 498  | KV185          | 43   | MC4       | 430  | PK18     | 362  |
| KLE387152  | 498  | KV2.5          | 43   | MCK1010   | 139  | PK22     | 364  |
| KLE387153  | 498  | KV240          | 43   | MCK1010BK | 139  | PK252    | 372  |
| KLE387155  | 498  | KV25           | 43   | MCK1016   | 139  | PK45     | 374  |
| KLE387156  | 498  | KV35           | 43   | MCK1016BK | 139  | PK60UNV  | 355  |
| KLE387157  | 498  | KV4            | 43   | MCK1025   | 139  | PK60VP   | 366  |
| KLE387158  | 498  | KV50           | 43   | MCK1025BK | 139  | PK60VPFT | 367  |
| KLE387159  | 498  | KV6            | 43   | MCK120120 | 140  | Q10      | 429  |
| KLE388301  | 499  | KV70           | 43   | MCK150150 | 140  | Q16      | 429  |
| KLE3883010 | 499  | KV95           | 43   | MCK185185 | 140  | Q2210    | 437  |
| KLE3883011 | 499  | LBOXX102LFG    | 199  | MCK2550   | 139  | Q2216    | 437  |
| KLE3883012 | 499  | LBOXX102LFG    | 211  | MCK2550BK | 139  | Q2225    | 437  |
| KLE3883013 | 499  | LBOXX136LFG    | 328  | MCK3535   | 139  | Q2235    | 437  |
| KLE3883014 | 499  | LBOXX136LFG    | 507  | MCK3535BK | 139  | Q2250    | 437  |
| KLE3883015 | 499  | LBOXX136LFG    | 507  | MCK3570   | 140  | Q2270    | 437  |
| KLE388302  | 499  | LBOXX230B      | 211  | MCK3570BK | 140  | Q25      | 429  |
| KLE388303  | 499  | LBOXX65B       | 199  | MCK3595   | 140  | Q35      | 429  |
| KLE388304  | 499  | LBOXX65BCB     | 199  | MCK44     | 139  | Q50      | 429  |
| KLE388305  | 499  | LBOXXEK354L    | 316  | MCK44BK   | 139  | Q501     | 414  |
| KLE388307  | 499  | LBOXXEK354L    | 316  | MCK5050   | 140  | Q5071    | 414  |
| KLE388308  | 499  | LBOXXEK505L    | 318  | MCK5050BK | 140  | Q70      | 429  |
| KLE389541  | 499  | LBOXXEK505L    | 318  | MCK7095   | 140  | R10      | 427  |
| KLE3895413 | 499  | LBOXXEKM6022L  | 322  | MK105L    | 140  | R120     | 427  |
| KLE389542  | 499  | LBOXXEKM6022L  | 322  | MK12025   | 140  | R150     | 427  |
| KMF1       | 403  | LBOXXEKM60UNVL | 356  | MK12042   | 140  | R16      | 427  |
| KP1        | 256  | LBOXXEKM60UNVL | 356  | MK120U    | 140  | R185     | 427  |
| KP1L       | 256  | LBOXXES32L     | 344  | MK18      | 215  | R2210    | 434  |
| KP232      | 256  | LBOXXES32L     | 344  | MK210B    | 209  | R22120   | 434  |
| KP242      | 256  | LBOXXKLB18     | 507  | MK210L    | 214  | R22150   | 434  |
| KP303      | 256  | LBOXXLS50LFLEX | 550  | MK22      | 216  | R2216    | 434  |
| KP304      | 256  | LG4F           | 399  | MK220B    | 210  | R22185   | 434  |
| KP312      | 256  | LG4FGL         | 399  | MK220L    | 214  | R22240   | 434  |
| KP350      | 256  | LG5            | 399  | MK230B    | 214  | R2225    | 434  |
| KP351      | 256  | LG6            | 400  | MK230B507 | 210  | R22300   | 434  |
| KP352      | 256  | LGL1           | 400  | MK230L    | 214  | R2235    | 434  |
| KP631      | 257  | LGL2           | 400  | MK50      | 214  | R2250    | 434  |
| KP632      | 281  | LGL3           | 401  | MK55      | 214  | R226     | 434  |
| KP64       | 257  | LGLM1          | 278  | MK6018    | 214  | R2270    | 434  |
| KP65       | 257  | LS50LFLEX      | 550  | MK6022    | 214  | R2295    | 434  |
| KP66       | 256  | LS60L          | 549  | MK60UNV   | 214  | R22SET   | 434  |
| KP67       | 257  | M154           | 428  | MK60VP    | 214  | R25      | 427  |
| KP68       | 257  | M16            | 428  | MK852     | 214  | R35      | 427  |
| KP80       | 256  | M22154         | 435  | MK852     | 303  | R50      | 427  |
| KP81       | 256  | M2216          | 435  | MKHSG55   | 302  | R501     | 414  |

| Part No.   | PAGE | Part No. | PAGE | Part No.   | PAGE | Part No.   | PAGE |
|------------|------|----------|------|------------|------|------------|------|
| R502       | 414  | RU3525   | 429  | SK45B      | 207  | ST1717IS   | 91   |
| R6         | 427  | RU5035   | 429  | SK47B      | 207  | ST1718     | 93   |
| R70        | 427  | RU7050   | 429  | SK4L       | 213  | ST1718IS   | 91   |
| R95        | 427  | RU9570   | 429  | SK50B      | 198  | ST1719     | 93   |
| RA5        | 397  | S18      | 432  | SK65B      | 198  | ST1719IS   | 91   |
| RAL1       | 398  | SAK10    | 137  | SK65L      | 215  | ST1720     | 93   |
| RAL2       | 398  | SAK11    | 137  | SK82P      | 212  | ST1720IS   | 91   |
| RAL3       | 398  | SAK12    | 137  | SK82S      | 212  | ST1721     | 93   |
| RAM2       | 397  | SAK13    | 137  | SKP1       | 257  | ST1721IS   | 91   |
| RAM3       | 397  | SAK14    | 137  | SKP6       | 258  | ST1722     | 93   |
| RAML1      | 278  | SAK15    | 137  | SKR1204    | 149  | ST1722IS   | 91   |
| RH12050    | 83   | SAK16    | 137  | SKR1501504 | 149  | ST1B       | 201  |
| RH12070    | 83   | SAK17    | 137  | SKR1503    | 149  | ST1L       | 201  |
| RH12095    | 83   | SAK18    | 137  | SKR1504    | 149  | ST21B      | 200  |
| RH150120   | 83   | SAK19    | 137  | SKR150504  | 149  | ST21L      | 200  |
| RH15070    | 83   | SAK20    | 137  | SKR1854    | 149  | ST221215   | 439  |
| RH15095    | 83   | SAK21    | 137  | SKV10      | 53   | ST2220     | 439  |
| RH185120   | 83   | SAK22    | 137  | SKV1525    | 53   | ST2246     | 439  |
| RH185150   | 83   | SAK23    | 137  | SKV16      | 53   | ST228      | 439  |
| RH18595    | 83   | SAK24    | 137  | SKV25      | 53   | ST22B      | 200  |
| RH240120   | 83   | SAK25    | 137  | SKV35      | 53   | ST22L      | 200  |
| RH240150   | 83   | SAK30    | 138  | SKV4       | 53   | ST23B      | 200  |
| RH240185   | 83   | SAK31    | 138  | SKV50      | 53   | ST23L      | 200  |
| RH2510     | 83   | SAK32    | 138  | SKV6       | 53   | ST2B       | 202  |
| RH2516     | 83   | SAK33    | 138  | SLSN34     | 546  | ST2L       | 202  |
| RH300150   | 83   | SAK34    | 138  | SLSNDS34   | 546  | ST31B      | 202  |
| RH300185   | 83   | SAK35    | 138  | SLSNN34    | 546  | ST31L      | 202  |
| RH300240   | 83   | SAK36    | 138  | SR106      | 51   | ST32B      | 203  |
| RH3510     | 83   | SAK37    | 138  | SR108      | 51   | ST32L      | 203  |
| RH3516     | 83   | SAK38    | 138  | SR166      | 51   | ST33B      | 204  |
| RH3525     | 83   | SAK39    | 138  | SR168      | 51   | ST33L      | 204  |
| RH400185   | 83   | SAK40    | 138  | SR256      | 51   | ST3B       | 203  |
| RH400240   | 83   | SAK41    | 138  | SR258      | 51   | ST3L       | 203  |
| RH400300   | 83   | SAK43    | 138  | SR3510     | 51   | ST5L       | 205  |
| RH5016     | 83   | SAK44    | 138  | SR356      | 51   | ST9698     | 163  |
| RH5025     | 83   | SAK45    | 138  | SR358      | 51   | ST9708     | 163  |
| RH5035     | 83   | SAK46    | 138  | SR5010     | 51   | ST9718     | 163  |
| RH7025     | 83   | SAK47    | 138  | SR506      | 51   | ST9728     | 163  |
| RH7035     | 83   | SB501    | 415  | SR508      | 51   | ST9738     | 163  |
| RH7050     | 83   | SDG105   | 378  | SR65       | 51   | STV10      | 52   |
| RH9535     | 83   | SDG45    | 375  | SR66       | 51   | STV1525    | 52   |
| RH9550     | 83   | SDG50    | 375  | SSG105     | 394  | STV16      | 52   |
| RH9570     | 83   | SDG55    | 376  | SSG65      | 394  | STV25      | 52   |
| RU10       | 429  | SDG852   | 377  | SSG852     | 394  | STV35      | 52   |
| RU12095    | 429  | SDK105   | 378  | SSGG105    | 394  | STV4       | 52   |
| RU150120   | 429  | SDK120   | 379  | SSGG85     | 394  | STV50      | 52   |
| RU16       | 429  | SDK65    | 376  | ST11B      | 201  | STV6       | 52   |
| RU185150   | 429  | SDK85    | 377  | ST11L      | 201  | SV10       | 52   |
| RU2210     | 437  | SH271    | 156  | ST12B      | 202  | SV100      | 141  |
| RU2212095  | 437  | SH272    | 156  | ST12L      | 202  | SV1525     | 52   |
| RU22150120 | 437  | SH273    | 156  | ST13B      | 203  | SV16       | 52   |
| RU2216     | 437  | SK120L   | 215  | ST13L      | 203  | SV200      | 141  |
| RU22185150 | 437  | SK303P   | 208  | ST15B      | 201  | SV200BK    | 141  |
| RU22240185 | 437  | SK303S   | 208  | ST15L      | 201  | SV25       | 52   |
| RU22300240 | 437  | SK30B    | 206  | ST1705     | 93   | SV300      | 142  |
| RU223525   | 437  | SK30L    | 213  | ST1710     | 93   | SV300V     | 142  |
| RU225035   | 437  | SK32B    | 206  | ST1715     | 93   | SV301      | 142  |
| RU227050   | 437  | SK32L    | 213  | ST1716     | 93   | SV301AK    | 142  |
| RU229570   | 437  | SK43L    | 213  | ST1716IS   | 91   | SV301AKV   | 142  |
| RU240185   | 429  | SK43NB   | 209  | ST1717     | 93   | SV301AKVVK | 142  |

| Part No.   | PAGE | Part No. | PAGE | Part No. | PAGE | Part No. | PAGE |
|------------|------|----------|------|----------|------|----------|------|
| SV301V     | 142  | TAS50    | 136  | UCM12    | 359  | VHR703   | 104  |
| SV302      | 142  | TAS6     | 136  | UCM5     | 359  | VHR704   | 105  |
| SV302AK    | 142  | TAS70    | 136  | UCM6     | 359  | VHR95    | 102  |
| SV302AKV   | 142  | TAS95    | 136  | UCM8     | 359  | VHR953   | 104  |
| SV302V     | 142  | TC1U     | 406  | UCN2980  | 359  | VHR954   | 105  |
| SV303      | 142  | TCUNI    | 406  | UCUNC12  | 359  | ZA10     | 431  |
| SV303AK    | 142  | TEKP1    | 281  | UCUNC14  | 359  | ZA16     | 431  |
| SV303AKNL  | 142  | TEKP1A50 | 281  | UCUNC38  | 359  | ZA2210   | 440  |
| SV303V     | 142  | TF130L   | 406  | UPD6     | 359  | ZA2216   | 440  |
| SV304AKNL  | 142  | TF70L    | 406  | VHD120   | 103  | ZA224    | 440  |
| SV304AKNLV | 142  | THK120   | 368  | VHD1203  | 104  | ZA226    | 440  |
| SV305      | 144  | THK18    | 362  | VHD1204  | 105  | ZA4      | 431  |
| SV305AK    | 144  | THK22    | 364  | VHD150   | 103  | ZA6      | 431  |
| SV305AKV   | 144  | TK95     | 243  | VHD1503  | 104  | ZAES10   | 432  |
| SV305V     | 144  | TP1000   | 406  | VHD1504  | 105  | ZAES16   | 432  |
| SV306      | 144  | TPC15    | 406  | VHD16    | 103  | ZAES2210 | 441  |
| SV306AK    | 144  | TS10B    | 290  | VHD185   | 103  | ZAES2216 | 441  |
| SV306AKV   | 144  | TS10B    | 291  | VHD1853  | 104  | ZAES224  | 441  |
| SV306V     | 144  | TS10B    | 326  | VHD1854  | 105  | ZAES226  | 441  |
| SV307AKNL  | 142  | TS10B    | 327  | VHD240   | 103  | ZAES4    | 432  |
| SV307V     | 142  | TT2      | 217  | VHD2403  | 104  | ZAES6    | 432  |
| SV308      | 142  | TT4      | 217  | VHD2404  | 105  | ZST3     | 402  |
| SV309      | 143  | TV10     | 42   | VHD25    | 103  | ZST4     | 402  |
| SV309AK    | 143  | TV120    | 42   | VHD300   | 103  |          |      |
| SV309AKV   | 143  | TV15     | 42   | VHD35    | 103  |          |      |
| SV309AKVVK | 143  | TV150    | 42   | VHD353   | 104  |          |      |
| SV309V     | 143  | TV16     | 42   | VHD354   | 105  |          |      |
| SV310      | 143  | TV185    | 42   | VHD400   | 103  |          |      |
| SV310AKV   | 143  | TV2.5    | 42   | VHD50    | 103  |          |      |
| SV310AKV   | 143  | TV240    | 42   | VHD503   | 104  |          |      |
| SV310V     | 143  | TV25     | 42   | VHD504   | 105  |          |      |
| SV311AKNL  | 143  | TV35     | 42   | VHD70    | 103  |          |      |
| SV312AKNL  | 143  | TV4      | 42   | VHD703   | 104  |          |      |
| SV312AKNLV | 143  | TV50     | 42   | VHD704   | 105  |          |      |
| SV315      | 143  | TV6      | 42   | VHD95    | 103  |          |      |
| SV315V     | 143  | TV70     | 42   | VHD953   | 104  |          |      |
| SV319AKNLV | 143  | TV95     | 42   | VHD954   | 105  |          |      |
| SV320      | 143  | TW150    | 401  | VHR120   | 102  |          |      |
| SV320V     | 143  | TW50     | 401  | VHR1203  | 104  |          |      |
| SV35       | 52   | TWEHP3   | 401  | VHR1204  | 105  |          |      |
| SV4        | 52   | UA12P    | 359  | VHR150   | 102  |          |      |
| SV400      | 145  | UA12TKL  | 359  | VHR1503  | 104  |          |      |
| SV405V     | 145  | UA18     | 359  | VHR1504  | 105  |          |      |
| SV410      | 145  | UA22     | 359  | VHR16    | 102  |          |      |
| SV410AK    | 145  | UA5      | 359  | VHR185   | 102  |          |      |
| SV420      | 145  | UA6P     | 359  | VHR1853  | 104  |          |      |
| SV420AK    | 145  | UAM      | 359  | VHR1854  | 105  |          |      |
| SV420V     | 145  | UC26     | 359  | VHR240   | 102  |          |      |
| SV430      | 146  | UC40     | 359  | VHR2403  | 104  |          |      |
| SV430AK    | 146  | UCAC107  | 359  | VHR2404  | 105  |          |      |
| SV440      | 146  | UCACSR   | 359  | VHR25    | 102  |          |      |
| SV440AK    | 146  | UCBC110  | 359  | VHR300   | 102  |          |      |
| SV440AKVK  | 146  | UCBC120  | 359  | VHR35    | 102  |          |      |
| SV50       | 52   | UCBC150  | 359  | VHR353   | 104  |          |      |
| SV6        | 52   | UCBC85   | 359  | VHR354   | 105  |          |      |
| T15        | 402  | UCD3215  | 359  | VHR400   | 102  |          |      |
| TAS10      | 136  | UCD3515  | 359  | VHR50    | 102  |          |      |
| TAS16      | 136  | UCD3575  | 359  | VHR503   | 104  |          |      |
| TAS25      | 136  | UCF      | 359  | VHR504   | 105  |          |      |
| TAS35      | 136  | UCM10    | 359  | VHR70    | 102  |          |      |

*Easier to find,*  
**what's needed.**

## A system from connecting material to tools.



- 1 Select connecting material.
- 2 Via cross-reference to the tool chart.
- 3 The pictogram of the connecting material refers to the appropriate tool chart with recommended tools.
- 4 Select the preferred tool type.
- 5 Pre-selection of suitable crimping tools considering crimping range and crimping profile.
- 6 Page number indicated refers to the crimping tools.

## Crimping tools

### Crimping and cutting tools

Mechanical crimping tools

K 35/4 Crimping tool for interchangeable dies

K 35/4 Crimping tool for interchangeable dies

| Klauke® Crimping and cutting tools                                                                  |                     |                    |               |          |  |
|-----------------------------------------------------------------------------------------------------|---------------------|--------------------|---------------|----------|--|
| Mechanical crimping tools                                                                           |                     |                    |               |          |  |
| Available dies for Series 4 for K 35/4                                                              |                     |                    |               |          |  |
| Available for                                                                                       | Connecting material | Crimping range mm² | Crimp profile | Part No. |  |
| Tubular cable lugs and connectors for compacted conductors acc. to VDE 0295, class 2                |                     |                    |               |          |  |
| Tubular cable lugs and connectors, Cu, standard type, tubular cable lugs for ring/cable connections |                     | 6 - 150            |               | 410      |  |
| Insulated tubular cable lugs and connectors, standard type, insulated pin terminals                 |                     | 10 - 70            |               | 417      |  |
| Tubular cable lugs and connectors for fine stranded conductors                                      |                     | 10 - 35            |               | 414      |  |
| Tubular cable lugs and compression joints for solid conductors                                      |                     | 1.5 - 16           |               | 411      |  |
| Tubular cable lugs and connectors, Ni, stainless steel                                              |                     |                    |               |          |  |
| Tubular cable lugs and connectors, stainless steel                                                  |                     | 0.5 - 16           |               | 412      |  |
| Tubular cable lugs and connectors, Ni                                                               |                     | 0.5 - 16           |               | 413      |  |
| Compression cable lugs and connectors acc. to DIN EN 40267, part 1 Cu                               |                     |                    |               |          |  |
| Compression cable lugs (DIN 40270) and connectors (DIN 40271)                                       |                     | 6 - 150            |               | 410      |  |
| Terminals, connectors and pin terminals acc. to DIN EN 40268                                        |                     |                    |               |          |  |
| Terminals (DIN 40268) and connectors (DIN 40269)                                                    |                     | 10 - 35            |               | 415      |  |
| Insulated pin terminals (DIN 40268) and connectors (DIN 40269)                                      |                     | 10 - 16            |               | 416      |  |
| Aluminum compression cable lugs and connectors                                                      |                     |                    |               |          |  |
| Aluminum compression cable lugs and connectors to DIN EN 40267, part 1 Cu                           |                     | 10 - 70            |               | 420      |  |
| Aluminum compression cable lugs and connectors to DIN EN 40267, part 1 Cu                           |                     | 25 - 50            |               | 421      |  |
| Aluminum/copper compression cable lugs and connectors                                               |                     |                    |               |          |  |
| Aluminum/copper compression cable lugs and connectors                                               |                     | 10 - 70            |               | 422      |  |
| Crimp and wire connectors                                                                           |                     |                    |               |          |  |
| Crimp, C type                                                                                       |                     | 4 - 38             |               | 423      |  |
| Cable end sleeves                                                                                   |                     |                    |               |          |  |
| Cable end sleeves                                                                                   |                     | 10 - 50            |               | 424      |  |
| Two cable end sleeves                                                                               |                     | 2 x 4 - 2 x 16     |               | 425      |  |
| Two cable end sleeves for fine stranded conductors                                                  |                     | 2 x 4 - 2 x 16     |               | 426      |  |
| Cable end sleeves for fine stranded conductors                                                      |                     | 2 x 4 - 2 x 16     |               | 427      |  |

Please observe the instructions in the technical data when crimping conductors.

## Crimping dies

### Crimping dies

Series 4

4 Klauke



Crimping dies, blue connection® HB 4



Accurate adjustment of crimping tool (crimping die) through colour-coding system

Suitable for: Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Crimp section mm² | Crimp width mm | Number of crimps |
|-------------------|----------------|------------------|
| 6                 | 9              | 1                |
| 10                | 9              | 1                |
| 16                | 9              | 1                |
| 25                | 9              | 1                |
| 35                | 9              | 1                |
| 50                | 9              | 1                |
| 70                | 5              | 2                |
| 95                | 5              | 2                |
| 120               | 5              | 2                |
| 150               | 5              | 2                |

Crimping die set 6 - 150 mm², blue connection®

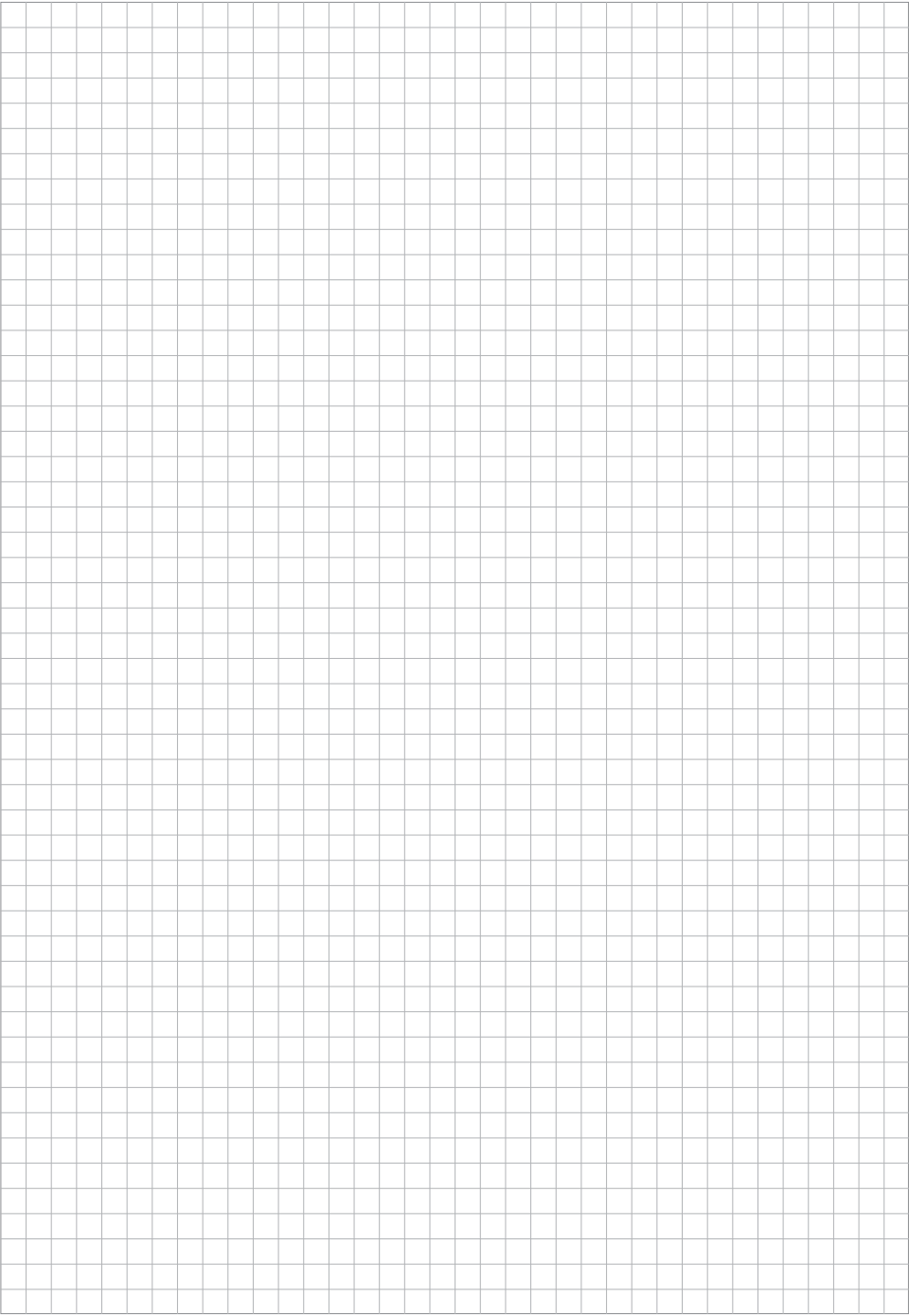


Suitable for: Tubular cable lugs and connectors, blue connection® for compacted conductors acc. to VDE 0295 Class 2

| Part No. |
|----------|
| HB401    |

- Select crimping tool.
- For tools with interchangeable dies, crimping dies are selected from the Available dies chart.
- From the chart, referring to the connecting material to be crimped, continue to the crimping dies via the page number indicated.

- Select the correct chart from pictograms for connecting material and crimp profile.
- In the chart, select the crimping die that matches the nominal cross section to be crimped.







## Connecting material

|  |                                                                |  |                                                                    |  |                                                         |  |                             |
|--|----------------------------------------------------------------|--|--------------------------------------------------------------------|--|---------------------------------------------------------|--|-----------------------------|
|  | Tubular cable lugs and connectors, blue connection – Cu        |  | Tubular cable lugs and connectors – Ni                             |  | Compression cable lugs and connectors for Aldrey cables |  | Twin cable end-sleeves      |
|  | Tubular cable lugs and connectors – Cu, standard design        |  | Compression cable lugs and connectors to DIN – Cu                  |  | Compression cable lugs and connectors for Al/St cables  |  | Insulated cable connections |
|  | Insulated tubular cable lugs and connectors; standard type     |  | Solderless terminals, connectors and pin terminals to DIN – Cu     |  | Compression cable lugs and connectors – Al/Cu           |  | Non-insulated receptacles   |
|  | Tubular cable lugs and connectors for fine stranded conductors |  | Insulated solderless terminals                                     |  | C-clamps                                                |  |                             |
|  | Tubular cable lugs and connectors for solid conductors         |  | Sleeves for compacted conductors and sector-shaped conductors – Cu |  | H-clamps                                                |  |                             |
|  | Tubular cable lugs and connectors – stainless steel            |  | Compression cable lugs and connectors to DIN – Al                  |  | Cable end-sleeves                                       |  |                             |

## Crimping profiles

|  |                                   |  |                            |  |                                        |  |                            |
|--|-----------------------------------|--|----------------------------|--|----------------------------------------|--|----------------------------|
|  | Hexagonal crimping                |  | Roll crimping              |  | Oval crimping                          |  | Quad-point indent crimping |
|  | Round crimping                    |  | Indent crimping            |  | Four point crimping                    |  | Trapezoid crimping         |
|  | Indent crimping tubular cable lug |  | Special trapezoid crimping |  | Indent crimping cable end-sleeves      |  |                            |
|  | Gas-tight oval crimping           |  | Square crimping            |  | Indent crimping compression cable lugs |  |                            |



## Crimping and cutting tools

|  |                           |  |                               |  |                                               |  |                                                    |
|--|---------------------------|--|-------------------------------|--|-----------------------------------------------|--|----------------------------------------------------|
|  | Crimping force            |  | 2-component plastic case      |  | Manual retraction stop                        |  | Energy saving function                             |
|  | Opening width, C-heads    |  | Rotating head                 |  | Manual retraction stop with teach-in function |  | Workplace illumination                             |
|  | Narrow crimping           |  | Two-stage hydraulics          |  | Electronic control                            |  | Audible error message/ Intelligent Pressing System |
|  | Wide crimping             |  | Quick stop                    |  | Maintenance indicator                         |  | Environmentally-friendly hydraulic oil             |
|  | Centering system          |  | Automatic retraction          |  | NiMH battery                                  |  | Easy handling / one-button operating concept       |
|  | Copper and aluminum cable |  | Manual retraction             |  | Li-ion battery                                |  | PowerSense technology                              |
|  | Al/St cables              |  | Automatic positioning control |  | Rated voltage                                 |  | Evaluation function via USB adapter                |



## Hand tools

|  |                    |  |                    |  |              |  |                         |
|--|--------------------|--|--------------------|--|--------------|--|-------------------------|
|  | Slot               |  | PZ (cross-slotted) |  | with chamfer |  | Triangle                |
|  | PH (cross-slotted) |  | Torx TR            |  | Groove       |  | Stepped external square |
|  | SQ                 |  | Plus-minus         |  | Clamp        |  | ESD                     |
|  | Torx Plus          |  | Two-way key bit    |  | Torx         |  |                         |
|  | Hexagon socket     |  | without chamfer    |  | Half-moon    |  |                         |

## Measuring instruments

|  |                      |  |                                      |
|--|----------------------|--|--------------------------------------|
|  | Measuring category 1 |  | TRUE RMS effective value measurement |
|  | Measuring category 2 |  | Lifetime Warranty                    |
|  | Measuring category 3 |  |                                      |
|  | Measuring category 4 |  |                                      |

## Test mark

|  |     |  |                             |
|--|-----|--|-----------------------------|
|  | VDE |  | DET NORSKE VERITAS          |
|  | IEC |  | Insulated acc. to IEC 60900 |
|  | CSA |  | CE                          |
|  | UL  |  | GS                          |
|  |     |  | Germanischer Lloyd          |



Strong brands for your success:

**Klauke®**



**Gustav Klauke GmbH**

Auf dem Knapp 46  
D-42855 Remscheid

Phone: +49 (0) 2191 / 907 - 0

Fax: +49 (0) 2191 / 907 - 205

email: [info@klauke.textron.com](mailto:info@klauke.textron.com)

Internet: [www.klauke.com](http://www.klauke.com)