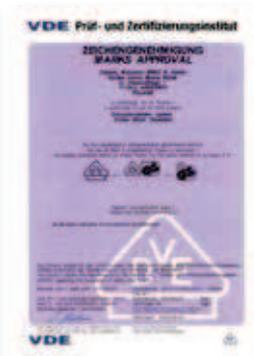


# ERKO®



2014 

# Certificates



# Zakłady Metalowe R. Pełlak spółka jawna Bracia Pełlak

# ERKO®

Our mission is to fulfill customers needs and expectations by providing high quality products and services. Informed and responsible team, focus on cooperation, ethics and law have been fundamental values of ERKO for over 30 years. These principles help us build long lasting, friendly relations with customers and lead to market success.

We constantly increase quality of products and services, also expanding our activities according to the philosophy of steady and stable development, achieved by improvement of employees qualifications. By that we assure the highest quality at the stage of design, technology, production, trade and services.

CEO

Piotr Pełlak



Headquarters in Jonkowo.



Production branch in Czeluźnica.

ERKO obtains AS 9100 quality certificate (for aviation production) and starts production of aviation engine parts.



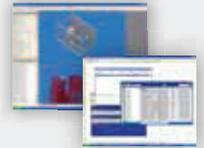
2011

Intensive company development partly using European Union funds. ERKO gains 'Leader of Innovation' title for Warmia and Mazury region.



2008

The introduction of ERP IT systems supporting business management.



2007

Purchase of CNC machines. ISO 14001, GOST-R, UkrSEPRO certificates obtained.



2003

Start of hydraulic tools production.



1997

ERKO obtains, first in Poland, PN-ISO 9001 certificate.



1994

Opening of a branch in Czeluźnica.



1987

Start of terminals and tools production for polish shipyards.



1986

The establishment of ERKO company.



1981

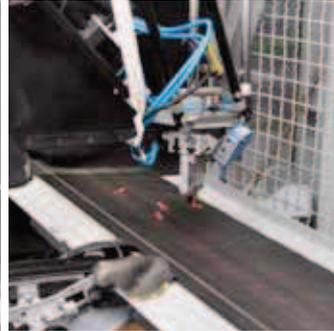
The founder's father – Piotr Pełlak opens smithy, where he teaches his sons to forge the metal.



1938

# The reliability of connections

Technical  
department  
Anything  
is possible



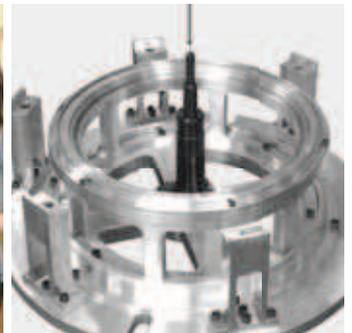
Production  
The highest  
quality and  
innovations



Customer  
service  
Competence



Logistics  
Always  
on time



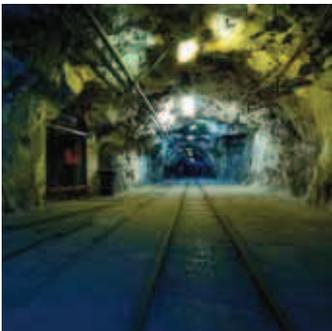
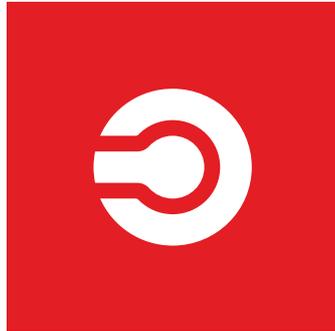
Service  
Fast and  
professional



Made in Poland



# Major business activities



| Symbol         | page          | Symbol   | page          | Symbol   | page | Symbol   | page          | Symbol  | page          |
|----------------|---------------|----------|---------------|----------|------|----------|---------------|---------|---------------|
| A 11-6         | 11            | GU 300   | 20            | KWE      | 66   | RC 100   | 25            | T 25-35 | 10            |
| A 22-2         | 11            | GU 625   | 21            | KWV      | 67   | RD 1     | 55            | T 50    | 10            |
| AE 22-05       | 11            | GW 2     | 40            | LK       | 98   | RD 2     | 55            | TA      | 68-69         |
| ACB            | 92            | GW       | 40            | MK       | 73   | RDO 1    | 55            | TC 6    | 10            |
| ACK            | 93            | GZ 300   | 17            | M KE     | 33   | RE 6     | 12            | TE      | 70            |
| ACK-F          | 97            | H 800    | <b>NEW</b> 52 | M KW     | 33   | RE 16    | 12            | TEL     | 98            |
| ACL            | 91-92         | HC 125   | 44            | M PBW    | 33   | RM 1     | 55            | TP      | 71            |
| ACL-F          | 97            | HD 160   | 50            | M TEL    | 33   | RM 2     | 55            | TPVC    | <b>NEW</b> 36 |
| ACP            | 93            | HD 163   | 50            | M TNO    | 33   | RT 1     | 55            | TS      | 73            |
| AE 22-05       | 11            | HD 164   | 50            | M TNOK   | 33   | RT 2     | 55            | TSE     | 72            |
| AH 200 RT      | 58            | HG 200   | <b>NEW</b> 49 | M UM     | 33   | RTC      | 35            | TV      | 71            |
| AH 300 R3      | 58            | HGD 102  | 44            | MS       | 72   | RTCK     | 35            | UA      | 18            |
| AH 300-R       | 58            | HGD 103  | 44            | MSE      | 72   | S 11-6   | 13            | UDF     | 20            |
| AH 300-RM      | 58            | HGD 104  | 44            | NI 28    | 31   | S 33-1   | 13            | UE      | 18            |
| AH 300-RD      | 58            | HGD 121  | 44            | NSE      | 31   | S 44-2   | 13            | UF      | 18            |
| AH 500         | 52            | HGD 125  | 44            | NOPK 4,8 | 34   | S 55     | 13            | UK      | 20            |
| AH 550         | 52            | HGP 5010 | 45            | OA       | 19   | SA       | 15            | UR      | 20            |
| ALC            | 88            | HR 100   | 18            | OE       | 19   | SC       | 98            | US 1    | 14            |
| ALD            | 88            | HR 300   | 19            | OF       | 19   | SD       | 15            | US 1-D  | 14            |
| ALD-F          | 97            | HRZ 300  | 16            | OK       | 19   | SE       | 15            | US 2    | 14            |
| ALD-S          | 97            | HSE 100  | 43            | OPK      | 34   | SH 400   | 46            | US 2-D  | 14            |
| ALG-F          | 97            | HSK 5010 | 45            | OR       | 19   | SH 403   | 47, 49        | US 3    | 14            |
| ALR            | 90            | KC 45    | 84            | OS       | 19   | SH 404   | 47, 49        | US 3-D  | 14            |
| ALR-F          | 97            | KC 90    | 85            | OT       | 19   | SH 600   | 46            | US 4    | 14            |
| ALS            | 89            | KCL      | 82            | P 1      | 15   | SH 800   | <b>NEW</b> 48 | USD     | 20            |
| ALS-F          | 97            | KCM-F    | 96            | PK 95    | 15   | SI 6     | 30            | USM     | 18            |
| AR             | 86            | KCR      | 83            | POK ZS   | 95   | SI 10    | 30            | UT      | 18            |
| AR-F           | 97            | KCR-F    | 96            | PP 8     | 21   | SI 10S   | 28            | UX      | 21            |
| ARC            | 87            | KCS      | 78-79         | PP 19    | 22   | SI 28    | 30            | UZS 1   | 95            |
| AS             | 87            | KCS 45   | 80            | PPH 11   | 22   | SIO 13   | 31            | WB 1    | 58            |
| AS-F           | 97            | KCS 90   | 81            | PPH 12   | 22   | SK       | 15            | WB 6    | 58            |
| D 11-6         | 12            | KET 2    | 98            | PPH 13   | 22   | SK 1     | 12            | WB 7    | 58            |
| DK             | <b>NEW</b> 36 | KLA      | 74            | PR 33    | 8    | SK 2N    | 12            | WH 100  | 40            |
| E 11-6         | 12            | KLB      | 77            | PR 50    | 14   | SKN      | 95            | WHP 1   | 40            |
| EGRM           | <b>NEW</b> 56 | KLD      | 78            | PR 50-D  | 14   | SKS      | 94            | WIK     | 32            |
| EGRT           | <b>NEW</b> 56 | KLE      | 75            | PR 95A   | 14   | SR 01    | 57            | WIP     | 32            |
| EL             | 98            | KLK      | 77            | PR 120   | 14   | SR 1     | 57            | WK      | 39            |
| EPZ 300        | 16            | KLN      | 82            | PR 120-D | 14   | SR 2     | 57            | WO      | 38            |
| EPZC 300       | <b>NEW</b> 16 | KLN-F    | 96            | PR 150   | 14   | ST       | 15            | WO-H    | 39            |
| ETA 66         | 11            | KLN-S    | 96            | PR 150-D | 14   | STL 200  | 29            | WO-K    | 38            |
| GC 100         | 26            | KLP-F    | 96            | PR 240   | 18   | STS 160  | 28            | WO-R    | 38            |
| GC 50          | 26            | KLR      | 76            | PRZ 240  | 17   | STSI 160 | 29            | WO-Z    | 38            |
| GC 100-H 800-E | <b>NEW</b> 26 | KLR-F    | 96            | R 01     | 55   | STW 160  | 29            | WO-Z4   | 38            |
| GC 50-H 800-E  | <b>NEW</b> 26 | KLS      | 76            | R 1      | 55   | SUN 160  | 28            | WON     | 39            |
| GL 6           | 43            | KLS-F    | 96            | R 1S     | 55   | SUN 180  | 28            | WP      | 39            |
| GLP            | 42            | KNA      | 64            | R 2      | 55   | SW 300   | 40            | ZA      | 17            |
| GLR 6          | 42            | KNE      | 65            | R 50     | 15   | SZN      | 94            | ZE      | 17            |
| GLS            | 42            | KNP      | 74            | RA 16    | 11   | SZS      | 94            | ZF      | 17            |
| GO 300         | 19            | KNV      | 65            | RC 15    | 24   | T 3      | 10            | ZS      | 17            |
| GR 1           | 57            | KOA      | 60-61         | RC 15S   | 24   | T 10     | 9             | ZSC     | <b>NEW</b> 17 |
| GRD 1          | 57            | KOE      | 62-63         | RC 20    | 24   | T 10-16V | 9             | ZT      | 17            |
| GRM 1          | 57            | KOP      | 73            | RC 27    | 24   | T 11-16  | 9             |         |               |
| GRT 1          | 57            | KOV      | 64            | RC 38    | 25   | T 16     | 10            |         |               |
| GU 120         | 18            | KWA      | 66            | RC 52    | 25   | T 22-6   | 9             |         |               |



Crimping tools

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Cutting tools

pages 24 - 26



Electricians tools and equipment

pages 28 - 36



Hole punching tools

pages 38 - 40



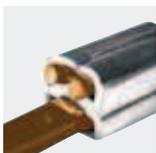
Busbar and mounting rail processing

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Hydraulic drives

page 52



SHARK® technology

pages 54 - 58



Cable terminals and connectors

pages 60 - 100





Single indent for copper terminals without insulation made according to DIN 46234 and pin terminals made according to DIN 46230 for wire of cross section of  $0,5 \div 120 \text{ mm}^2$ , and for copper tubular terminals for wire of cross section of  $0,5 \div 6 \text{ mm}^2$  (e.g. KOA, KWA, KLA).



Oval for copper ring terminals with polyamide insulation made according to DIN 46237 and DIN 46234, for copper pin terminals with polyamide insulation made according to DIN 46230 and DIN 46231 for wire of cross section of  $0,5 \div 120 \text{ mm}^2$  (e.g. KOE, KWE) and for insulated receptacles and tabs (MSE, TSE).



Trapezoidal for copper cable end-sleeves made according to DIN 46228 Part 1 and Part 4 and double copper cable end-sleeves for wire of cross section of  $0,5 \div 185 \text{ mm}^2$  (e.g. TA, TE, TV).



Square for copper cable end-sleeves made according to DIN 46228 Part 1 and Part 4 and double copper cable end-sleeves for wire of cross section of  $0,5 \div 10 \text{ mm}^2$  (e.g. TA, TE, TV).



Wrapped over wire conductor and insulation, for brass terminals made according to DIN 46247, DIN 46248 and DIN 46225 for wire of cross section of  $0,5 \div 6 \text{ mm}^2$  (e.g. MS, TS, KOP, KNP).



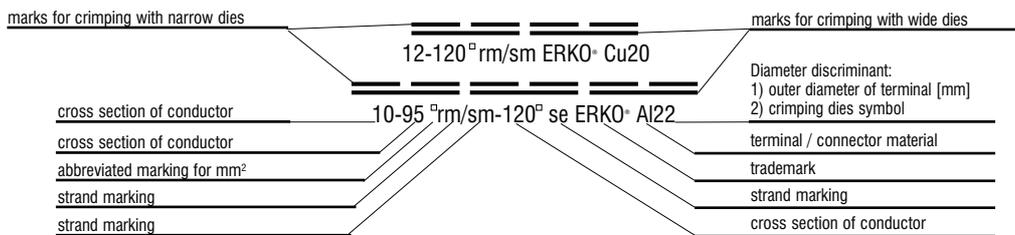
Round forming of aluminum sector conductors of cross section of  $25 \div 300 \text{ re}$ ,  $16 \div 240 \text{ rm}$  for aluminum terminals. re – singlestrand wire cross section in  $\text{mm}^2$ , rm – multistrand wire cross section in  $\text{mm}^2$



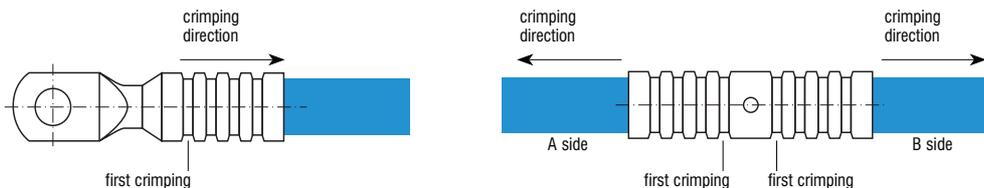
Hexagonal for copper and aluminum terminals and connectors for wire of cross section of  $6 \div 625 \text{ mm}^2$  (profile according to DIN 48083).

## Crimping of terminals and connectors:

1. Select terminal or connector appropriate for the wire (cross section, material, type of wire).
2. Determine proper form of crimping.
3. Strip the cable to the same length as tubular part of terminal.
4. Before crimping the wire must be cleaned of oxides and corrosive deposits.
5. Insert the wire to the end of tubular part of terminal or to connector narrowing.
6. Choose appropriate tool and dies (check last column of terminals sizes charts).
7. Keep crimping until dies clamp or overflow valve of hydraulic drive responds.
8. Crimping may be single (e.g. KOE, KOA) or multiple (e.g. KCR, KLA). Copper and aluminum tubular terminals made according to DIN have marks for crimping as shown below (fig.):



9. It is essential to keep the direction of crimping terminals and connectors as shown below (fig.):



## NOTE

Tools and terminals system provided by ERKO ensures high performance throughout the period of use. The use of third-party products (made in accordance with other standards) may cause much lower quality connections.

# Crimping tools



Hand presses

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Hydraulic presses and heads

pages 16 - 21

Pneumatic presses

pages 21- 22

## PR 33 Universal hand press



Universal hand press for terminals:

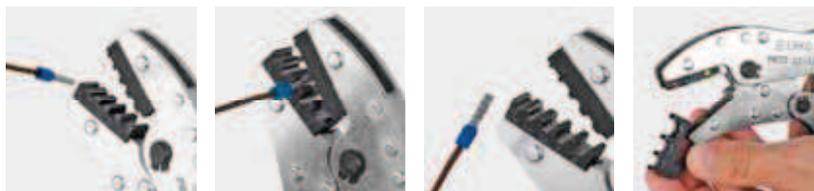
- with and without insulation of 0,5 ÷ 6 mm<sup>2</sup>
- cable end-sleeves of 0,5 ÷ 35 mm<sup>2</sup>

Features:

- easily exchangeable dies (see chart below)
- ratcheting mechanism controlling correct crimp
- high repetitiveness and precision of crimping
- two-component insulated grips
- selection of dies for individual needs
- available with sets of dies in functional case

Length: 220 mm; Weight (without dies): 0,5 kg

20% less effort while maintaining the same crimping force, thanks to a modified design.



## PR 33-Z5 set



PR 33-Z5 set (includes 5 sets of dies):



## Dies for PR 33 universal hand press

| Type of die | Terminal type | Description   | Cross section [mm <sup>2</sup> ] | Form of crimping |
|-------------|---------------|---|----------------------------------|------------------|
| PR_33-A6    |               | For all types of terminals and connectors without insulation (except cable end-sleeves, receptacles and tabs) | 0,5 ÷ 6                          |                  |
| PR_33-E6    |               | For all types of insulated terminals and connectors (except cable end-sleeves)                                | 0,5 ÷ 6                          |                  |
| PR_33-T6    |               | For cable end-sleeves with and without insulation   | 0,5 ÷ 6                          |                  |
| PR_33-T16   |               | For cable end-sleeves with and without insulation   | 6 ÷ 16                           |                  |
| PR_33-T35   |               | For cable end-sleeves with and without insulation   | 25 ÷ 35                          |                  |
| PR_33-S6    |               | For receptacles and tabs without insulation   | 0,5 ÷ 6                          |                  |

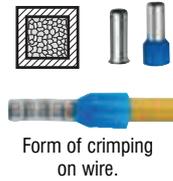
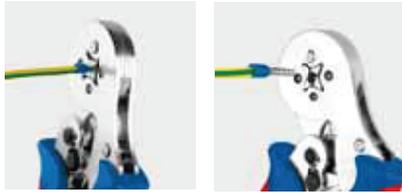
### T10 Hand press

Press for:

- cable end-sleeves without insulation (TA)
- cable end-sleeves with insulation (TE, TV)

Wire cross section of 0,5 ÷ 10 mm<sup>2</sup>.

Lenght: 180 mm; Weight: 0,42 kg



Innovative dies shape  
- Industrial design rights reserved.

### T 22-6 Hand press

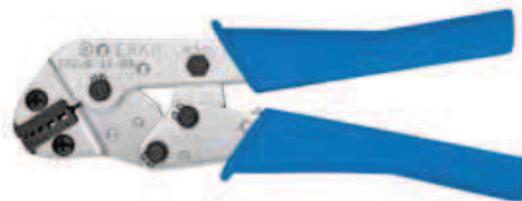
Press for:

- cable end-sleeves without insulation (TA)
- cable end-sleeves with insulation (TE, TV)

Wire cross section of 0,5 ÷ 6 mm<sup>2</sup>.

Lenght: 200 mm; Weight: 0,45 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 0,5 ÷ 0,75                       |                  |
| 2          | 1 ÷ 1,5                          |                  |
| 3          | 2,5                              |                  |
| 4          | 4                                |                  |
| 5          | 6                                |                  |



### T 11-16 Hand press

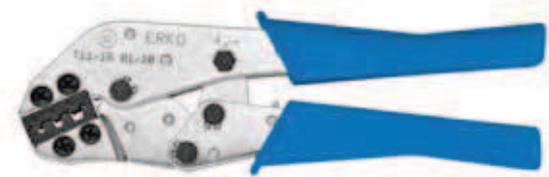
Press for:

- cable end-sleeves without insulation (TA)
- cable end-sleeves with insulation (TE, TV)

Wire cross section of 6 ÷ 16 mm<sup>2</sup>.

Lenght: 210 mm; Weight: 0,55 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 6                                |                  |
| 2          | 10                               |                  |
| 3          | 16                               |                  |



### T 10-16V Hand press

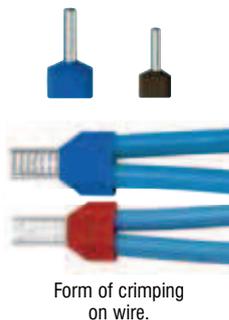
Press for:

- double cable end-sleeves with insulation (TV)

Wire cross section of 2x10 mm<sup>2</sup> and 2x16 mm<sup>2</sup>.

Lenght: 210 mm; Weight: 0,55 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 2x10                             |                  |
| 2          | 2x16                             |                  |



## T 25-35 Hand press



Press for:

- cable end-sleeves without insulation (TA)
  - cable end-sleeves with insulation (TE)
- Wire cross section of 25 ÷ 35 mm<sup>2</sup>.  
Lenght: 210 mm; Weight: 0,55 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 25                               |                  |
| 2          | 35                               |                  |



Form of crimping on wire.

## T 50 Hand press



Press for:

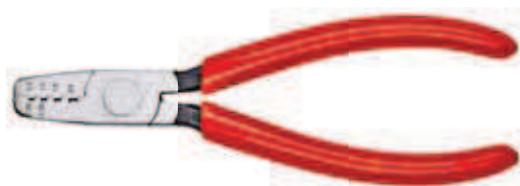
- cable end-sleeves without insulation (TA)
  - cable end-sleeves with insulation (TE)
- Wire cross section of 50 mm<sup>2</sup>.  
Lenght: 210 mm; Weight: 0,55 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 50                               |                  |



Form of crimping on wire.

## T 3 Crimping pliers



Pliers for:

- cable end-sleeves without insulation (TA)
  - cable end-sleeves with insulation (TE, TV)
  - single-component PCV insulation on grips
  - drop forged
- Wire cross section of 0,25 ÷ 2,5 mm<sup>2</sup>.  
Lenght: 150 mm; Weight: 140 g



Form of crimping on wire.

## TC 6 Front pliers



Pliers for:

- cable end-sleeves without insulation (TA)
  - cable end-sleeves with insulation (TE, TV)
  - single-component PCV insulation on grips
  - drop forged
- Wire cross section of 0,5 ÷ 6 mm<sup>2</sup>.  
Lenght: 180 mm; Weight: 235 g



Form of crimping on wire.



## T 16 Crimping pliers



Pliers for:

- cable end-sleeves without insulation (TA)
  - cable end-sleeves with insulation (TE, TV)
  - single-component PCV insulation on grips
  - drop forged
- Wire cross section of 0,25 ÷ 16 mm<sup>2</sup>.  
Lenght: 180 mm; Weight: 250 g



Form of crimping on wire.

## A 22-2 Hand press

Press for:

- ring terminals (KOA), spade terminals (KNA), pin terminals (KWA) without insulation
- tubular connectors without insulation (KLA)

Wire cross section of 0,5 ÷ 2,5 mm<sup>2</sup>.

**NOTE:** do not use for cable end-sleeves, receptacles and tabs.

Lenght: 200 mm; Weight: 0,45 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 0,5 ÷ 1                          |                  |
| 2          | 1,5 ÷ 2,5                        |                  |



Form of crimping on wire.



## A 11-6 Hand press

Press for:

- ring terminals (KOA), spade terminals (KNA), pin terminals (KWA) without insulation
- tubular connectors without insulation (KLA), tubular terminals (KCS of 2,5÷6 mm<sup>2</sup>)

Wire cross section of 0,5 ÷ 6 mm<sup>2</sup>.

Lenght: 210 mm; Weight: 0,55 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 0,5 ÷ 1                          |                  |
| 2          | 1,5 ÷ 2,5                        |                  |
| 3          | 4 ÷ 6                            |                  |



Form of crimping on wire.



## AE 22-05 Hand press

Press for:

- ring terminals with and without insulation (KOA, KOE)
- spade terminals with and without insulation (KNA, KNE)

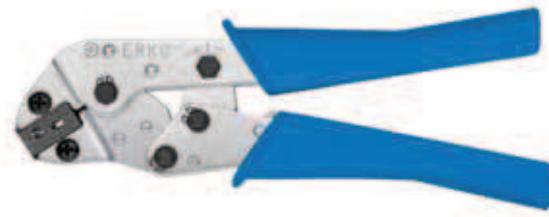
Wire cross section of 0,1 ÷ 0,5 mm<sup>2</sup>.

Lenght: 200 mm; Weight: 0,45 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | KOA, KNA 0,1 ÷ 0,5               |                  |
| 2          | KOE, KNE 0,1 ÷ 0,5               |                  |



Form of crimping on wire.



## ETA 66 Crimping pliers

Pliers for:

- ring terminals without insulation (KOA)
- spade terminals without insulation (KNA)
- pin terminals without insulation (KWA)

Wire cross section of 0,14 ÷ 6 mm<sup>2</sup>.

- cable end-sleeves with and without insulation (TA, TE, TV, TP)

Wire cross section of 0,75 ÷ 16 mm<sup>2</sup>.

**NOTE:** do not use for tubular terminals.

This is not a professional tool, not recommended for intensive work.

Lenght: 190 mm; Weight: 0,29 kg



Form of crimping on wire.



## RA 16 Hand press

Press for:

- ring terminals (KOA), spade terminals (KNA), pin terminals (KWA) without insulation
- tubular connectors (KLA), tubular terminals (KCS of 2,5÷6 mm<sup>2</sup>)

Wire cross section of 0,5 ÷ 16 mm<sup>2</sup>.

Lenght: 280 mm; Weight: 0,53 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 0,5 ÷ 1                          |                  |
| 2          | 1,5 ÷ 2,5                        |                  |
| 3          | 4 ÷ 6                            |                  |
| 4          | 10                               |                  |
| 5          | 16                               |                  |



Form of crimping on wire.



### E 11-6 Hand press



Press for:

- ring terminals (KOE, KOV), spade terminals (KNE, KNV), pin terminals (KWE, KWV with insulation)
- tubular connectors with insulation (KLE, KLK)

Wire cross section of 0,5 ÷ 6 mm<sup>2</sup>.  
Lenght: 210 mm; Weight: 0,55 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 0,5 ÷ 1                          |                  |
| 2          | 1,5 ÷ 2,5                        |                  |
| 3          | 4 ÷ 6                            |                  |



Form of crimping on wire.

### RE 6 Hand press



Press for:

- ring terminals (KOE, KOV), spade terminals (KNE, KNV), pin terminals (KWE, KWV) with insulation
- tubular connectors with insulation (KLE, KLK)
- receptacles and tabs with insulation (MSE, TSE)

Wire cross section of 0,5 ÷ 6 mm<sup>2</sup>.

NOTE: do not use for cable end-sleeves (TE, TV and TP)

Lenght: 280 mm; Weight: 0,53 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 0,5 ÷ 1                          |                  |
| 2          | 1,5 ÷ 2,5                        |                  |
| 3          | 4 ÷ 6                            |                  |



Form of crimping on wire.

### RE 16 Hand press



Press for:

- ring terminals (KOE, KOV), spade terminals (KNE, KNV), pin terminals (KWE, KWV) with insulation
- tubular connectors with insulation (KLE)

Wire cross section of 10 ÷ 16 mm<sup>2</sup>.

Lenght: 280 mm; Weight: 0,53 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 10                               |                  |
| 2          | 16                               |                  |



Form of crimping on wire.

### D 11-6 Hand press



Press for:

- tubular connectors without insulation (KLD)

Wire cross section of 1,5 ÷ 6 mm<sup>2</sup>.

Lenght: 210 mm; Weight: 0,55 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping |
|------------|----------------------------------|------------------|
| 1          | 1,5 ÷ 2,5                        |                  |
| 2          | 4                                |                  |
| 3          | 6                                |                  |



Form of crimping on wire.

### SK 1, SK 2N Hand press



Press for:

- angle terminals (MK)

Wire cross section of 0,5 ÷ 2,5 mm<sup>2</sup>.

NOTE: use for terminals made according to DIN 46346-B only.

Lenght: 200 mm; Weight: 0,45 kg

| Press | Cross section [mm <sup>2</sup> ] | Form of crimping |
|-------|----------------------------------|------------------|
| SK 1  | 0,5 ÷ 1,0                        |                  |
| SK 2N | 1,5 ÷ 2,5                        |                  |



Form of crimping on wire.

Crimping tools

Press for:

- receptacles and tabs without insulation (MS, TS)

Wire cross section of  $0,14 \div 1,0 \text{ mm}^2$ .

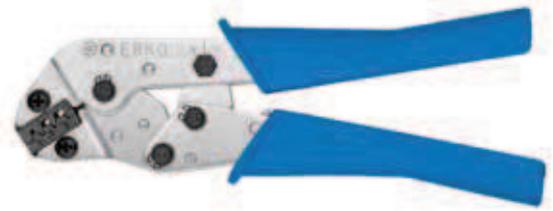
**NOTE:** use for terminals made according to DIN 46247 and DIN 46248 only

Length: 200 mm; Weight: 0,45 kg

| Socket no. | Cross section [mm <sup>2</sup> ] | Form of crimping  |
|------------|----------------------------------|---|
| 1          | $0,14 \div 0,25$                 |  |
| 2          | $0,25 \div 0,5$                  |   |
| 3          | MS 2,8-1                         |   |



Form of crimping on wire.



S 11-6 Hand press

Press for:

- receptacles and tabs without insulation (MS, TS)

Wire cross section of  $0,5 \div 6 \text{ mm}^2$ .

**NOTE:** use for terminals made according to DIN 46247 and DIN 46248 only

Length: 210 mm; Weight: 0,55 kg

| Socket no. | Use for terminals MS and TS | Form of crimping  |
|------------|-----------------------------|---|
| 1          | 6,3-1                       |  |
| 2          | 4,8-2; 6,3-2                |   |
| 3          | 6,3-6                       |   |



Form of crimping on wire.



S 44-2 Hand press

Press for:

- claw terminals (KOP, KNP)

Wire cross section of  $0,5 \div 2,5 \text{ mm}^2$ .

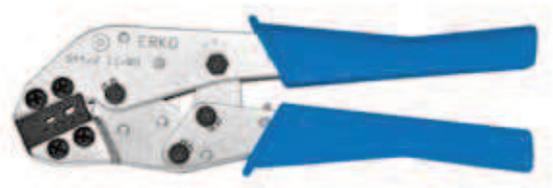
**NOTE:** use for terminals made according to DIN 46225 only

Length: 210 mm; Weight: 0,55 kg

| Socket no. | Use for terminals KOP and KNP | Form of crimping  |
|------------|-------------------------------|---|
| 1          | $0,5 \div 1,0$                |  |
| 2          | $1,5 \div 2,5$                |   |



Form of crimping on wire.



S 55 Crimping pliers

Pliers for:

- receptacles and tabs without insulation (MS, TS)

Wire cross section of  $0,5 \div 6 \text{ mm}^2$ .

Material thickness up to 0,45 mm.

**NOTE:** do not use for claw terminals (KOP, KNP – require separate crimping on wire and on insulation).

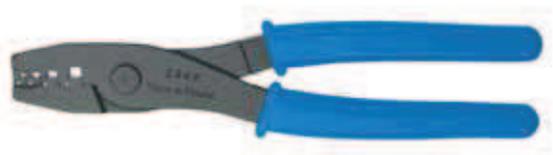
This is not a professional tool, not recommended for intensive work.

Length: 220 mm; Weight: 0,26 kg

| Socket No | Cross section [mm <sup>2</sup> ] crimping on |                | Form of crimping  |
|-----------|--|----------------|---|
|           | wire   | insulation     |   |
| 1         | $0,5 \div 1,0$                               |                |  |
| 2         | $1,5 \div 2,5$                               | $0,5 \div 1,0$ |   |
| 3         | $2,5 \div 6$                                 | $1,5 \div 2,5$ |   |
| 4         |  | $2,5 \div 6$   |   |



Form of crimping on wire.



## PR 50, PR 50D Hand press



Press for terminals and connectors:

- Cu tubular made outside DIN standard (KCS, KLA, KLR, KLS, KLB)
  - Cu tubular made according to DIN standard (KLN, KCL, KCR, KC)
  - Wire cross section of  $6 \div 50 \text{ mm}^2$ .
  - equipped with rotatable dies US1 or US1-D
- Length: 390 mm; Weight: 1,7 kg

| Type of die | Terminals and connectors | Description   | Form of crimping |
|-------------|--------------------------|---|------------------|
| US1         |                          | For Cu terminals and connectors made outside DIN standard (e.g. KCS) of $6 \div 50 \text{ mm}^2$ . Mark on die indicates Cu wire cross-section.                                     |                  |
| US1-D       |                          | For Cu terminals and connectors made according to DIN standard (e.g. KCR) of $6 \div 50 \text{ mm}^2$ . Discriminant on die indicates approximate outer diameter of terminal in mm. |                  |

## PR 120, PR 120D, PR 150, PR 150D Hand press



Press for terminals and connectors:

- Cu tubular made outside DIN standard (KCS, KLA, KLR, KLS, KLB)
  - Cu tubular made according to DIN standard (KLN, KCL, KCR, KC)
  - Wire cross section of  $10 \div 150 \text{ mm}^2$ .
  - equipped with rotatable dies US2, US2-D, US3 or US3-D
- Length: 650 mm; Weight: 4,3 kg

| Type of die | Terminals and connectors | Description  | Form of crimping |
|-------------|--------------------------|--|------------------|
| US2         |                          | For Cu terminals and connectors made outside DIN standard (e.g. KCS) of $25 \div 150 \text{ mm}^2$ . Marks on dies indicate Cu wire cross-section.                                     |                  |
| US2-D       |                          | For Cu terminals and connectors made according to DIN standard (e.g. KCR) of $25 \div 150 \text{ mm}^2$ . Discriminants on dies indicate approximate outer diameter of terminal in mm. |                  |
| US3         |                          | For Cu terminals and connectors made outside DIN standard (e.g. KCS) of $10 \div 120 \text{ mm}^2$ . Marks on dies indicate Cu wire cross-section.                                     |                  |
| US3-D       |                          | For Cu terminals and connectors made according to DIN standard (e.g. KCR) of $10 \div 120 \text{ mm}^2$ . Discriminants on dies indicate approximate outer diameter of terminal in mm. |                  |

## PR 95A Hand press



Press for terminals and connectors:

- Al tubular made outside DIN standard (ARC, ALC)
  - Al tubular made according to DIN standard (AR)
  - Wire cross section of  $16 \div 95 \text{ mm}^2$ .
  - equipped with rotatable dies US4
- Length: 650 mm; Weight: 4,3 kg

| Type of die | Terminals and connectors | Description   | Form of crimping |
|-------------|--------------------------|---|------------------|
| US4         |                          | For Al terminals and connectors of $16 \div 95 \text{ mm}^2$ . Discriminants on dies indicate approximate outer diameter of terminal in mm. |                  |

| Discriminant | Terminal according to DIN (e.g. AR) | ARC terminal | ARG terminal |
|--------------|-------------------------------------|--------------|--------------|
| 10           | –                                   | 25           | –            |
| 12           | 16; 25                              | 35           | 16           |
| 14           | 35                                  | 50           | 25           |
| 16           | 50                                  | 70           | 35           |
| 18           | 70                                  | 95           | 50           |
| 22           | 95                                  | –            | –            |

## R 50 Hand press

Press for terminals and connectors:

- without insulation (except cable end-sleeves) (SA dies) of 10 ÷ 50 mm<sup>2</sup>
- with insulation (except cable end-sleeves) (SE dies) of 10 ÷ 50 mm<sup>2</sup>
- cable end-sleeves with and without insulation (ST dies) of 25 ÷ 120 mm<sup>2</sup>
- Cu tubular on cable conductors (SD dies) of 6 ÷ 50 mm<sup>2</sup>
- Al tubular on cable conductors (SD dies) of 16 ÷ 50 mm<sup>2</sup>

Length: 575 mm; Weight: 2,7 kg



| Type of die | Terminals and connectors | Description   | Form of crimping |
|-------------|--------------------------|---|------------------|
| SA          |                          | For Cu ring terminals without insulation of 10 ÷ 50 mm <sup>2</sup> .                                   |                  |
| SE          |                          | For Cu terminals and connectors with insulation (except cable end-sleeves) of 10 ÷ 50 mm <sup>2</sup> . |                  |
| ST          |                          | For Cu cable end-sleeves with and without insulation of 25 ÷ 120 mm <sup>2</sup> .                      |                  |

| Type of die | Terminals and connectors | Description  | Form of crimping |
|-------------|--------------------------|--|------------------|
| SD          |                          | For Cu tubular terminals and connectors of 6÷50 mm <sup>2</sup> .  |                  |
|             |                          | For Al tubular terminals and connectors of 16÷50 mm <sup>2</sup> . |                  |

| Type of die | Discriminant | Terminals – cross section [mm <sup>2</sup> ] |                   |                |                                 |                                       |
|-------------|--------------|--|-------------------|----------------|---------------------------------|---------------------------------------|
|             |              | DIN Cu tubular                               | Others Cu tubular | DIN Al tubular | ARC, ALC Thin-walled Al tubular | ARG, ALG, AFG Thick-walled Al tubular |
| SD          | 6            | 10   | 6                 |                |                                 |                                       |
|             | 7            |  | 10                |                |                                 |                                       |
|             | 8            | 16   | 16                |                |                                 |                                       |
|             | 9            |  |                   |                | 16                              |                                       |
|             | 10           | 25   | 25                |                | 25                              |                                       |
|             | 12           | 35   | 35                | 16;25          | 35                              | 16                                    |
|             | 14           | 50   | 50                | 35             | 50                              | 25                                    |

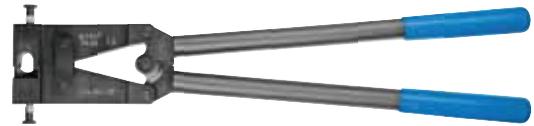
## PK 95 Crimper

Crimper for AL and AFL overhead line connectors (SK dies).

Cross section of 16 ÷ 95 mm<sup>2</sup>.

Length: 650 mm; Weight: 3,9 kg

| Type of die | AL connectors cross section | AFL connectors cross section |    |
|-------------|-----------------------------|------------------------------|----|
|             | SK 16                       | 16                           | –  |
|             | SK 25                       | 25                           | 16 |
|             | SK 35                       | 35                           | 25 |
|             | SK 50                       | 50                           | 35 |
|             | SK 70                       | 70                           | 50 |
|             | SK 95                       | 95                           | 70 |



Form of crimping

## P1 Seal press

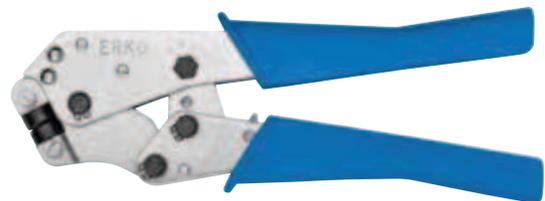
Seal press for plastic or lead seals. Without dies as standard.

Custom dies available on request.

Length: 210 mm; Weight: 0,55 kg

Type of dies:

- KPCD - concave mark on seal
- KPCF - convex mark on seal
- KPC - dies without mark



## EPZC 300 Battery powered hydraulic press



**NEW**



Battery powered hydraulic press for:

- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (ZSC dies) of 6 ÷ 300 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (ZSC dies) of 16 ÷ 240 mm<sup>2</sup>
- round forming Al sector conductors (ZF dies) of 16 ÷ 240 mm<sup>2</sup>

Special features:

- automatic off switch ending operation cycle after a proper crimping is complete – indicated by green LED, not accurate crimping cycle - indicated by red LED
- electronic record of operation cycle – data transfer via USB
- efficient lithium-ion battery
- automatic pressure control
- flip top, rotatable by 330° head

Crimping dies – see chart on page 17.

**NOTE:** for copper terminals over 120mm<sup>2</sup> use ZSC dies.

Weight: 3,8 kg (with battery); Force: 50kN

## EPZ 300 Battery powered hydraulic press



Battery powered hydraulic press for:

- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (ZS dies) of 6 ÷ 300 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (ZS dies) of 16 ÷ 240 mm<sup>2</sup>
- round forming Al sector conductors (ZF dies) of 16 ÷ 240 mm<sup>2</sup>

Special features:

- capacity of lithium-ion battery enables 250 crimping cycles
- crimping cycle of 3-6 seconds
- automatic retraction after crimping is complete
- flip top, rotatable by 270° head
- electronic control and record of crimping cycle accuracy
- battery level and periodic check-up indicator
- CD-ROM with instalation software included, enabling to read informations about number and accuracy of crimping cycles
- Mini-USB cable and software included

Crimping dies – see chart on page 17.

Weight: 4,2 kg (with battery); Force: 67kN

## HRZ 300 Hydraulic hand press



Hydraulic hand press for:

- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (ZS dies) of 6 ÷ 300 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (ZS dies) of 16 ÷ 240 mm<sup>2</sup>
- round forming Al sector conductors (ZF dies) of 16 ÷ 240 mm<sup>2</sup>
- flip top, rotatable by 180° head

Designed for electrical works of average intensity.

Crimping dies on page 17.

Dimensions: 129x69x410 mm; Weight (without dies): 4,5 kg; Force: 66,6 kN

Pressure: 530 bar

## GZ 300 Hydraulic head

Hydraulic head for:

- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (ZS dies) of 6 ÷ 300 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (ZS dies) of 16 ÷ 240 mm<sup>2</sup>
- round forming Al sector conductors (ZF dies) of 16 ÷ 240 mm<sup>2</sup>

Designed for electrical works of high intensity.

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.

Crimping dies – see chart below.

Dimensions: 129x69x235 mm; Weight (without dies): 2,6 kg; Force: 79,2 kN;

Pressure: 630 bar



## PRZ 240 Hand press

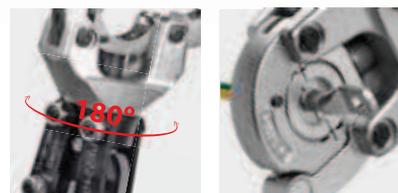
Press for:

- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (ZS dies) of 6 ÷ 185 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (ZS dies) of 16 ÷ 240 mm<sup>2</sup>

Designed for electrical works of low and average intensity.

Crimping dies – see chart below.

Dimensions: 751x153x60 mm; Weight (without dies): 5,2 kg



## Crimping dies for PRZ 240, HRZ 300, EPZ 300, EPZC 300 presses and GZ 300 head

| Type of die | Terminals and Connectors | Description   | Form of crimping |
|-------------|--------------------------|---|------------------|
| ZA          |                          | For Cu ring terminals without insulation of 10 ÷ 120 mm <sup>2</sup> .  |                  |
| ZE          |                          | For Cu terminals and connectors with insulation of 10 ÷ 120 mm <sup>2</sup> .   |                  |
| ZT          |                          | For Cu cable end-sleeves with and without insulation of 25 ÷ 185 mm <sup>2</sup> .  |                  |
| ZF          |                          | Round forming Al sector conductors of 16 ÷ 240 mm <sup>2</sup> .  |                  |
| ZS          |                          | For Cu tubular terminals and connectors of 6 ÷ 300 mm <sup>2</sup> .<br>For Al tubular terminals and connectors of 16 ÷ 240 mm <sup>2</sup> . |                  |

| Type of die | Discriminant | Terminals – cross section [mm <sup>2</sup> ] |                   |                |                                 |                                       |
|-------------|--------------|--|-------------------|----------------|---------------------------------|---------------------------------------|
|             |              | DIN Cu tubular                               | Others Cu tubular | DIN Al tubular | ARC, ALC Thin-walled Al tubular | ARG, ALG, AFG Thick-walled Al tubular |
| ZS          | 6            | 10   | 6                 |                |                                 |                                       |
|             | 7            |  | 10                |                |                                 |                                       |
|             | 8            | 16   |                   | 16             |                                 |                                       |
|             | 9            |  |                   |                | 16                              |                                       |
|             | 10           | 25   |                   | 25             |                                 | 25                                    |
|             | 12           | 35   |                   | 35             | 16;25                           | 35                                    |
|             | 14           | 50   |                   | 50             | 35                              | 25                                    |
|             | 16           | 70   |                   | 70             | 50                              | 35                                    |
|             | 18           | 95   |                   | 95             | 70                              | 50                                    |
|             | 19           |  |                   | 120            |                                 |                                       |
|             | 20           | 120  |                   |                |                                 | 120                                   |
|             | 22           | 150  |                   | 150            | 95;120                          | 150                                   |
|             | 23           |  |                   | 185            |                                 | 185                                   |
|             | 25           | 185  |                   | 240            | 150                             | 120                                   |
|             | 28           | 240  |                   |                | 185                             | 240                                   |
|             | 30           |  |                   | 300            |                                 | 185                                   |
|             | 32           | 300  |                   |                | 240                             |                                       |

Crimping width of the ZS die for copper and aluminum 7mm.

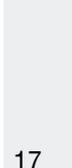
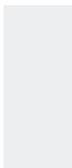
- Basic set ZS\_K8 for the terminals according to DIN - 12 sizes
- Full set ZS\_K-K7 - 17 sizes.

| Type of die       | Terminals and Connectors | Description   | Form of crimping |
|-------------------|--------------------------|---|------------------|
| ZSC only for EPZC |                          | For Cu tubular terminals and connectors of 6 ÷ 300 mm <sup>2</sup> .<br>For Al tubular terminals and connectors of 16 ÷ 240 mm <sup>2</sup> . |                  |

ZSC dies only for battery powered hydraulic press EPZC, for copper tubular terminals and connectors ≥ 120mm<sup>2</sup>.

| ZSC only for EPZC | Discriminant from 6 to 19 as in the chart above, from discriminant 20 the chart below |     |     |        |     |
|-------------------|---|-----|-----|--------|-----|
|                   | 20  | 120 | 150 | 95;120 | 150 |
|                   | 120   | 150 | 185 | 185    | 120 |
|                   | 150   | 240 | 150 | 240    | 150 |
|                   | 185   | 240 | 185 | 240    | 185 |
|                   | 240   | 300 | 240 |        | 185 |
|                   | 300   |     | 240 |        |     |

- Crimping width of the ZSC die for copper 5mm.
- Basic set ZSC\_K7 for the terminals according to DIN - 17 sizes
- Full set ZSC\_K-K14 - 24 sizes



## HR 100-U Hydraulic hand press



Hydraulic hand press for:

- ring terminals without insulation (UA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (UE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (UT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (USM dies) of 6 ÷ 120 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (USM dies) of 16 ÷ 120 mm<sup>2</sup>
- round forming Al sector conductors (UF dies) of 16 ÷ 120 mm<sup>2</sup>

Designed for electrical works of low and average intensity.

Crimping dies – see chart below.

Lenght: 375 mm; Weight: 3,4 kg; Force: 47 kN

## GU 120 Hydraulic head



Hydraulic head for:

- ring terminals without insulation (UA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (UE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (UT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (USM dies) of 6 ÷ 120 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (USM dies) of 16 ÷ 120 mm<sup>2</sup>
- round forming Al sector conductors (UF dies) of 16 ÷ 120 mm<sup>2</sup>

Designed for electrical works of high intensity.

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.

Crimping dies – see chart below.

Lenght: 205 mm; Weight (without dies): 1,85 kg; Force: 80 kN

## Crimping dies for HR 100-U press and GU 120 hydraulic head

| Type of die | Terminals and Connectors | Description  | Form of crimping |
|-------------|--------------------------|--|------------------|
| UA          |                          | For Cu ring terminals without insulation of 10 ÷ 120 mm <sup>2</sup> .             |                  |
| UE          |                          | For Cu terminals and connectors with insulation of 10 ÷ 120 mm <sup>2</sup> .      |                  |
| UT          |                          | For Cu cable end-sleeves with and without insulation of 25 ÷ 185 mm <sup>2</sup> . |                  |
| UF          |                          | Round forming Al sector conductors of 16 ÷ 120 mm <sup>2</sup> .                   |                  |

| Type of die | Terminals and Connectors | Description   | Form of crimping |
|-------------|--------------------------|---|------------------|
| USM         |                          | For Cu tubular terminals and connectors of 6 ÷ 120 mm <sup>2</sup> .<br>For Al tubular terminals and connectors of 16 ÷ 120 mm <sup>2</sup> . |                  |

| Type of die | Discriminant | Terminals – cross section [mm <sup>2</sup> ] |                   |                |                                 |                                       |
|-------------|--------------|--|-------------------|----------------|---------------------------------|---------------------------------------|
|             |              | DIN Cu tubular                               | Others Cu tubular | DIN Al tubular | ARC, ALC Thin-walled Al tubular | ARG, ALG, AFG Thick-walled Al tubular |
| USM         | 6            | 10   | 6                 |                |                                 |                                       |
|             | 7            |  | 10                |                |                                 |                                       |
|             | 8            | 16   | 16                |                |                                 |                                       |
|             | 9            |  |                   |                | 16                              |                                       |
|             | 10           | 25   | 25                |                | 25                              |                                       |
|             | 12           | 35   | 35                | 16;25          | 35                              | 16                                    |
|             | 14           | 50   | 50                | 35             | 50                              | 25                                    |
|             | 16           | 70   | 70                | 50             | 70                              | 35                                    |
|             | 18           | 95   | 95                | 70             | 95                              | 50                                    |
|             | 19           |  | 120               |                |                                 |                                       |
|             | 20           | 120  |                   |                | 120                             | 70                                    |

■ USM\_K8 basic set for the terminals according to DIN - 8 sizes

■ USM\_K-8 expanded set - 11 sizes

## PR 240 Hand press



Press for:

- ring terminals without insulation (OA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (OE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (OT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (OS dies) of 6 ÷ 185 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (OS dies) of 16 ÷ 240 mm<sup>2</sup>

Designed for electrical works of low and average intensity.

Crimping dies on page 19.

Lenght: 750 mm; Weight: 5,2 kg

## HR 300 Hydraulic hand press

Hydraulic hand press for:

- ring terminals without insulation (OA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (OE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (OT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (OS dies) of 6 ÷ 300 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (OS dies) of 16 ÷ 300 mm<sup>2</sup>
- round forming Al sector conductors (OF dies) of 16 ÷ 240 mm<sup>2</sup>
- flat forming Al sector conductors (OR dies) of 25 ÷ 120 mm<sup>2</sup>
- hole punching in Al sector conductors previously flat formed (OK dies)

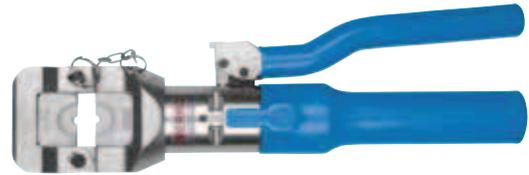
Designed for electrical works of low and average intensity.

Equipped with rotatable head. Efficient work – 2 hydraulic circuits.

Fast access (low pressure); working (high pressure).

Crimping dies – see chart below.

Length: 415 mm; Weight: 4,2 kg; Force: 98 kN



## GO 300 Hydraulic head

Hydraulic head for:

- ring terminals without insulation (OA dies) of 10 ÷ 120 mm<sup>2</sup>
- ring terminals with insulation (OE dies) of 10 ÷ 120 mm<sup>2</sup>
- cable end-sleeves with and without insulation (OT dies) of 25 ÷ 185 mm<sup>2</sup>
- Cu tubular terminals and connectors on cable conductors (OS dies) of 6 ÷ 300 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (OS dies) of 16 ÷ 300 mm<sup>2</sup>
- round forming Al sector conductors (OF dies) of 16 ÷ 240 mm<sup>2</sup>
- flat forming Al sector conductors (OR dies) of 25 ÷ 120 mm<sup>2</sup>
- hole punching in Al sector conductors previously flat formed (OK dies)
- hole punching in banding steel (OK dies)

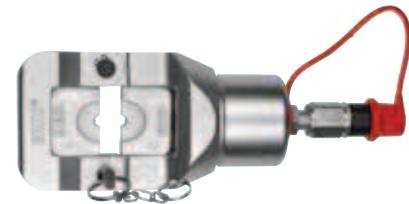
Designed for electrical works of average intensity.

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.

Crimping dies – see chart below.

Length: 250 mm; Weight (without dies): 2,5 kg; Force: 98 kN

Head mounting handle on request.



## Crimping dies for PR 240, HR 300 presses and GO 300 head

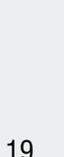
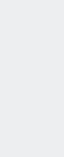
| Type of die | Terminals and Connectors | Description  | Form of crimping |
|-------------|--------------------------|--|------------------|
| OA          |                          | For Cu ring terminals without insulation of 10 ÷ 120 mm <sup>2</sup> .             |                  |
| OE          |                          | For Cu terminals and connectors with insulation of 10 ÷ 120 mm <sup>2</sup> .      |                  |
| OT          |                          | For Cu cable end-sleeves with and without insulation of 25 ÷ 185 mm <sup>2</sup> . |                  |
| OF          |                          | Round forming Al sector conductors of 16 ÷ 120 mm <sup>2</sup> .                   |                  |

| Type of die | Description   |
|-------------|---|
| OR          | For end forming Al sector conductors without use of terminals. Flat forms conductors of 25 ÷ 120 mm <sup>2</sup> . After flat forming, a hole should be punched using OK dies.  |
| OK          | For end forming Al sector conductors without use of terminals. Punches holes in previously flat formed, with OR dies, conductors, also punches holes in banding steel. <ul style="list-style-type: none"> <li>• cross section of reformed Al conductors: 25 ÷ 120 mm<sup>2</sup></li> <li>• max. dimensions of banding steel: 5x30 mm</li> <li>• standard dies:                             <ul style="list-style-type: none"> <li>OK 8,5 – Ø 8,5 mm</li> <li>OK 10,5 – Ø 10,5 mm</li> <li>OK 12,5 – Ø 12,5 mm</li> </ul> </li> </ul> Dies of different diameters up to Ø 12,5 mm on request. |

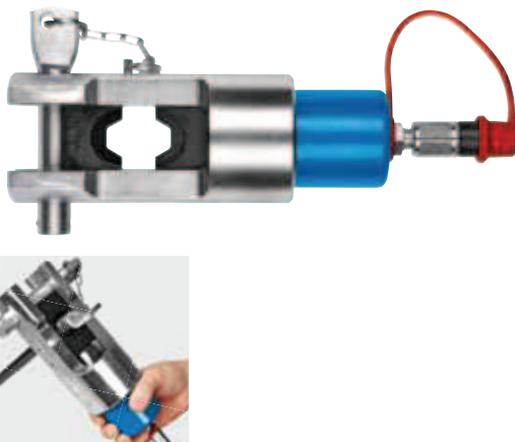
| Type of die | Terminals and Connectors | Description   | Form of crimping |
|-------------|--------------------------|---|------------------|
| OS          |                          | For Cu tubular terminals and connectors of 6 ÷ 300 mm <sup>2</sup> .<br>For Al tubular terminals and connectors of 16 ÷ 300 mm <sup>2</sup> . |                  |

| Type of die | Discriminant | Terminals – cross section [mm <sup>2</sup> ] |                   |                |                                 |                                       |
|-------------|--------------|--|-------------------|----------------|---------------------------------|---------------------------------------|
|             |              | DIN Cu tubular                               | Others Cu tubular | DIN Al tubular | ARC, ALC Thin-walled Al tubular | ARG, ALG, AFG Thick-walled Al tubular |
| OS          | 6            | 10   | 6                 |                |                                 |                                       |
|             | 7            |  | 10                |                |                                 |                                       |
|             | 8            | 16   | 16                |                |                                 |                                       |
|             | 9            |  |                   |                | 16                              |                                       |
|             | 10           | 25   | 25                |                | 25                              |                                       |
|             | 12           | 35   | 35                | 16;25          | 35                              | 16                                    |
|             | 14           | 50   | 50                | 35             | 50                              | 25                                    |
|             | 16           | 70   | 70                | 50             | 70                              | 35                                    |
|             | 18           | 95   | 95                | 70             | 95                              | 50                                    |
|             | 19           |  | 120               |                |                                 |                                       |
|             | 20           | 120  |                   |                | 120                             | 70                                    |
|             | 22           | 150  | 150               | 95; 120        | 150                             | 95                                    |
|             | 23           |  | 185               |                | 185                             |                                       |
|             | 25           | 185  | 240               | 150            |                                 | 120                                   |
|             | 28           | 240  |                   | 185            | 240                             | 150                                   |
|             | 30           |  | 300               |                |                                 | 185                                   |
|             | 32           | 300  |                   | 240            |                                 |                                       |
| 34          |              |  | 300               |                | 240                             |                                       |

- OS\_K8 basic set for the terminals according to DIN - 13 sizes
- OS\_K-7 expanded set - 18 sizes



## GU 300 Hydraulic head



Hydraulic head for:

- Cu tubular terminals and connectors on cable conductors (USD dies) of 6 ÷ 300 mm<sup>2</sup>
- Al tubular terminals and connectors on cable conductors (USD dies) of 16 ÷ 300 mm<sup>2</sup>
- round forming Al sector conductors (UDF dies) of 16 ÷ 240 mm<sup>2</sup>
- flat forming Al sector conductors (UR dies) of 25 ÷ 120 mm<sup>2</sup>
- hole punching in Al sector conductors previously flat formed (UK dies)
- hole punching in banding steel (UK dies)

Designed for electrical works of high intensity.

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.

Crimping dies – see chart below.

Length: 280 mm; Weight (without dies): 3,9 kg; Force: 112 kN

## Crimping dies for GU 300 head

| Type of die | Terminals and Connectors | Description  | Form of crimping |
|-------------|--------------------------|--|------------------|
| UDF         |                          | For round forming Al sector conductors of 16 ÷ 240 mm <sup>2</sup> .   |                  |
| UR          |                          | For end forming Al sector conductors without use of terminals. Flat forms conductors of 25 ÷ 120 mm <sup>2</sup> . After flat forming, a hole should be punched using UK dies.   |                  |
| UK          |                          | For end forming Al sector conductors without use of terminals. Punches holes in previously flat formed, with UR dies, conductors, also punches holes in banding steel.<br>• cross section of reformed Al conductors: 25 ÷ 120 mm <sup>2</sup><br>• max. dimensions of banding steel: 5x30 mm<br>• standard dies:<br>UK 8,5 – Ø 8,5 mm<br>UK 10,5 – Ø 10,5 mm<br>UK 12,5 – Ø 12,5 mm<br>Dies of different diameters up to Ø 12,5 mm on request. |                  |

| Type of die | Terminals and Connectors | Description   | Form of crimping |
|-------------|--------------------------|---|------------------|
| USD         |                          | For Cu tubular terminals and connectors of 6 ÷ 300 mm <sup>2</sup> .<br>For Al tubular terminals and connectors of 16 ÷ 300 mm <sup>2</sup> . |                  |

| Type of die | Discriminant | Terminals – cross section [mm <sup>2</sup> ] |                   |                |                                 |                                       |
|-------------|--------------|--|-------------------|----------------|---------------------------------|---------------------------------------|
|             |              | DIN Cu tubular                               | Others Cu tubular | DIN Al tubular | ARC, ALC Thin-walled Al tubular | ARG, ALG, AFG Thick-walled Al tubular |
| USD         | 6            | 10   | 6                 |                |                                 |                                       |
|             | 7            |  | 10                |                |                                 |                                       |
|             | 8            | 16   | 16                |                |                                 |                                       |
|             | 9            |  |                   |                | 16                              |                                       |
|             | 10           | 25   | 25                |                | 25                              |                                       |
|             | 12           | 35   | 35                | 16;25          | 35                              | 16                                    |
|             | 14           | 50   | 50                | 35             | 50                              | 25                                    |
|             | 16           | 70   | 70                | 50             | 70                              | 35                                    |
|             | 18           | 95   | 95                | 70             | 95                              | 50                                    |
|             | 19           |  | 120               |                |                                 |                                       |
|             | 20           | 120  |                   |                | 120                             | 70                                    |
|             | 22           | 150  | 150               | 95; 120        | 150                             | 95                                    |
|             | 23           |  | 185               |                | 185                             |                                       |
|             | 25           | 185  | 240               | 150            |                                 | 120                                   |
|             | 28           | 240  |                   | 185            | 240                             | 150                                   |
|             | 30           |  | 300               |                |                                 | 185                                   |
|             | 32           | 300  |                   | 240            |                                 |                                       |
|             | 34           |  |                   | 300            |                                 | 240                                   |

- USD\_K7 basic set for the terminals according to DIN - 13 sizes
- USD\_K-K17 expanded set - 18 sizes



## GU 625 Hydraulic head

Hydraulic head for:

- Cu and Al tubular terminals and connectors on cable conductors (UX dies) of 300 ÷ 625 mm<sup>2</sup>

Designed for electrical works of high intensity.

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.

Maximum outer diameter of terminal (connector): ø 52 mm.

Crimping dies – see chart below.

Length: 340 mm; Weight (without dies): 9,5 kg; Force: 190 kN



| Type of die   | Terminals and Connectors  | Description   | Form of crimping  |
|---|---|---|---|
|  |  | For tubular terminals and connectors of outer diameters up to 52 mm. Due to different wall thickness of terminals for given cable cross section (e.g. made according to DIN or PN norm) dies are marked with a discriminant. Its value reflects outer diameter of terminal in mm. |  |

| Dies discriminant - outer terminal diameter [mm] | Examples of terminals |
|--|-----------------------|
| 32   | KCR 300               |
| 34   | KCS 400               |
| 38   | KCR 400               |
| 42   | KCR 500               |
| 44   | KCR 625               |
| 52   | AR 625                |

## PP 8 Pneumatic press

Pneumatic press for:

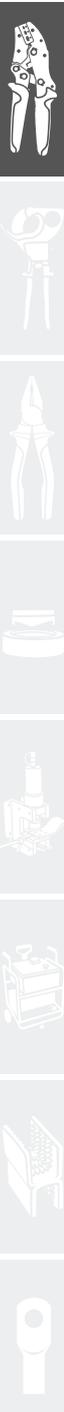
- ring, spade, pin tubular terminals, receptacles and tabs without insulation
- ring, spade, pin tubular terminals, receptacles and tabs with insulation
- cable end-sleeves without insulation
- cable end-sleeves with insulation

Wire cross section of 0,5 ÷ 25 mm<sup>2</sup>.

- works with PPH 11, PPH 12 and PPH 13 heads
- cutting Cu multistrand wires with PVC insulation up to 25 mm<sup>2</sup> (PPH 13 head)
- optionally equipped with SP1 crimps control system
- speed of 50 cycles/min (efficiency due to operator)

Crimping dies on page 22.

Power: compressed air 0,6 ÷ 0,8 MPa



## PP 19 Pneumatic press



Pneumatic press for:

- ring, spade, pin tubular terminals, receptacles and tabs without insulation
- ring, spade, pin tubular terminals, receptacles and tabs with insulation
- cable end-sleeves without insulation
- cable end-sleeves with insulation

Wire cross section of 0,5 ÷ 25 mm<sup>2</sup>.

- works with PPH 11, PPH 12 and PPH13 heads
- cutting Cu multistrand wires with PVC insulation up to 25 mm<sup>2</sup> (PPH 13 head)
- optionally equipped with SP1 crimps control system
- speed of 25 cycles/min (efficiency due to operator)

Crimping dies – see chart below.

Power: compressed air 0,6 ÷ 0,8 MPa

## SP 1 Steering system



Steering system for PP 8 and PP 19 pneumatic presses for control of crimping cycle accuracy.

Electrical power: 230V AC

Power: compressed air 0,5 ÷ 1,0 MPa

Steering: 24V DC (electric pedal)

## Heads for pneumatic presses

| Head type   | Type of die   | Terminals and connectors  | Cross section [mm <sup>2</sup> ] | Form of crimping  |
|---|---------------|---|----------------------------------|---|
|  PPH 11<br>equipped with dies<br>according to customer's<br>order (not recommended<br>for PP 19) | E 11-6-MZ     |  | 1 ÷ 6                            |  |
|   | A 11-6-MZ     |  | 1 ÷ 6                            |  |
|   | S 11-6-PP-8   |  | 0,75 ÷ 6                         |  |
|   | T 22-6-R11-MZ |   | 0,5 ÷ 6                          |   |
|   | T 11-16 MZ    |  | 6, 10, 16                        |  |
|   | T 25-35-MZ    |   | 25 and 35                        |   |
|   | T 50-MZ       |   | 50                               |   |
|   | S 44-2-MZ     |  | 0,5 ÷ 2,5                        |  |

| Head type   | Type of die | Terminals and connectors  | Cross section [mm <sup>2</sup> ] | Form of crimping  |
|---|-------------|---|----------------------------------|---|
|  PPH 12<br>equipped with dies according<br>to customer's order | SA          |  | 10 ÷ 25                          |  |
|   | SE          |  | 10 ÷ 25                          |  |
|   | ST          |  | 25 ÷ 50                          |  |
|   | SD          |  | 10 ÷ 25                          |  |

| Head type  | Description  |
|--|--|
|  PPH 13 | PPH 13 Cutting range up to 25 mm <sup>2</sup> of Cu multistrand wires. |

# Cutting tools



Cable shears pages 24 - 25

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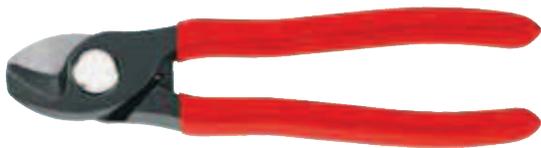
Hydraulic heads page 26

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Safety cable cutting set page 26

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## RC 15 Cable shears



Shears for cutting and stripping:

- Al and Cu single- and multistrand cables
- outer diameter up to 15 mm
- cross section up to 50 mm<sup>2</sup>

Special features:

- blades made of quality forged tool steel
- cutting without cable crushing or deformation

**NOTE:** do not use for steel reinforced, iron sheath reinforced or hard drawn copper wires.  
Length: 170 mm; Weight: 210 g

## RC 15 S Cable shears with spring



Shears for cutting and stripping:

- Al and Cu single- and multistrand cables
- outer diameter up to 15 mm
- cross section up to 50 mm<sup>2</sup>

Special features:

- blades made of quality forged tool steel
- special blades profile enables one-handed cutting
- cutting without cable crushing or deformation

**NOTE:** do not use for steel reinforced, iron sheath reinforced or hard drawn copper wires  
Length: 170 mm; Weight: 210 g



## RC 20 Cable shears



Shears for cutting and stripping:

- Al and Cu single- and multistrand cables
- outer diameter up to 20 mm
- cross section up to 70 mm<sup>2</sup>

Special features:

- blades made of quality forged tool steel
- twin blades for easier cutting of thick cables
- initial cut in outer cutting area, final cut in inner cutting area

**NOTE:** do not use for steel reinforced, iron sheath reinforced or hard drawn copper wires  
Length: 200 mm; Weight: 340 g



## RC 27 Cable shears



Shears for cutting and stripping:

- Al and Cu single- and multistrand cables
- outer diameter up to 27 mm
- cross section up to 150 mm<sup>2</sup>

Special features:

- low handforce required due to optimised blades geometry
- handles made of special aluminum tube

**NOTE:** do not use for steel reinforced or iron sheath reinforced wires.  
Length: 500 mm; Weight: 1,1 kg





## RC 38 Cable shears

Shears for cutting:

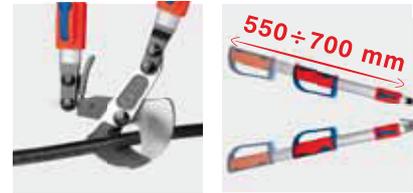
- adjustable angle of the arm enables optimal width handle adjustment, especially perfect to work in tight spaces
- Al and Cu single- and multistrand cables
- outer diameter of 28 ÷ 38 mm
- cross section up to 280 mm<sup>2</sup>

Special features:

- optimised blades geometry ensures high quality cutting
- telescopic aluminum handles of length 550 ÷ 700 mm
- ratcheting mechanism

**NOTE:** do not use for steel wires

Weight: 1,98 kg



## RC 52 Cable shears

Shears for cutting and stripping:

- Al and Cu single- and multistrand cables
- outer diameter up to 52 mm
- cross section up to 380 mm<sup>2</sup>

Special features:

- blades made of quality forged tool steel
- cutting cables of different diameters due to two step ratcheting mechanism, low handforce required
- can work in hard accessible places
- possibility of one-handed operation

**NOTE:** do not use for reinforced or steel wires

Length: 280 mm; Weight: 854 g



## RC 100 Cable shears

Shears for cutting and stripping:

- Al and Cu single- and multistrand cables
- outer diameter up to 100 mm
- cross section up to 960 mm<sup>2</sup>

Special features:

- blades made of quality forged tool steel
- cutting cables of different diameters due to two step ratcheting mechanism, low handforce required
- suitable for overhead lines and work in hard accessible places

**NOTE:** do not use for steel reinforced or steel wires, but can be used for cables with iron sheath reinforcement

Length: 720 mm; Weight: 5,64 kg



## GC 50 Hydraulic head



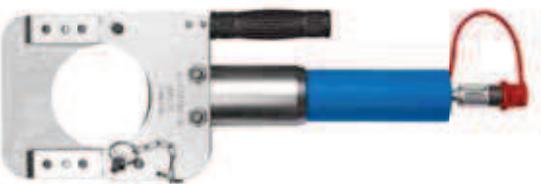
Hydraulic cutting head for:

- Al and Cu cables
  - outer diameter up to 50 mm
  - in case of steel reinforced wires (including AFL) maximum diameter is 30 mm
- Works with H 800 hydraulic pump and AH 550 electric hydraulic units.  
Lenght: 355 mm; Weight: 3,4 kg; Force: 80 kN



Example of a cut.

## GC 100 Hydraulic head



Hydraulic cutting head for:

- Al and Cu cables
- outer diameter up to 96 mm

**NOTE:** do not use for steel reinforced wires

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.  
Lenght: 455 mm; Weight: 7,0 kg; Force: 80 kN



Example of a cut.

## GC 50-H800-E, GC 100-H800-E Safety cable cutting set

**NEW**



Safety hydraulic cable cutting set for Al and Cu cables, when the voltage is impossible to determine. Equipped with hydraulic head, pump with manometer and automatic retraction, earthing wire, hydraulic hose (10 m). Maximum nominal tension – 60 kV. Supply of earthing rod on request (galvanized steel, Lenght: 0,82 m; ø 16 mm; Weight: 2,5 kg).

Technical data:

GC 50-H800-E

Maximum cable diameter - 50 mm, cables with or without iron sheath reinforcement. In case of steel reinforced wires, maximum diameter is 30 mm.

Pump weight: 8,4 kg; Head weight: 3,6 kg; Force: 80 kN

GC 100-H 800-E

Maximum cable diameter - 96 mm, cables with or without iron sheath reinforcement.

**NOTE:** do not use for steel reinforced wires.

Pump weight: 8,4 kg; Head weight: 7 kg; Force: 80 kN

The sets are attested, which is obligatory for them to be used by electricity distribution companies, power stations and factories as well as other companies producing, transmitting or using electricity.



earthing rod  
– on request

# Electricians tools and equipment



|                              |               |
|------------------------------|---------------|
| Cutting and stripping pliers | pages 28 - 29 |
| Insulation strippers         | pages 30 - 31 |
| Knives                       | page 31       |
| Screwdrivers                 | page 32       |
| Tool belts                   | page 33       |
| Tool bags                    | page 33       |
| Cable ties                   | page 34       |
| Heat shrinkable tubing       | page 35       |
| Cable glands                 | page 36       |
| Tapes                        | page 36       |

## SUN 160 Universal pliers



⚡ 1000 V  



Pliers for fitting works and cutting hard and very hard wire:

- medium hard wire diameter – 2,5 mm
- hard wire diameter – 1,8 mm
- Al and Cu cable diameter – 10,0 mm
- Al and Cu cable cross section – 16,0 mm<sup>2</sup>

Special features:

- blade hardness ca. 60 HRc
  - material: chromium-vanadium steel
  - long term use even for intensive work
  - non-sparking, anti-slip, two-component insulated grips with elastomer insert
- Lenght: 160 mm; Weight: 210 g

## SUN 180 Universal pliers



⚡ 1000 V  



Pliers for fitting works and cutting hard and very hard wire:

- medium hard wire diameter – 2,8 mm
- hard wire diameter – 2,5 mm

Special features:

- blade hardness ca. 60 HRc
  - material: chromium-vanadium steel
  - long term use even for intensive work
  - non-sparking, anti-slip, two-component insulated grips with elastomer insert
- Lenght: 180 mm; Weight: 265 g

## SI 10S Pliers



⚡ 1000 V  



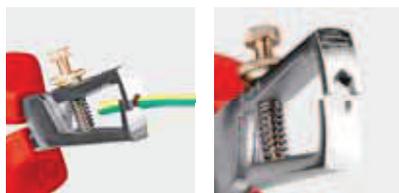
Pliers for stripping and cutting live wires up to 1000V:

- strips wires up to 10 mm<sup>2</sup>

Special features:

- easy adjustment
- non-sparking, anti-slip, two-component insulated grips with elastomer insert
- drop forged

Lenght: 160 mm; Weight: 165 g



## STS 160 Pliers



⚡ 1000 V  



Pliers for soft and hard wire cutting:

- soft wire diameter – 4 mm
- medium hard wire diameter – 2,8 mm
- hard wire diameter – 2 mm

Special features:

- blade hardness ca. 60 HRc
- material: chromium-vanadium steel
- long term use even for intensive work
- non-sparking, anti-slip, two-component insulated grips with elastomer insert

Lenght: 160 mm; Weight: 200 g



## STSI 160 Pliers

Pliers for soft wire cutting and stripping:

- soft wire diameter – 2 mm
- stripping diameters – 1,5 mm and 2,5 mm

Special features:

- blade hardness ca. 60 HRc
- material: chromium-vanadium steel
- long term use even for intensive work
- non-sparking, anti-slip, two-component insulated grips with elastomer insert.

Length: 160 mm; Weight: 220 g

⚡1000 V  



## STL 200 Pliers

Pliers for fitting works and cutting soft and medium hard wire:

- soft wire diameter – 2,8 mm
- medium hard wire diameter – 1,8 mm

Special features:

- blade hardness ca. 60 HRc
- semicircular long jaws
- across serrated contact surfaces
- material: chromium-vanadium steel
- long term use even for intensive work
- non-sparking, anti-slip, two-component insulated grips with elastomer insert

Length: 200 mm; Weight: 190 g

⚡1000 V   



## STW 160 Angled pliers

Multifunctional long pliers for electric works on live wires up to 1000V.

- soft wire diameter – 2,5 mm
- medium hard wire diameter – 1,6 mm

Special features:

- semicircular jaws
- wire cutting
- material: chromium-vanadium steel
- long term use even for intensive work
- non-sparking, anti-slip, two-component insulated grips with elastomer insert

Length: 160 mm; Weight: 145 g

⚡1000 V  



## SI 6 Insulation stripper



Stripper for stripping and cutting:

- single-, multi-, and thinstrand wires
- with plastic or rubber insulation
- wires cross section of  $0,2 \div 6 \text{ mm}^2$
- stripping length adjusted between 5 and 12 mm
- automatic blade force adjustment
- Cu and Al cable cutter up to  $2 \text{ mm}^2$
- stripping blades automatically adjust to cable thickness
- body made of fibreglass reinforced plastic

**NOTE:** do not use for steel wire  
Length: 200 mm; Weight: 125 g

## SI 10 Insulation stripper



Stripper for stripping and cutting:

- single-, multi-, and thinstrand wires
- with plastic or rubber insulation
- wires cross section of  $0,08 \div 10 \text{ mm}^2$
- for flat cables of width up to 10 mm
- stripping length adjusted between 3 and 18 mm
- automatic blade force adjustment
- Cu and Al cable cutter up to  $10 \text{ mm}^2$  (singlestrand wires – up to  $6 \text{ mm}^2$ )
- stripping blades automatically adjust to cable thickness
- exchangeable jaws and blades
- body made of fibreglass reinforced plastic

**NOTE:** do not use for steel wire  
Length: 195 mm; Weight: 210 g



## SI 28 Insulation stripper



Stripper for stripping all common round wires:

- cross section of  $4 \div 28 \text{ mm}^2$
- body made of impact-resistant plastic

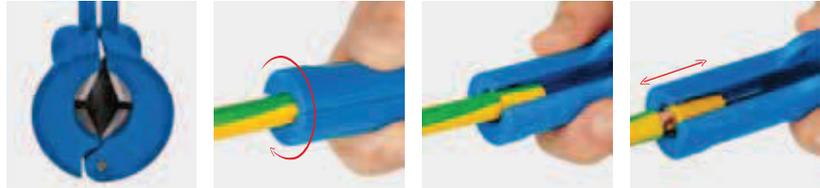




## SIO 13 Insulation stripper

Stripper for stripping outer insulation:

- cross section of  $8 \div 13 \text{ mm}^2$
- two-piece body made of fibreglass reinforced plastic
- opening spring and lock

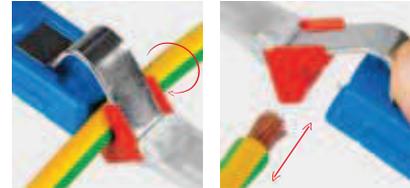


## NI 28 Cable stripping knife

Knife for stripping all common round wires:

- cross section of  $4 \div 28 \text{ mm}^2$
- body made of impact-resistant plastic
- spare blade inside handle

Length: 170 mm; Weight: 80g



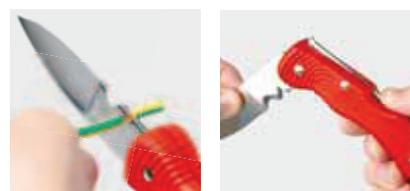
## NSE Electrician pocket knife

Knife for stripping wires:

- blade made of hardened stainless steel
- includes special blade for cutting and stripping
- lock-blade prevents accidental knife folding

Length: 195 mm; Weight: 50g

**NEW**



## WIP Insulated slotted screwdriver



⚡ 1000 V



Screwdriver for slotted screws. Shank: black, insulated. Blade: DIN 5264-A, blackened. Handle: two-component. Standard: DIN EN 60900



| Symbol      | Blade tip     |            | Shank length [mm] | Handle length [mm] |
|-------------|---------------|------------|-------------------|--------------------|
|             | Thicknes [mm] | Width [mm] |                   |                    |
| WIP 2,5-80  | 0,4           | 2,5        | 80                | 84                 |
| WIP 3,5-100 | 0,6           | 3,5        | 100               | 84                 |
| WIP 4,0-100 | 0,8           | 4,0        | 100               | 84                 |
| WIP 5,5-125 | 1,0           | 5,5        | 125               | 98                 |
| WIP 6,5-150 | 1,2           | 6,5        | 150               | 98                 |
| WIP 8,0-175 | 1,2           | 8,0        | 175               | 108                |

## WIK Insulated cross tip screwdriver



⚡ 1000 V   
 PH Phillips PZ Pozidriv



Screwdriver for Philips/Pozidriv cross head screws. Shank: black, insulated. Blade: DIN 5264-PH/PZ, ISO 8764-PH/PZ, blackened. Handle: two-component. Standard: DIN EN 60900



| Symbol      | Blade tip [mm] | Shank length [mm] | Handle length [mm] |
|-------------|----------------|-------------------|--------------------|
| WIK PH1-80  | PH1            | 80                | 84                 |
| WIK PH2-100 | PH2            | 100               | 98                 |
| WIK PZ1-80  | PZ1            | 80                | 84                 |
| WIK PZ2-100 | PZ2            | 100               | 98                 |

## Screwdrivers sets



⚡ 1000 V



### WIPPH\_K

- The set contains of 6 screwdrivers:  
 4 WIP slotted screwdrivers and 2 PH Phillips cross tip screwdrivers
- WIP 2,5-80 Insulated slotted screwdriver
  - WIP 3,5-100 Insulated slotted screwdriver
  - WIP 4,0-100 Insulated slotted screwdriver
  - WIP 5,5-125 Insulated slotted screwdriver
  - WIK PH1-80 Cross tip insulated screwdriver PH
  - WIK PH2-100 Cross tip insulated screwdriver PH

### WIPPP\_K

- This set contains 6 screwdrivers: 4 WIP slotted screwdrivers and 2 PZ Pozidriv cross tip screwdrivers
- WIP 2,5-80 Insulated slotted screwdriver
  - WIP 3,5-100 Insulated slotted screwdriver
  - WIP 4,0-100 Insulated slotted screwdriver
  - WIP 5,5-125 Insulated slotted screwdriver
  - WIK PZ1-80 Cross tip insulated screwdriver PZ
  - WIK PZ2-100 Cross tip insulated screwdriver PZ



## M PBW Reinforced tool belt

- personalized combination of tools
- includes black leather belt
- soft breathing material on inner side
- outer side made of polyester
- riveted construction

Length: 1380 mm

Completion according to order.



## M KW Driver holster

- made of polyester
- small pockets for screwdriver bits
- leather strap holds securely in place
- power cable holder
- riveted construction



## M TEL Phone case

- perfect phone protection during work
- velcro flap closure
- carabiner for hanging
- rubber pen holder on the side
- made of polyester



## M KE Tool pouch

- made of polyester
- compact compartment inside (sealed)
- metal holder on chain for insulation tape
- screwdrivers and leather knife holder
- riveted construction



## M UM Hammer loop

- made of polyester
- swinging loop enabling to hold the
- tool always in vertical position
- metal clips for easy lateral insert
- riveted construction



## M TNO Tool box

Tool box:

- made of high quality polyester
- easy access to compartments
- front pocket for documents
- adjustable detachable cushioned strap
- handle for carrying
- metal latches for easy opening and closing, with key
- riveted construction
- aluminum edge reinforcement protects against damage and deformation

Dimensions: (LxWxH): 500 x 250 x 250 mm

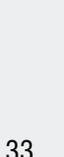
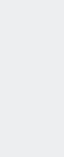


## M TNOK Open top tool bag

Open top tool bag:

- metal handle bar with foam grip for comfortable carrying
- regulated detachable cushioned strap
- multiple compartments outside and inside the bag
- reinforced bottom protecting tools
- detachable flap protecting bag inside

Dimensions: (LxWxH): 450 x 285 x 335 mm



## OPK Cable ties



Cable ties for:

- binding, fastening and organizing electronic cables
- secure fastening

Special features:

- material – polyamide 66
- natural colour - indoor use
- black colour - outdoor use (UV-resistant)
- green colour - outdoor use (long term UV-resistant)
- in conformity with EU standards



| Characteristics |  |               |
|-----------------|--|---------------|
| Physical        | Resistance to external factors   | Yes           |
|                 | Resistance to fire (use of classified materials UL94V2)                                | Yes           |
|                 | Humidity absorption at 50% UR air exposure   | 2,7%          |
| Thermal         | Usage temperature  | -40°C ÷ +85°C |
|                 | Fitting temperature  | -10°C ÷ +60°C |
|                 | Max momentary working temperature  | +110°C        |
|                 | Melting point  | +256°C        |
| Chemical        | Resistance to oils, fats, detergents, refinery products, chlorine solvents and alcohol | Yes           |
|                 | Resistance to phenol   | No            |

| Index for natural colour | Index for black colour | Index for green colour | Dimensions (L x W)<br>[mm] | Maximum bunch diameter | Tensile strength<br>[kg] |
|--------------------------|------------------------|------------------------|----------------------------|------------------------|--------------------------|
| OPK 2,4-80-N/100         | OPK 2,4-80-C/100       |                        | 80x2,4                     | 15                     | 8,0                      |
| OPK 2,5-100-N/100        | OPK 2,5-100-C/100      |                        | 100x2,5                    | 22                     | 8,1                      |
| OPK 2,5-140-N/100        | OPK 2,5-140-C/100      |                        | 140x2,5                    | 33                     | 8,1                      |
| OPK 2,5-160-N/100        | OPK 2,5-160-C/100      |                        | 160x2,5                    | 38                     | 8,1                      |
| OPK 2,5-200-N/100        | OPK 2,5-200-C/100      |                        | 200x2,5                    | 53                     | 8,1                      |
| OPK 3,6-140-N/100        | OPK 3,6-140-C/100      | OPK 3,6-140-UV/100     | 140x3,6                    | 33                     | 18,2                     |
| OPK 3,6-200-N/100        | OPK 3,6-200-C/100      |                        | 200x3,6                    | 53                     | 18,2                     |
| OPK 3,6-290-N/100        | OPK 3,6-290-C/100      |                        | 290x3,6                    | 76                     | 18,2                     |
| OPK 3,6-360-N/100        | OPK 3,6-360-C/100      |                        | 360x3,6                    | 102                    | 18,2                     |
| OPK 4,8-160-N/100        | OPK 4,8-160-C/100      |                        | 160x4,8                    | 38                     | 22,2                     |
| OPK 4,8-200-N/100        | OPK 4,8-200-C/100      | OPK 4,8-200-UV/100     | 200x4,8                    | 50                     | 22,2                     |
| OPK 4,8-250-N/100        | OPK 4,8-250-C/100      |                        | 250x4,8                    | 65                     | 22,2                     |
| OPK 4,8-290-N/100        | OPK 4,8-290-C/100      |                        | 290x4,8                    | 76                     | 22,2                     |
| OPK 4,8-360-N/100        | OPK 4,8-360-C/100      |                        | 360x4,8                    | 102                    | 22,2                     |
| OPK 4,8-430-N/100        | OPK 4,8-430-C/100      |                        | 430x4,8                    | 110                    | 25,8                     |
| OPK 4,8-530-N/100        | OPK 4,8-530-C/100      |                        | 530x4,8                    | 140                    | 25,8                     |
| OPK 7,6-200-N/100        | OPK 7,6-200-C/100      |                        | 200x7,6                    | 50                     | 54,4                     |
| OPK 7,6-250-N/100        | OPK 7,6-250-C/100      | OPK 7,6-250-UV/100     | 250x7,6                    | 65                     | 54,4                     |
| OPK 7,6-290-N/100        | OPK 7,6-290-C/100      |                        | 290x7,6                    | 76                     | 54,4                     |
| OPK 7,6-360-N/100        | OPK 7,6-360-C/100      |                        | 360x7,6                    | 102                    | 54,4                     |
| OPK 7,6-450-N/100        | OPK 7,6-450-C/100      |                        | 450x7,6                    | 132                    | 54,4                     |
| OPK 7,6-540-N/100        | OPK 7,6-540-C/100      |                        | 540x7,6                    | 140                    | 54,4                     |
| OPK 9,0-530-N/100        | OPK 9,0-530-C/100      |                        | 530x9,0                    | 140                    | 79,8                     |
| OPK 9,0-780-N/100        | OPK 9,0-780-C/100      |                        | 780x9,0                    | 228                    | 79,8                     |

## NOPK 4,8 Tool



Automatic tool for tightening and cutting cable tie in one step:

- for cable ties of width 2,2 – 4,8 mm
- made of varnished steel

Length: 160 mm; Weight: 350 g



## RTC Thin wall heat shrinkable tubing

Heat shrinkable tubing with glue for insulation, protection against mechanical damage and also cables and wires identification:

- diameter decreases while shrinking so tubing seals applied elements
- weather conditions resistant
- protection against moisture
- fungi, chemicals and corrosion resistant
- self-extinguishing according to UL 94-HB standard
- products are compliant with REACH & RoHS directives
- free from halogen compounds



| Symbol             | Colour       | Min. Ø before shrinking [mm] | Max. Ø after shrinking [mm] | Wall thickness after shrinking [mm] | Number of pieces per unit [1 piece = 1m] |
|--------------------|--------------|------------------------------|-----------------------------|-------------------------------------|--|
| RTC 1,6-0,8-C/1    | black        | 1,60                         | 0,80                        | 0,43                                | 100                                      |
| RTC 1,6-0,8-M/1    | mix*         |                              |                             |                                     |  |
| RTC 3,2-1,6-C/1    | black        | 3,20                         | 1,60                        | 0,51                                | 100                                      |
| RTC 3,2-1,6-M/1    | mix*         |                              |                             |                                     |  |
| RTC 3,2-1,6-ZZT/1  | green-yellow |                              |                             |                                     |  |
| RTC 4,8-2,4-C/1    | black        | 4,80                         | 2,40                        | 0,51                                | 40                                       |
| RTC 4,8-2,4-M/1    | mix*         |                              |                             |                                     |  |
| RTC 6,4-3,2-C/1    | black        | 6,40                         | 3,20                        | 0,65                                | 40                                       |
| RTC 6,4-3,2-M/1    | mix*         |                              |                             |                                     |  |
| RTC 6,4-3,2-ZZT/1  | green-yellow |                              |                             |                                     |  |
| RTC 9,5-4,8-C/1    | black        | 9,50                         | 4,80                        | 0,65                                | 20                                       |
| RTC 9,5-4,8-M/1    | mix*         |                              |                             |                                     |  |
| RTC 9,5-4,8-ZZT/1  | green-yellow |                              |                             |                                     |  |
| RTC 12,7-6,4-C/1   | black        | 12,7                         | 6,40                        | 0,65                                | 20                                       |
| RTC 12,7-6,4-M/1   | mix*         |                              |                             |                                     |  |
| RTC 12,7-6,4-ZZT/1 | green-yellow |                              |                             |                                     |  |
| RTC 19,1-9,5-C/1   | black        | 19,1                         | 9,50                        | 0,77                                | 10                                       |
| RTC 19,1-9,5-M/1   | mix*         |                              |                             |                                     |  |
| RTC 25,4-12,7-C/1  | black        | 25,4                         | 12,7                        | 0,89                                | 10                                       |
| RTC 25,4-12,7-M/1  | mix*         |                              |                             |                                     |  |

\* - contains colours: red, blue, white and yellow

| Characteristics |   |   |
|-----------------|---|---|
| Physical        | Tensile strength                        | 10 N/mm <sup>2</sup>                      |
|                 | Extension at rupture                    | 200%                                      |
|                 | Length change                           | ± +5%, ≤ -10%                             |
|                 | Water soaking                           | < 0,5%                                    |
|                 | Density                                 | 1.20 g/cm <sup>3</sup>                    |
| Thermal         | Constant working temperature            | -30°C do +105°C                           |
|                 | Minimum shrinking temperature           | > 90°C                                    |
|                 | Thermal shock (4 hours in 250°C)        | doesn't drip, doesn't break, doesn't melt |
|                 | Thermal ageing (168 hours in 175°C)     | extension 100%                            |
| Electrical      | Flexibility at low temperatures (-55°C) | doesn't break                             |
|                 | Storing temperature                     | recommended ≤ 40°C                        |
|                 | Wytrzymałość dielektryczna              | 20 kV/m                                   |



## RTCK Thin wall heat shrinkable tubing with glue

Heat shrinkable tubing with glue for insulation, protection against mechanical damage and also cables and wires identification:

- contains glue which melts in high temperature and seals applied elements
- excellent insulation and protection against moisture
- weather conditions resistant
- high shrinking ratio 3:1
- strong adhesion to steel, plastic and other materials
- shrinking temperature > 100°C
- working temperature of -55°C - +110°C



| Symbol           | Colour      | Min. Ø before shrinking [mm] | Max. Ø after shrinking [mm] | Wall thickness after shrinking [mm] | Number of pieces per unit [1 piece = 1m] |
|------------------|-------------|------------------------------|-----------------------------|-------------------------------------|--|
| RTCK 3-1-C/1     | black       | 3,0                          | 1,0                         | 1,0                                 | 40                                       |
| RTCK 3-1-T/1     | transparent |                              |                             |                                     |  |
| RTCK 4,8-1,6-C/1 | black       | 4,8                          | 1,6                         | 1,0                                 | 40                                       |
| RTCK 4,8-1,6-T/1 | transparent |                              |                             |                                     |  |
| RTCK 6-2-C/1     | black       | 6,0                          | 2,0                         | 1,1                                 | 20                                       |
| RTCK 6-2-T/1     | transparent |                              |                             |                                     |  |
| RTCK 9-3-C/1     | black       | 9,0                          | 3,0                         | 1,3                                 | 20                                       |
| RTCK 9-3-T/1     | transparent |                              |                             |                                     |  |
| RTCK 12-4-C/1    | black       | 12,0                         | 4,0                         | 1,7                                 | 20                                       |
| RTCK 12-4-T/1    | transparent |                              |                             |                                     |  |
| RTCK 18-6-C/1    | black       | 18,0                         | 6,0                         | 2,0                                 | 10                                       |
| RTCK 18-6-T/1    | transparent |                              |                             |                                     |  |
| RTCK 24-8-C/1    | black       | 24,0                         | 8,0                         | 2,5                                 | 10                                       |
| RTCK 24-8-T/1    | transparent |                              |                             |                                     |  |

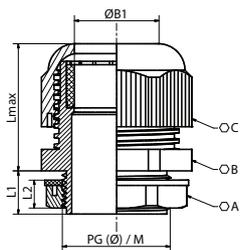
| Characteristics |   |   |
|-----------------|---|---|
| Physical        | Tensile strength                        | 11 N/mm <sup>2</sup>                      |
|                 | Extension at rupture                    | 300%                                      |
|                 | Length change                           | ± +1%, ≤ -15%                             |
|                 | Water soaking                           | < 0,5%                                    |
|                 | Density                                 | 1.45 g/cm <sup>3</sup>                    |
| Thermal         | Constant working temperature            | -55°C do +110°C                           |
|                 | Minimum shrinking temperature           | > 90°C                                    |
|                 | Thermal shock (4 hours in 250°C)        | doesn't drip, doesn't break, doesn't melt |
|                 | Thermal ageing (168 hours in 175°C)     | extension 250%                            |
| Electrical      | Flexibility at low temperatures (-55°C) | doesn't break                             |
|                 | Flammability                            | spelnia                                   |
|                 | Dielectric strength                     | 15 kV/m                                   |

## DK Cable glands



**NEW**

REACH  
Compliant



Cable glands designed to attach and secure the end of a cable to the equipment. Made of very resistant, self-extinguishing, free from halogen and phosphorus material. Easy to assemble.

Special features:

- Made of PA6 poliamid
- Working temperature from -40°C up to 100°C
- Protection degree IP68
- Burning class UL94V-2
- Available sizes: PG7-PG48 and M12-M40
- Available in gray (RAL 7035) and black (RAL 9005) colours
- Nut has an integrated anti vibration protection

| Symbol      | Metric thread | ø  | Colour | L1 [mm] | L2 [mm] | Lmax [mm] | OA [mm] | OB [mm] | OC [mm] | øB1 [mm] | Wires range |
|-------------|---------------|----|--------|---------|---------|-----------|---------|---------|---------|----------|-------------|
| DK_M-12-C/1 | M12×1.5       | 12 | black  | 7,9     | 6       | 21        | 18      | 16      | 16      | 7,5      | 3-6.5       |
| DK_M-12-S/1 | M12×1.5       | 12 | gray   | 7,9     | 6       | 21        | 18      | 16      | 16      | 7,5      | 3-6.5       |
| DK_M-16-C/1 | M16×1.5       | 16 | black  | 15      | 6       | 25        | 22      | 19      | 19      | 8,8      | 5-10        |
| DK_M-16-S/1 | M16×1.5       | 16 | gray   | 15      | 6       | 25        | 22      | 19      | 19      | 8,8      | 5-10        |
| DK_M-20-C/1 | M20×1.5       | 20 | black  | 15      | 7       | 21        | 27      | 24      | 24      | 12,5     | 6-12        |
| DK_M-20-S/1 | M20×1.5       | 20 | gray   | 15      | 7       | 21        | 27      | 24      | 24      | 12,5     | 6-12        |
| DK_M-25-C/1 | M25×1.5       | 25 | black  | 15      | 7       | 33        | 33      | 33      | 33      | 19       | 13-18       |
| DK_M-25-S/1 | M25×1.5       | 25 | gray   | 15      | 7       | 33        | 33      | 33      | 33      | 19       | 13-18       |
| DK_M-32-C/1 | M32×1.5       | 32 | black  | 15      | 8       | 33        | 39      | 35      | 35      | 21       | 18-25       |
| DK_M-32-S/1 | M32×1.5       | 32 | gray   | 15      | 8       | 33        | 39      | 35      | 35      | 21       | 18-25       |
| DK_M-40-C/1 | M40×1.5       | 40 | black  | 18      | 10      | 45        | 51      | 47      | 50      | 32,2     | 25-32       |
| DK_M-40-S/1 | M40×1.5       | 40 | gray   | 18      | 10      | 45        | 51      | 47      | 50      | 32,2     | 25-32       |

| Symbol         | PG thread | ø    | Colour | L1 [mm] | L2 [mm] | Lmax [mm] | OA [mm] | OB [mm] | OC [mm] | øB1 [mm] | Wires range |
|----------------|-----------|------|--------|---------|---------|-----------|---------|---------|---------|----------|-------------|
| DK_PG-7-C/1    | 7         | 12,2 | black  | 8       | 5,5     | 21        | 18      | 16      | 16      | 6,9      | 3.5-6       |
| DK_PG-7-S/1    | 7         | 12,2 | gray   | 8       | 5,5     | 21        | 18      | 16      | 16      | 6,9      | 3.5-6       |
| DK_PG-9-C/1    | 9         | 15,3 | black  | 8,7     | 6,5     | 24        | 22      | 19      | 19      | 8,9      | 4-8         |
| DK_PG-9-S/1    | 9         | 15,3 | gray   | 8,7     | 6,5     | 24        | 22      | 19      | 19      | 8,9      | 4-8         |
| DK_PG-11-C/1   | 11        | 18,3 | black  | 8,9     | 6       | 25        | 24      | 22      | 22      | 11,3     | 5-10        |
| DK_PG-11-S/1   | 11        | 18,3 | gray   | 8,9     | 6       | 25        | 24      | 22      | 22      | 11,3     | 5-10        |
| DK_PG-13,5-C/1 | 13,5      | 20,3 | black  | 8,9     | 7       | 27        | 27      | 24      | 24      | 12,8     | 6-12        |
| DK_PG-13,5-S/1 | 13,5      | 20,3 | gray   | 8,9     | 7       | 27        | 27      | 24      | 24      | 12,8     | 6-12        |
| DK_PG-16-C/1   | 16        | 22,3 | black  | 10      | 7       | 29        | 29      | 27      | 27      | 13,7     | 10-14       |
| DK_PG-16-S/1   | 16        | 22,3 | gray   | 10      | 7       | 29        | 29      | 27      | 27      | 13,7     | 10-14       |
| DK_PG-21-C/1   | 21        | 28,3 | black  | 11,1    | 7       | 35        | 36      | 34      | 32      | 17,4     | 13-18       |
| DK_PG-21-S/1   | 21        | 28,3 | gray   | 11,1    | 7       | 35        | 36      | 34      | 32      | 17,4     | 13-18       |
| DK_PG-29-C/1   | 29        | 37   | black  | 11,9    | 8       | 40        | 46      | 42      | 42      | 25,3     | 18-25       |
| DK_PG-29-S/1   | 29        | 37   | gray   | 11,9    | 8       | 40        | 46      | 42      | 42      | 25,3     | 18-25       |
| DK_PG-36-C/1   | 36        | 47   | black  | 14      | 9       | 45        | 58      | 52      | 52      | 31,9     | 22-32       |
| DK_PG-36-S/1   | 36        | 47   | gray   | 14      | 9       | 45        | 58      | 52      | 52      | 31,9     | 22-32       |
| DK_PG-42-C/1   | 42        | 53   | black  | 14      | 9       | 49        | 64      | 62      | 60      | 37,1     | 32-38       |
| DK_PG-42-S/1   | 42        | 53   | gray   | 14      | 9       | 49        | 64      | 62      | 60      | 37,1     | 32-38       |
| DK_PG-48-C/1   | 48        | 58,5 | black  | 14      | 10      | 56        | 70      | 68      | 68      | 45,1     | 37-44       |
| DK_PG-48-S/1   | 48        | 58,5 | gray   | 14      | 10      | 56        | 70      | 68      | 68      | 45,1     | 37-44       |

## TPVC Electrical tapes



**NEW**

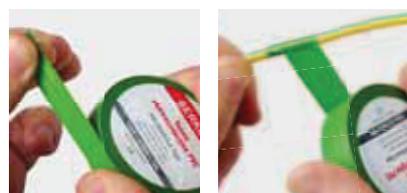
REACH  
Compliant



Universal electrical tapes used to insulate electrical and telecommunication wires and cables also for labelling wires up to 6kV. Ideal for use in places where high electrical insulating properties are required.

Special features:

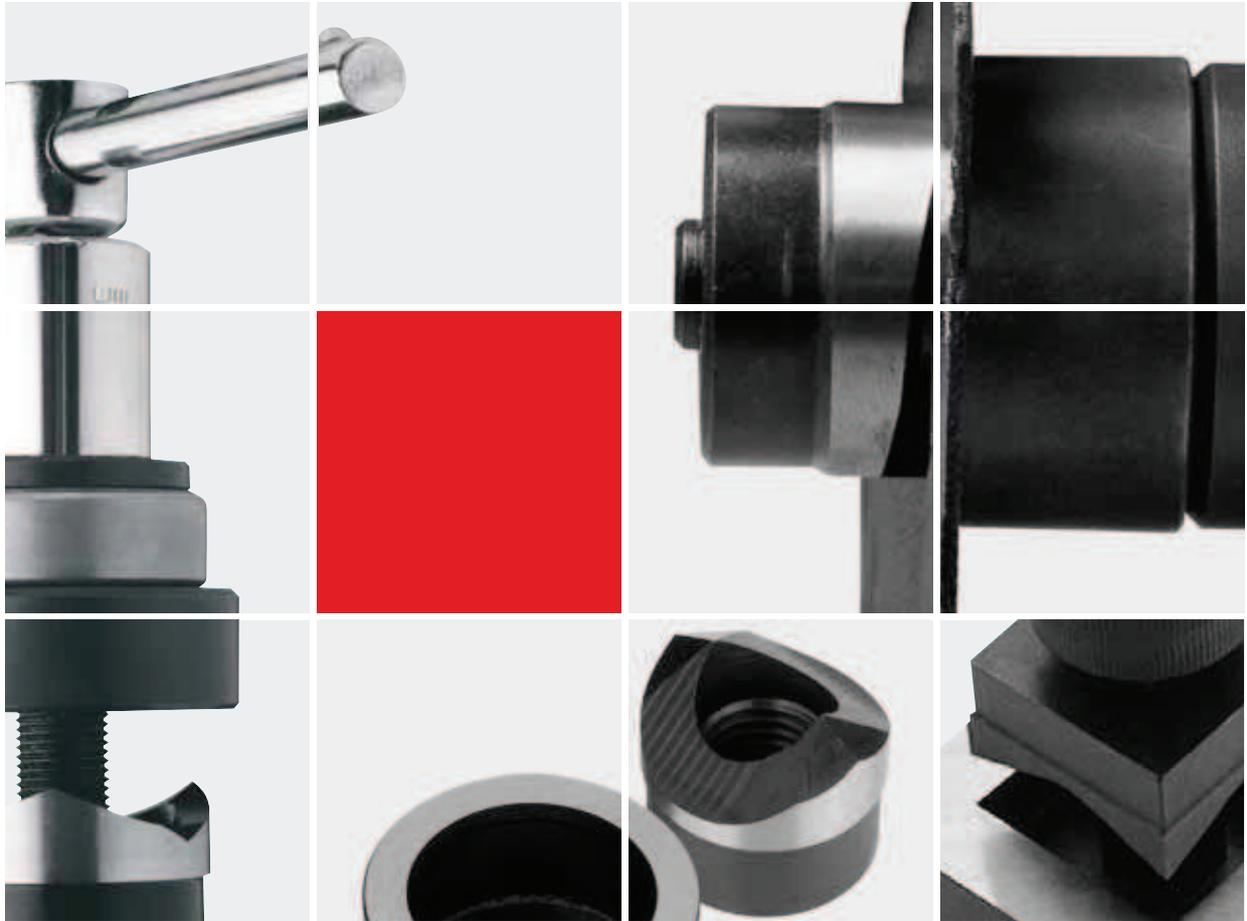
- Thermal class 1050
- Self-extinguishing
- Flexible
- Easily extensible
- Chemical factors resistant



| Symbol     | Colour       | Width [mm] | Lenght [m] | Number of pieces per unit |
|------------|--------------|------------|------------|---------------------------|
| TPVC 15-10 | White        | 15         | 10         | 10                        |
|            | Braun        | 15         | 10         | 10                        |
|            | Black        | 15         | 10         | 10                        |
|            | Red          | 15         | 10         | 10                        |
|            | Violet       | 15         | 10         | 10                        |
|            | Multi        | 15         | 10         | 10                        |
|            | Blue         | 15         | 10         | 10                        |
|            | Orange       | 15         | 10         | 10                        |
|            | Gray         | 15         | 10         | 10                        |
|            | Green        | 15         | 10         | 10                        |
|            | Yellow       | 15         | 10         | 10                        |
|            | Yellow-Green | 15         | 10         | 10                        |

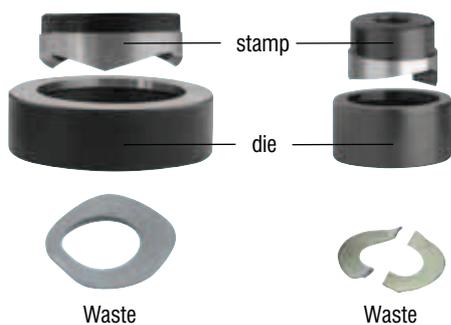
| Symbol     | Colour       | Width [mm] | Lenght [m] | Number of pieces per unit |
|------------|--------------|------------|------------|---------------------------|
| TPVC 19-20 | White        | 19         | 20         | 8                         |
|            | Braun        | 19         | 20         | 8                         |
|            | Black        | 19         | 20         | 8                         |
|            | Red          | 19         | 20         | 8                         |
|            | Violet       | 19         | 20         | 8                         |
|            | Multi        | 19         | 20         | 8                         |
|            | Blue         | 19         | 20         | 8                         |
|            | Orange       | 19         | 20         | 8                         |
|            | Gray         | 19         | 20         | 8                         |
|            | Green        | 19         | 20         | 8                         |
|            | Yellow       | 19         | 20         | 8                         |
|            | Yellow-Green | 19         | 20         | 8                         |

# Hole punching tools



|                       |               |
|-----------------------|---------------|
| Punches               | pages 38 - 39 |
| Hydraulic punches     | page 40       |
| Hydraulic heads       | page 40       |
| Hole punching station | page 40       |

## WO Round hole punches



Punches for round hole punching:

- in sheet metal of switchgears, desktops
- for signal lamps, glands, buttons
- maximum sheet metal thickness up to 2 mm (at  $R_m < 450\text{MPa}$ , e.g. type St3S)
- increased durability of punching elements and bolt/pin
- up to  $\varnothing 38,5$  mm waste is cut into two parts for easier removal, at larger diameters waste is strongly deformed and therefore easy to remove

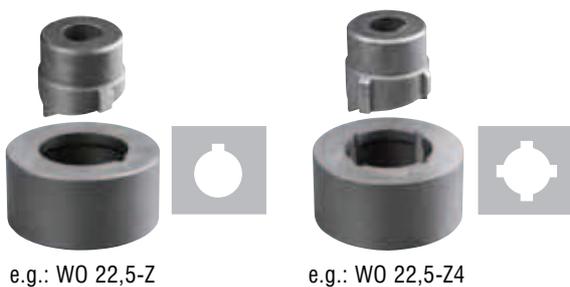
Punches without teeth can be used with hand or hydraulic drives.

**NOTE:** bolt and pin to be ordered separately

For toothed punches use hydraulic drive.

Standard dimensions:

## WO toothed round hole punches



| Type    | Initial hole $\varnothing$ [mm] | Bolt / Pin | Washer | Socket |
|---------|---------------------------------|------------|--------|--------|
| WO 16,5 |                                 |            |        |        |
| WO 18,5 |                                 |            |        |        |
| WO 20,5 | 10,5                            | M10        | P10    | S17    |
| WO 22,5 |                                 |            |        |        |
| WO 25,5 |                                 |            |        |        |
| WO 28,5 |                                 |            |        |        |
| WO 30,5 |                                 |            |        |        |
| WO 32,5 |                                 |            |        |        |
| WO 37,0 |                                 |            |        |        |
| WO 38,5 | 16,5                            | M16        | P16    | S24    |
| WO 40,5 |                                 |            |        |        |
| WO 48,5 |                                 |            |        |        |
| WO 55,5 |                                 |            |        |        |
| WO 60,5 |                                 |            |        |        |

## WO K Complete hand punch



Set consists of:

- knob
- socket (S17 or S24 depending on the diameter of the punch)
- washer (P10 or P16 depending on the diameter of the punch)
- bearing
- bolt (M10 or M16 depending on the diameter of the punch)
- graphite grease
- WO punch – chart above
- metal case

**NOTE:** bolt requires greasing. Greasing and cleaning tools significantly prolongs its durability.

## WO R Hand set



Set consists of:

- knob
- sockets (S17 and S24)
- washers (P10 or P16)
- bearing
- bolt (M10 and M16)
- graphite grease
- 7 WO punches (16,5; 22,5; 30,5; 38,5; 48,5; 55,5; 60,5)
- K5 metal case

**NOTE:** There is possibility of ordering chosen elements of set, and other punches (see chart above).

Different diameters up to  $\varnothing 60$  mm on request.

## WO H Hydraulic set

Hydraulic set consists of:

- 7 WO punches (16,5; 22,5; 30,5; 38,5; 48,5; 55,5; 60,5)
- K5 metal case

**NOTE:** There is possibility of ordering chosen elements of set, and other punches (see chart on page 38).

Different diameters up to  $\varnothing$  120 mm on request.

Works with GW and GW 2 heads and WH 100 and WHP 1 hydraulic punching tools.



## WON Round hole punch

Punch for round hole punching:

- in stainless steel sheet metal up to 1,5 mm
- of maximum diameter 28,5 mm (WHP 1 type)
- of maximum diameter 32,5 mm (WH 100 type)
- up to  $\varnothing$  60 mm – GW, GW 2 heads (work with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units)

**NOTE:** WON punches can work only with hydraulic tools.

WON punches have different pins than WO punches (different thread in the stamp), ordered separately.



| Type     | Hole $\varnothing$ [mm] | Pin size | PG | Metric thread | PE | NPT       |
|----------|-------------------------|----------|----|---------------|----|-----------|
| WON 12,7 | 12,7                    | 8        | 7  | M12           |    |           |
| WON 15,2 | 15,2                    | 8        | 9  |               |    |           |
| WON 16,2 | 16,2                    | 8        |    | M16           |    |           |
| WON 18,6 | 18,6                    | 10       | 11 |               |    |           |
| WON 20,4 | 20,4                    | 10       | 13 | M20           |    |           |
| WON 22,5 | 22,5                    | 10       | 16 |               |    |           |
| WON 25,4 | 25,4                    | 10       |    | M25           |    |           |
| WON 28,5 | 28,5                    | 16       | 21 |               | 25 |           |
| WON 32,5 | 32,5                    | 16       |    | M32           |    |           |
| WON 37,0 | 37,0                    | 16       | 29 |               | 34 |           |
| WON 40,5 | 40,5                    | 16       |    | M40           |    |           |
| WON 42,2 | 42,2                    | 16       |    |               |    | NPT 1 1/4 |
| WON 47,0 | 47,0                    | 16       | 36 |               |    |           |
| WON 50,5 | 50,5                    | 16       |    | M50           |    |           |
| WON 54,0 | 54,0                    | 16       | 42 |               |    |           |
| WON 60,0 | 60,0                    | 16       | 48 |               |    |           |

## WK Square hole punch

Punch for square hole punching:

- in sheet metal of switchgears, desktops (for mounting measuring devices)
- maximum sheet metal thickness 2 mm (at  $R_m < 450\text{MPa}$ , e.g. type St3S)
- initial hole diameter 23 mm

Works with GW, GW 2 heads and WH 100, WHP 1 hydraulic punching tools.

**NOTE:** Different dimensions up to 140 x 140mm on request. Punch with pin.

| Type    | Hole dimensions [mm] | Weight [kg] |
|---------|----------------------|-------------|
| WK 26,5 | 26,5 x 26,5          | 1,4         |
| WK 45,6 | 45,6 x 45,6          | 3,7         |
| WK 68,6 | 68,6 x 68,6          | 4,3         |
| WK 92,7 | 92,7 x 92,7          | 4,8         |



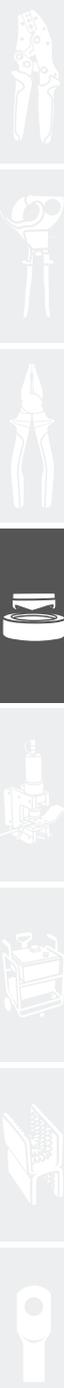
## WP Universal punch

Punch for square and rectangular holes punching of any dimensions, by multiple punching:

- minimum hole dimensions 36x26 mm
- maximum sheet metal thickness up to 2 mm (at  $R_m < 450\text{MPa}$ , e.g. type St3S)

**NOTE:** for initial hole use WK 26,5.

Works with GW, GW 2 heads and WH 100, WHP 1 hydraulic punching tools.



## WHP 1 Hydraulic punching tool



Hydraulic punching tool for round, square and rectangular holes:

- maximum steel sheet metal thickness up to 2 mm (at  $R_m < 450\text{MPa}$ , e.g. type St3S)
- maximum stainless steel sheet metal thickness 1,5 mm

Works with punches:

- WO 12,7 ÷ 60,5 mm
- WON 12,7 ÷ 28,5 mm
- WK up to 68,5 x 68,5 mm
- WP

Delivered with M10 and M16 pins (not applicable for WON punches).

Weight: 1,8 kg; Force: 30 kN at 400 bar; Working stroke: 15 mm



M10 pin

M16 pin

## WH 100 Hydraulic punching tool



M10 pin

M16 pin

Hydraulic punching tool for round, square and rectangular holes:

- maximum steel sheet metal thickness up to 2 mm (at  $R_m < 450\text{MPa}$ , e.g. type St3S)
- maximum stainless steel sheet metal thickness 1,5 mm

Works with punches:

- WO 12,7 ÷ 80 mm
- WON 12,7 ÷ 32,5 mm
- WK up to 68,5 x 68,5 mm
- WP

Delivered with M10 and M16 pins (not applicable for WON punches).

Length: 342 mm; Weight: 3,9 kg; Force: 35 kN at 470 bar; Working stroke: 14 mm

## GW, GW 2 Hydraulic heads



M10 pin

M16 pin

Hydraulic heads for round, square and rectangular holes:

- maximum steel sheet metal thickness up to 2 mm (at  $R_m < 450\text{MPa}$ , e.g. type St3S)
- maximum stainless steel sheet metal thickness 1,5 mm

Works with punches – see chart below.

Delivered with M10 and M16 pins (not applicable for WON punches).

GW 2 head supplied with adapter for M10 and M16 pins.

Work with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.

Force: 83 kN at 630 bar;

| Type | WO diameters range [mm] | WON diameters range [mm] | WK range [mm] | Weight [kg] | Length [mm] | Piston rod thread | Working stroke |
|------|-------------------------|--------------------------|---------------|-------------|-------------|-------------------|----------------|
| GW   | 15 ÷ 80                 | 12,7 ÷ 60                | up to 92,7    | 1,7         | 165         | M16x1,25          | 15             |
| GW 2 | 15 ÷ 120                | 12,7 ÷ 60                | up to do 140  | 2,9         | 230         | M22x1,5           | 22             |

## SW 300 Hole punching station



Station for hole punching in steel sheet, stainless steel sheet, aluminum sheet and some plastics, without necessity of initial hole making:

- steel sheet thickness 1,5 ÷ 2,5 mm (max  $R_m$  370 MPa)
- max stainless steel sheet thickness 1,5 mm (max  $R_m$  540 MPa)
- aluminum sheet and plastics 1,5 ÷ 4 mm
- working range ( from the edge of the sheet to the axis of the hole) max 300 mm

Works with punches:

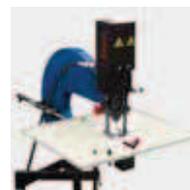
- SW 303 (round)  $\varnothing$  12,7 ÷ 40,5 mm
- SW 304 (square) 26,5 x 26,5 ÷ 30,5 x 30,5

Works with H 800 hydraulic pump (for non intensive work) and AH 500, AH 550 electric hydraulic units.

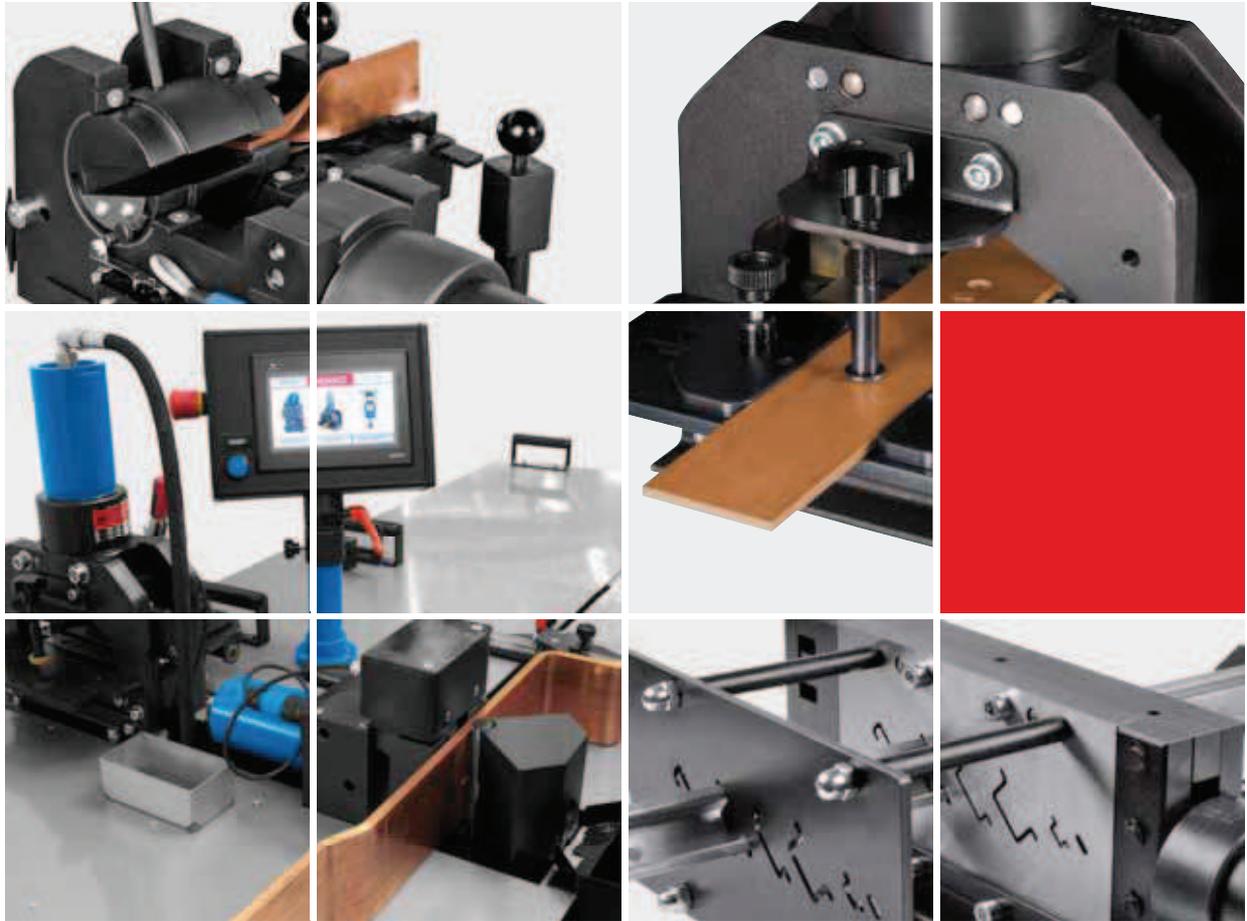
Dimensions (LxWxH): 1070x1070x1500; Weight without equipment: 120kg; Pressure: 630 bar; Force: 34 kN

As standard equipped with device body with hydraulic cylinder as well as matrix socket, wheeled base and laser indicator.

**NOTE:** Support and measuring ruler to be ordered separately.



# Busbar and mounting rail processing



|                                    |               |
|------------------------------------|---------------|
| Mounting rail cutters              | pages 42 - 43 |
| Flexible busbar processing station | page 43       |
| Busbar bender-puncher              | page 44       |
| Busbar cutter                      | page 44       |
| Busbar benders                     | page 45       |
| Busbar processing stations         | pages 46 - 50 |

## GLS Mounting rail cutters

**GLS 1 type**  
One profile

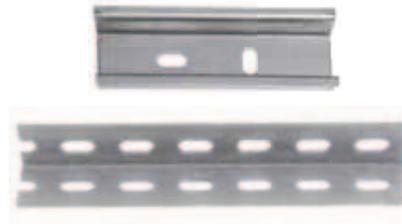


**GLS 2 type**  
Two profiles



Hand cutters for cutting mounting rails:

- profiles according to order – see chart on page 43
  - cutting without waste or burr
- Weight: 9,2 kg; Height: 300 mm; Force: 45 kN



## GLP Hydraulic heads

**GLP 1 type** One profile



Hydraulic heads for cutting mounting rails:

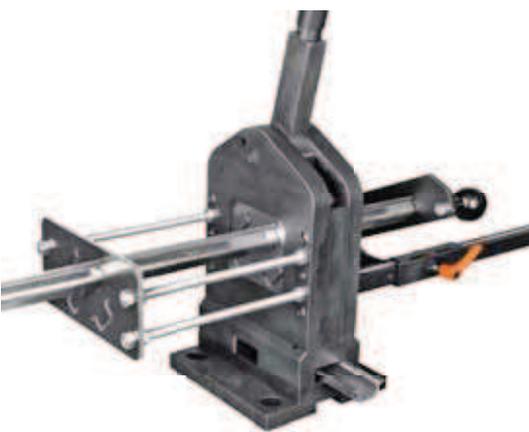
- profiles according to order – see chart on page 43
- cutting without waste or burr
- PT quick coupler

Work with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.  
Weight: 3,4 kg; Height: 310 mm; Force: 80 kN

**GLP 2 type** Two profiles



## GLR 6 Mounting rail cutter



Hand cutter for mounting rails. Optional module for longitudinal and transverse oval holes punching:

- fast cutting without deformation or burr
- from 2 to 6 profiles depending on dimensions – see chart on page 43
- hole punching (6,4 x 12,4 mm) for M6 screws in TS35 rails

**NOTE:** measuring ruler to be ordered separately

Dimensions incl. hole punching modul: (LxWxH): 240x160x1167 mm; Weight: 17,5 kg

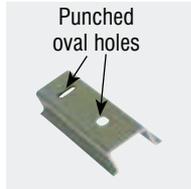
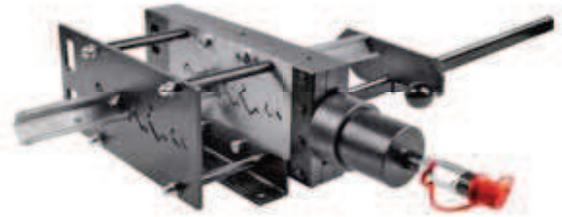


## GL 6 Hydraulic mounting rail cutter

Hydraulic cutter for mounting rails and for longitudinal and transverse oval holes punching:

- easy cutting without deformation or burr
- profiles according to order – see chart below
- hole punching (6,4 x 12,4 mm) for M6 screws in TS35 rails
- PT quick coupler

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.  
Weight: 17,3 kg; Force: 112 kN



### MOUNTING RAILS PROFILES

| Profile | Shape | Rail type | Made according to standard |
|---------|-------|-----------|----------------------------|
| P1      |       | TS 35     | PN-EN 60715:2007           |
| P2      |       | TS 35C    | PN-EN 60715:2007           |
| P3      |       | TS 15     | PN-EN 60715:2007           |

| Profile | Shape | Rail type   | Made according to standard |
|---------|-------|---|----------------------------|
| P4      |       | TS 32   | PN-EN 60715:2007           |
| P5      |       | TS 35C1   | PN-EN 60715:2007           |
|         |       | Other thin-walled profiles: steel, Al, Cu – as agreed |                            |

## HSE 100 Flexible busbar processing station

Station for hole punching, cutting and initial stripping of flexible busbars:

- maximum busbar dimensions 10x100 mm
- round holes punching of diameter 6,6 ÷ 21 mm
- easy system of exchanging stamps and dies
- easy process of exchanging insert for stripping
- cutting accuracy due to installed rulers and centering module

**NOTE:** HSE105 module for cutting and initial stripping to be ordered separately.

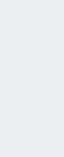
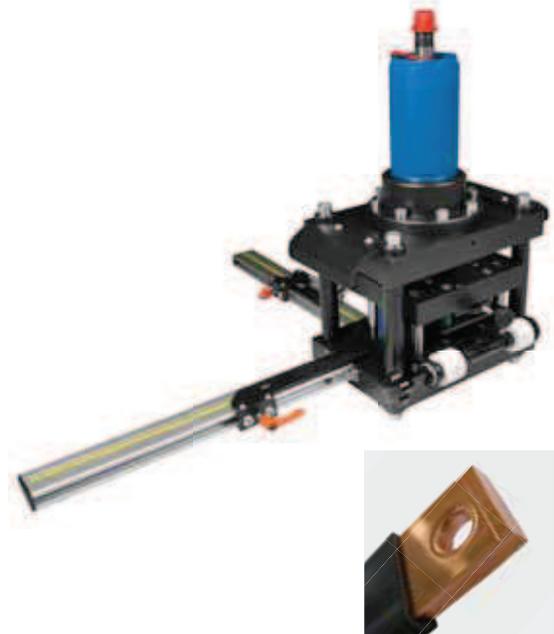
Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.

Dimensions (LxWxH): 490x390x490 mm; Weight: 32,5 kg; Force: 190 kN

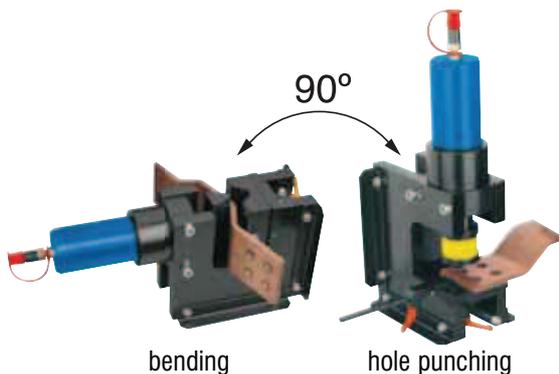
Pressure: 630 bar

Standard dimensions of punches:

| Symbol        | Hole diameter [mm] | For M screw |
|---------------|--------------------|-------------|
| HSE 103 – 6,6 | 6,6                | 6           |
| HSE 103 – 8,5 | 8,5                | 8           |
| HSE 103 – 11  | 11                 | 10          |
| HSE 103 – 13  | 13                 | 12          |
| HSE 103 – 17  | 17                 | 16          |
| HSE 103 – 21  | 21                 | 20          |



## HGD 125 Bender – puncher



Bender-puncher for bending Al and Cu busbars as well as hole punching:

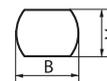
- maximum busbar dimensions 10x125 mm
  - bending angle range 0° ÷ 90°
  - round holes punching of 6,6 ÷ 21 mm
  - oval holes punching of 8,5 ÷ 21 mm
  - equipped with rulers for positioning when punching holes
  - electric sensor (HGD 105- limit switch) enables repeatable bending
- Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.  
Dimensions: (LxWxH): 370x260x585 mm; Weight: 42 kg; Force: 190 kN  
Pressure: 630 bar

Standard dimensions of round hole punches:

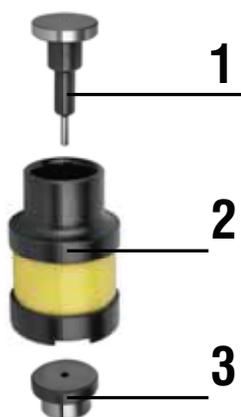
| Symbol        | Hole diameter [mm] | For M screw |
|---------------|--------------------|-------------|
| HGD 103 – 6,6 | 6,6                | 6           |
| HGD 103 – 8,5 | 8,5                | 8           |
| HGD 103 – 11  | 11                 | 10          |
| HGD 103 – 13  | 13                 | 12          |
| HGD 103 – 17  | 17                 | 16          |
| HGD 103 – 21  | 21                 | 20          |

Standard dimensions of oval hole punches:

| Symbol         | Dimension A [mm] | Dimension B [mm] | For M screw |
|----------------|------------------|------------------|-------------|
| HGD 104 8,5-12 | 8,5              | 12               | 8           |
| HGD 104 11-16  | 11               | 16               | 10          |
| HGD 104 13-18  | 13               | 18               | 12          |
| HGD 104 17-21  | 17               | 21               | 16          |



## Punch and casing



- 1 – Stamp  
2 – HGD 102 Casing  
3 – Die
- 1+3 = HGD 103  
or HGD 104 punch

## HGD 121 bending die

Designed for busbar bending. Bending angle range: 0° ÷ 90°. Set includes stamp and insert die. Bending die with bending angle indicator available as option.

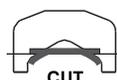


HGD121

HGD121S



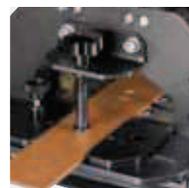
## HC 125 Busbar cutter



Cutter for cutting Al and Cu busbars:

- maximum busbar dimensions 12x125 mm
- cutting without deformation or burr

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.  
Dimensions: (LxWxH): 310x240x475 mm; Weight: 32 kg; Force: 190 kN  
Pressure: 630 bar



## HSk 5010 Axial bender

Bender for axial bending (propeller like) Al and Cu busbars:

- width range 20 ÷ 50 mm
- thickness range 3 ÷ 10 mm
- bending angle range: 0° ÷ 90°

Special features:

- equipped with electric sensor (limit switch) enabling repeatable bending
- equipped with spacer insert for rotatable handle, for busbars of thickness up to 5 mm
- equipped with adjustable busbar width bracket

Works with AH 500, AH 550 electric hydraulic units.

Dimensions: (LxWxH): 720x300x190 mm; Weight: 42 kg; Pressure: 380 bar



## HGP 5010 Lateral bender

Bender for lateral bending Al and Cu busbars:

- width range 20 ÷ 50 mm
- thickness range 5 ÷ 10 mm
- bending angle range: 0° ÷ 90°

Special features:

- equipped with bending insert
- equipped with set of rollers (two supporting rollers, stamp with punch clamp) for busbars of thickness 5 and 10 mm
- on request rollers for Al busbars

Works with H 800 hydraulic pump and AH 500, AH 550 electric hydraulic units.

Dimensions: (LxWxH): 700x250x230 mm; Weight: 49 kg; Force: 190kN

Pressure: 630 bar



## SH 600 Busbar processing station



Station for bending, hole punching, offsetting Al and Cu busbars as well as inserting nuts:

- maximum busbar dimensions 12x125 mm
- bending angle range 0° ÷ 90°

Special features:

- equipped with smoothly adjusted bending angle sensor
- equipped with measuring rulers
- height adjustment of hole punching head (1mm precision)
- burr-free round and oval holes punching

Works with AH 500 or AH 550 electric hydraulic units.

Dimensions: (LxWxH): 790x530x498 mm; Weight: 110 kg (without equipment); Force: 190 kN; Pressure: 630 bar



AH 500, AH 550 electric hydraulic unit - to be ordered separately.



Additional worktop (as option).

| Equipment  | Type        | SH 600 | SH 600-Platinum |
|--|-------------|--------|-----------------|
| Electric control cable (to work with AH 500 or AH550 electric hydraulic units)                         | SH 610      | ●      | ●               |
| Electronic adjustable angle indicator  | SH 611      |        | ●               |
| Electronic control of operation selection and processing cycles  | SH 612      |        | ●               |
| Insert for precise bending ( built-in encoder)   | SH 401PLC-E |        | ●               |
| Insert for repeatable bending (buil-in limit switch)   | SH 401PLC-K | ●      |                 |
| Insert die for busbars offsetting  | SH 406PLC   | ○      | ○               |
| Round hole punch (standard dimensions according to catalog)  | SH 403      | ○      | ○               |
| Oval hole punch (standard dimensions according to catalog)   | SH 404      | ○      | ○               |
| Rectangular hole punch (dimensions according to order: max diagonal 21mm, side not shorter than 6,6mm) | SH 409      | ○      | ○               |
| Insert die for inserting nuts  | SH 407      | ○      | ○               |
| Additional busbar support  | SH 408      | ○      | ○               |
| Additional worktop   |             | ○      | ●               |

● standard equipment ○ additional equipment on request

## SH 400 Busbar processing station



Station for cutting, bending, hole punching, offsetting Al and Cu busbars as well as inserting nuts:

- maximum busbar dimensions 12x125 mm
- bending angle range 0° ÷ 90°

Special features:

- equipped with smoothly adjusted bending angle sensor
- equipped with measuring rulers
- height adjustment of hole punching head (1mm precision)
- burr-free round and oval holes punching
- burr-free busbars cutting
- built-in reliable hydraulic drive
- equipped with port for ERKO hydraulic heads (hose with PM 630 bar quick coupler)

Total dimensions: (LxWxH): 1280x850x1420 mm; Weight incl. standard equipment: 280 kg; Pressure: 630 bar (additional port 630 bar); Power: 3 x 230V/400V; 1,1 kW

## Equipment for SH 400 station

| Equipment   | Type        | SH 400 |
|---|-------------|--------|
| Insert for repeatable bending (buil-in limit switch)  | SH 401PLC-K | ●      |
| Busbar cutter   | SH 405      | ●      |
| Insert die for busbars offsetting   | SH 406PLC   | ○      |
| Additional worktop  | SH 408PLC   | ○      |
| Round hole punch (standard dimensions according to catalog)   | SH 403      | ○      |
| Oval hole punch (standard dimensions according to catalog)  | SH 404      | ○      |
| Rectangular hole punch (dimensions according to order: max diagonal 21mm, side not shorter than 6,6mm)      | SH 409      | ○      |
| Insert die for inserting nuts   | SH 407      | ○      |
| Additional busbar support   | SH 408      | ○      |
| Bending without correction (not complying busbar flexibility) precision of repeatable bending $\pm 2^\circ$ |             | ●      |
| Repeatable offsetting   |             | ○      |

● standard equipment ○ additional equipment on request

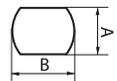
## Punches for SH: 600, 600PLC, 400 busbar processing stations

### Standard dimensions of round hole punches

| Symbol       | Hole diameter [mm] | For M screw |
|--------------|--------------------|-------------|
| SH 403 – 6,6 | 6,6                | 6           |
| SH 403 – 8,5 | 8,5                | 8           |
| SH 403 – 11  | 11                 | 10          |
| SH 403 – 13  | 13                 | 12          |
| SH 403 – 17  | 17                 | 16          |
| SH 403 – 21  | 21                 | 20          |

### Standard dimensions of oval hole punches

| Symbol        | Dimension A [mm] | Dimension B [mm] | For M screw |
|---------------|------------------|------------------|-------------|
| SH 404 8,5-12 | 8,5              | 12               | 8           |
| SH 404 11-16  | 11               | 16               | 10          |
| SH 404 13-18  | 13               | 18               | 12          |
| SH 404 17-21  | 17               | 21               | 16          |



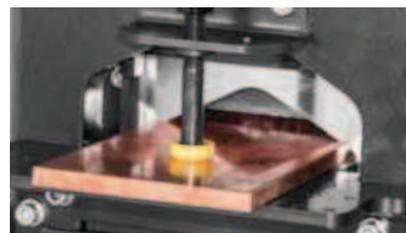
## Busbar processing station example equipment



Bending SH 401PLC-K.



Hole punching SH 403, SH 404, SH 409.



Cutting SH 405.



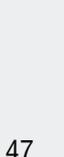
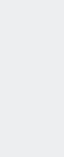
Offsetting SH 406PLC.



Inserting nuts SH 407.



Insert for repeatable bending SH 401PLC-K.



## SH 800PLC Busbar processing station

**NEW**



Station for precise cutting, bending, hole punching, inserting nuts, offsetting Al and Cu busbars:

- maximum busbar dimensions 12x125 mm
- bending angle range 0° ÷ 90°

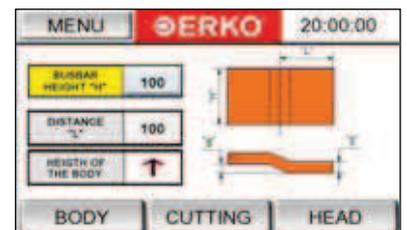
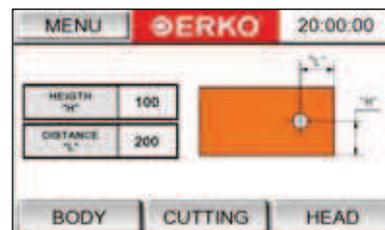
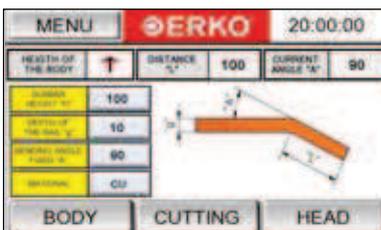
Special features:

- equipped with LED touch screen programmed in: Polish, Russian, English, German and Czech (other languages on request)
- equipped with electronic, programmable bending angle sensor (setting precision 1°)
- equipped with measuring rulers enabling precise positioning of 0,1mm
- precise height adjustment of hole punching head (0,2mm precision)
- burr-free round and oval holes punching
- burr-free busbars cutting
- built-in reliable hydraulic drive
- automatic identification of inserted dies
- bending angle correction complying busbar flexibility
- electronic length measurement of cut busbar (up to 6m)
- electronic length measurement of bent and punched busbar (up to 0,5m or 1,2m)
- busbar offsetting repeatability
- additional worktop
- tilt, rotatable touch screen
- equipped with control socket
- equipped with port for ERKO hydraulic heads (hose with PM 630 bar quick coupler)

Total dimensions: (LxWxH): 1400x930x1420 mm;

Weight incl. standard equipment: 355 kg;

Pressure: 630 bar; Power: 3 x 230V/400V; 1,4 kW



Screen panel includes manual.

## Equipment for SH 800PLC station

| Equipment  | Type        | SH 800PLC-Gold | SH 800PLC-Platinum |
|--|-------------|----------------|--------------------|
| Insert for precise bending (built-in encoder)  | SH 401PLC-E | ●              | ●                  |
| Busbar cutter  | SH 405      | ●              | ●                  |
| Length sensor for cut busbar   | SH 415PLC   | ○              | ●                  |
| Insert die for busbars offsetting  | SH 406PLC   | ●              | ●                  |
| Additional worktop   | SH 408PLC   | ○              | ●                  |
| Extended measurement of length L (range from 0 to 1020mm)  | SH 418PLC   | ○              | ●                  |
| Round hole punch (standard dimensions according to catalog)  | SH 403      | ○              | ○                  |
| Oval hole punch (standard dimensions according to catalog)   | SH 404      | ○              | ○                  |
| Rectangular hole punch (dimensions according to order: max diagonal 21mm, side not shorter than 6,6mm) | SH 409      | ○              | ○                  |
| Insert die for inserting nuts  | SH 407      | ○              | ○                  |
| Additional busbar support  | SH 408      | ○              | ○                  |
| Bending with correction (complying busbar flexibility) precision of bending $\pm 1^\circ$              |             | ●              | ●                  |
| Measurement of height H, precision 0,2mm   |             | ●              | ●                  |
| Measurement of length L, range 0-500mm, precision 0,1mm  |             | ●              | ●                  |
| Repeatable offsetting  |             | ○              | ○                  |

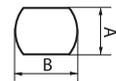
● standard equipment ○ additional equipment on request

### Standard dimensions of round hole punches

| Symbol       | Hole diameter [mm] | For M screw |
|--------------|--------------------|-------------|
| SH 403 – 6,6 | 6,6                | 6           |
| SH 403 – 8,5 | 8,5                | 8           |
| SH 403 – 11  | 11                 | 10          |
| SH 403 – 13  | 13                 | 12          |
| SH 403 – 17  | 17                 | 16          |
| SH 403 – 21  | 21                 | 20          |

### Standard dimensions of oval hole punches

| Symbol        | Dimension A [mm] | Dimension B [mm] | For M screw |
|---------------|------------------|------------------|-------------|
| SH 404 8,5-12 | 8,5              | 12               | 8           |
| SH 404 11-16  | 11               | 16               | 10          |
| SH 404 13-18  | 13               | 18               | 12          |
| SH 404 17-21  | 17               | 21               | 16          |



## HG 200 Busbar bending station

Station for precise Al and Cu busbar bending:

- width range 50 ÷ 200 mm
- thickness range 5 ÷ 15 mm
- bending angle range: 0° ÷ 90°

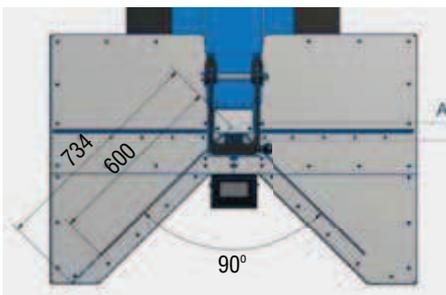
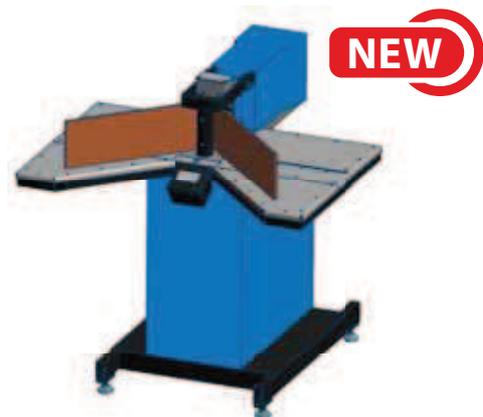
Special features:

- equipped with angle compensation system, consequent to flexibility of bent material
- easy in operation panel, minimizing time for programming
- ergonomic worktop shape assuring precise bending of long busbars
- stable construction and low weight same time
- efficient, compact electric hydraulic unit, with low need for electricity makes the device very economical
- possibility of adjusting the station for individual customers needs

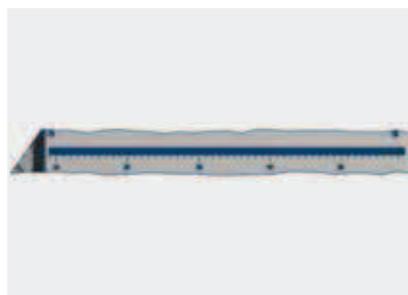
Dimensions (LxWxH): 1200x1230x1274 mm;

Pressure: 630 bar;

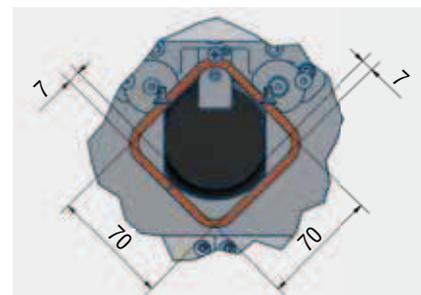
Power: 3 x 230V/400V; 1,5 kW



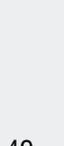
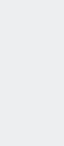
Special worktop shape enables bending of long busbars.



Engraved ruler on worktop makes bending line measuring easier.



Minimum inner dimension of bending in C profile is 70 mm.



## HD 160 Busbar processing station



Station for busbar hole punching with cutting option (busbar cutter HC160 or bending option (bender HG160):

- maximum busbar width 160 mm
- busbar thickness 5 ÷ 13 mm
- maximum busbar length 3m

Special features:

- equipped with measuring rulers enabling precise positioning of 0,1mm
- hole punching in incomplete material
- oval holes punched parallel or along processed busbar
- burr-free round and oval holes punching
- burr-free busbar cutting, without deformation (applies to HC160)
- touch screen programmed in: Polish, Russian and English
- roller guide on both sides of the body

Dimensions: (LxWxH): 4500(6500)x750x1650mm; Weight: 270 (300) kg  
Force: 190 kN; Pressure: 630 bar; Power: 3 x 230V/400V; 1,2 kW

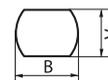
| Station type                     | Type     |
|----------------------------------|----------|
| Hole punching station (2m guide) | HD 160-2 |
| Hole punching station (3m guide) | HD 160-3 |
| Busbar cutter                    | HC 160   |
| Bender                           | HG 160   |

## Equipment for HD 160 busbar processing stations

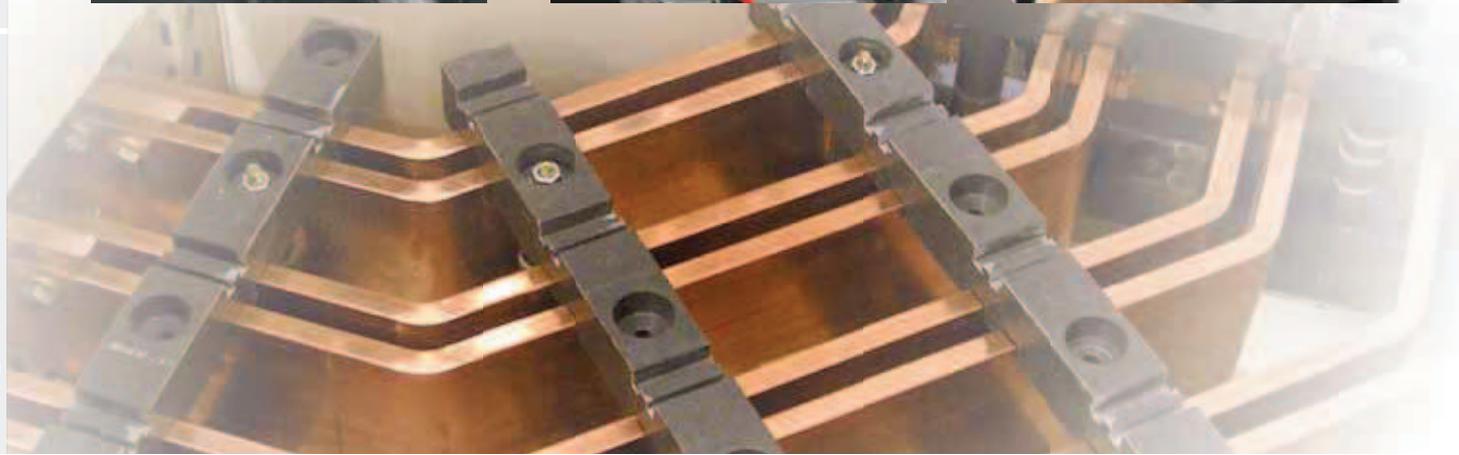
Standard dimensions of round hole punches:

| Symbol       | Hole diameter [mm] | For M screw |
|--------------|--------------------|-------------|
| HD 163 – 8,5 | 8,5                | 8           |
| HD 163 – 11  | 11                 | 10          |
| HD 163 – 13  | 13                 | 12          |
| HD 163 – 17  | 17                 | 16          |
| HD 163 – 21  | 21                 | 20          |

Standard dimensions of oval hole punches:



| Symbol        | Dimension A [mm] | Dimension B [mm] | For M screw |
|---------------|------------------|------------------|-------------|
| HD 164 8,5-12 | 8,5              | 12               | 8           |
| HD 164 11-16  | 11               | 16               | 10          |
| HD 164 13-18  | 13               | 18               | 12          |
| HD 164 17-21  | 17               | 21               | 16          |



# Hydraulic drives



Hydraulic pump

page 52

Electric hydraulic units

page 52

## H 800, H 800M, H 800A, H 800AM Hydraulic pump

**NEW**



Hydraulic pump for repairs and fitting works in places of difficult access, away from power sources:

- works with all ERKO hydraulic heads and devices (equipped with PT quick coupler)
  - efficient work – 2 circuits:
    - fast access (low pressure)
    - work (high pressure)
  - equipped with hydraulic hose (length 2m) and PM quick coupler as standard
  - can be equipped with manometer (H 800M), automatic retraction (H 800A), automatic retraction and manometer (H 800AM)
- Length: 450 mm; Weight: 8,4 kg; Pressure: 630 bar



Pump with manometer, with automatic retraction (H 800AM).

## AH 500 Electric hydraulic unit



Electric hydraulic power unit:

- equipped with hydraulic hose with PM quick coupler
- works with all ERKO hydraulic heads and devices (equipped with PT quick coupler)
- power supply voltage: 3 x 230V/400V (sequence of phases unimportant), or 230V single phase option recommended for non intensive works
- power: 0,85 kW
- efficiency: 0,66 l/min
- pressure: 380/630 bar (can electrically switch to 380 bar)
- 2,5 m long hydraulic hose

Dimensions: 520x370x690 mm; Weight: 43kg

On request possibility of manufacturing with many pressure ports and other length of hydraulic hose. Working at 380 bar pressure reduces load on the head during operation in which 380 bar is sufficient and ensures correct cycle performance.

## AH 550 Electric hydraulic unit



Electric hydraulic power unit of increased efficiency:

- equipped with hydraulic hose with PM quick coupler
- works with all ERKO hydraulic heads and devices (equipped with PT quick coupler)
- power supply voltage: 3 x 230V/400V (sequence of phases unimportant)
- power: 1,4 kW
- efficiency: 1,33 l/min
- pressure: 380/630 bar (can electrically switch to 380 bar)
- 2,5 m long hydraulic hose

Dimensions: 520x370x690 mm; Weight: 43kg

On request possibility of manufacturing with many pressure ports and other length of hydraulic hose. Working at 380 bar pressure reduces load on the head during operation in which 380 bar is sufficient and ensures correct cycle performance.

# SHARK technology



|   |       |         |
|---|-------|---------|
| SHARK connectors                              | page  | 55      |
| Hydraulic crimping heads for SHARK technology | pages | 56 - 57 |
| Hydraulic drives for SHARK technology         | page  | 58      |
| Trolleys with extension arms                  | page  | 58      |

## SHARK connectors

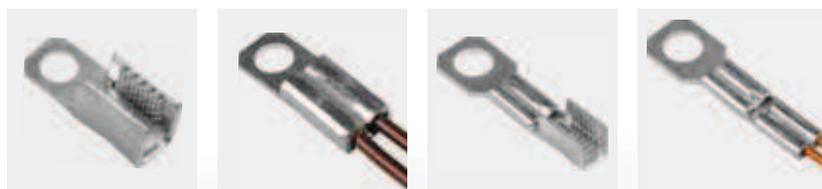
for winding enameled and non-enameled Cu and Al wires

SHARK technology is dedicated to connect winding enameled wires in engines and oil transformers, copper and aluminum wires, round and rectangular wires. We provide technical advice by recommending Shark connections and other configurations according to arrangements with customer.

- **Quality of connection**  
Connections made with Shark connectors conform with the requirements of PN-EN 61238 U (2004) standard, and have been awarded a certificate issued by Electrotechnical Institute from Warsaw.
- **Durable connection**  
Connections made with Shark connectors have been in use in transformers for over 10 years.
- **Clean technology**  
Thank to use of Shark technology, process of removing enamel insulation from the wires has been eliminated. When connecting wires there is no need to secure the transformer against generated impurities.
- **Environment friendly technology**  
Shark connector fast and reliably replaces harmful to the environment soldering and enamel insulation burning processes.
- **Easy operation**  
Dedicated and efficient tools and ERKO team help in preparing technology, enable trouble free implementation of Shark technology at customer's plant.
- **Increased efficiency**  
All our customers who implemented Shark technology gained a significant increase in performance comparing to previously used technology.
- **Economical technology**  
Elimination of preparatory processes, energy consuming soldering process, reduction of stored connectors range, high efficiency of the process makes Shark technology more beneficial than traditional methods.
- **Universal technology**  
With one Shark connector one can make connection using wires of different cross-section, shape and material. Having over a dozen of connectors, any wire within scope of Shark connectors can be connected. We are able to recommend alternative connection solution for any presently used by customer.



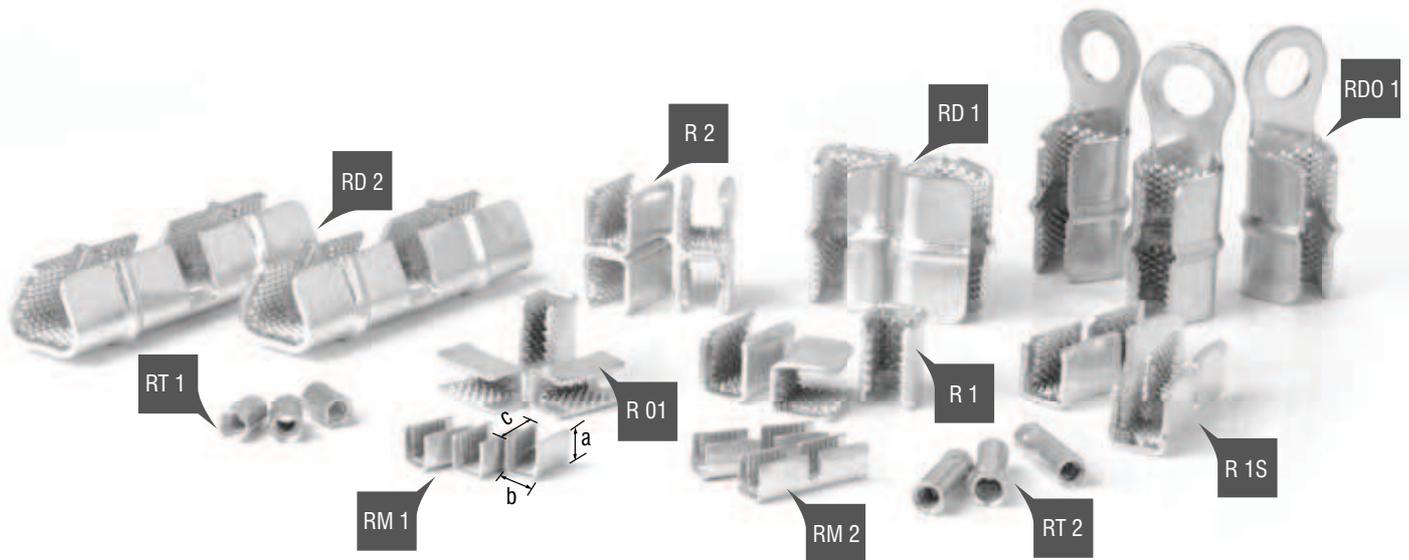
In connection made with Shark technology, teeth of the connector bite through the enamel and into the core of connected wires. Therefore made connection is electrically and mechanically reliable.



Possibility of adapting connectors for customer's needs.



# Typical connectors types



| Connector type | Round wires          |      | Rectangular wires range [mm] |     |       |      | Total cross section [mm <sup>2</sup> ] | Connector's dimensions [mm] |      |      | Crimping tool |
|----------------|----------------------|------|------------------------------|-----|-------|------|--|-----------------------------|------|------|---------------|
|                | Diameters range [mm] |      | Thickness                    |     | Width |      |  | a                           | b    | c    |               |
|                | Ømin                 | Ømax | min                          | max | min   | max  |  |                             |      |      |               |
| RT 1           | 0,5                  | 1,5  |                              |     |       |      | 1,77                                   | Ø7                          | -    | 11   | GRT 1, EGRT 1 |
| RT 2           | 0,5                  | 1,5  |                              |     |       |      | 3,54                                   | Ø7                          | -    | 22   |               |
| RM 1           | 0,55                 | 1,5  | -                            | -   | -     | -    | 3,5                                    | 8                           | 8    | 12,5 | GRM 1, EGRM 1 |
| RM 2           | 0,55                 | 1,5  | -                            | -   | -     | -    | 3,5x2                                  | 8                           | 8    | 28   |               |
| R 01           | 1,5                  | 3    | 2                            | 4,5 | 2     | 2,3  | 10,5                                   | 10,5                        | 10   | 19,5 | GR 1          |
| R 1            | 1,5                  | 5    | 2                            | 4,1 | 2     | 7,1  | 26,6                                   | 14,5                        | 13   | 19,5 |               |
| R 1S           | 1,5                  | 5    | 2                            | 4,1 | 2     | 7,1  | 26,6x2                                 | 14,5                        | 13   | 42   |               |
| R 2            | 1,5                  | 5    | 2                            | 4,1 | 2     | 7,1  | 26,6x2                                 | 29                          | 13   | 19,5 | GRD 1         |
| RD 1           |                      |      | 2,15*                        | 4   | 5*    | 14,5 | 25-65                                  | 19                          | 23,5 | 36,5 |               |
| RD 2           |                      |      | 2,15*                        | 6,5 | 5*    | 14,5 | 25-65x2                                | 19                          | 23,5 | 81,5 |               |

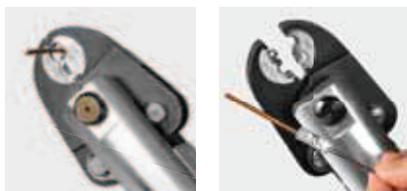
\* recommended ranges

| Connector type | Round wires          |      | Rectangular wires range [mm] |     |       |      | Total cross section [mm <sup>2</sup> ] | Connector's dimensions [mm] |      |      | Crimping tool |
|----------------|----------------------|------|------------------------------|-----|-------|------|--|-----------------------------|------|------|---------------|
|                | Diameters range [mm] |      | Thickness                    |     | Width |      |  | a                           | b    | c    |               |
|                | Ømin                 | Ømax | min                          | max | min   | max  |  |                             |      |      |               |
| RT 1           | 0,8                  | 1,9  |                              |     |       |      | 1,77                                   | Ø7                          | -    | 11   | GRT 1, EGRT 1 |
| RT 2           | 0,8                  | 1,9  |                              |     |       |      | 3,54                                   | Ø7                          | -    | 22   |               |
| RM 1           | 0,8                  | 2,2  | -                            | -   | -     | -    | 3,5                                    | 8                           | 8    | 12,5 | GRM 1, EGRM 1 |
| RM 2           | 0,8                  | 2,2  | -                            | -   | -     | -    | 3,5x2                                  | 8                           | 8    | 28   |               |
| R 01           | 1,5                  | 3    | 2                            | 4,5 | 2     | 2,3  | 10,5                                   | 10,5                        | 10   | 19,5 | GR 1          |
| R 1            | 1,5                  | 5    | 2                            | 4,1 | 2     | 7,1  | 26,6                                   | 14,5                        | 13   | 19,5 |               |
| R 1S           | 1,5                  | 5    | 2                            | 4,1 | 2     | 7,1  | 26,6x2                                 | 14,5                        | 13   | 42   |               |
| R 2            | 1,5                  | 5    | 2                            | 4,1 | 2     | 7,1  | 26,6x2                                 | 29                          | 13   | 19,5 | GRD 1         |
| RD 1           |                      |      | 3,15                         | 4   | 5     | 14,5 | 25-65                                  | 19                          | 23,5 | 36,5 |               |
| RD 2           |                      |      | 3,15                         | 6,5 | 5     | 14,5 | 25-65x2                                | 19                          | 23,5 | 81,5 |               |



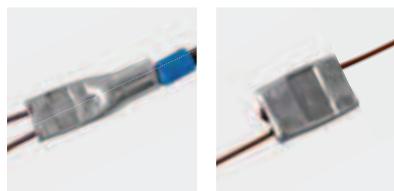
## EGRT Battery powered hydraulic press

NEW



Battery powered press for SHARK connectors:

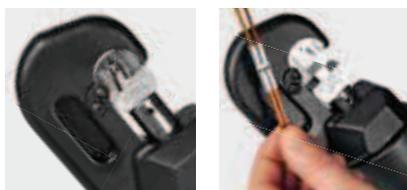
- RT 1, RT 2
  - on winding enameled and non-enameled wires
  - equipped with SRT dies
  - efficient Li-Ion battery
  - automatic retraction when maximum pressure is achieved
  - automatic off switch ending operation cycle after a proper crimping is complete – indicated by green LED, not accurate crimping cycle - indicated by red LED
  - electronic record of operation cycle – data transfer via USB
- Length: 463 mm; Weight: 3 kg



Form of crimping on wire.

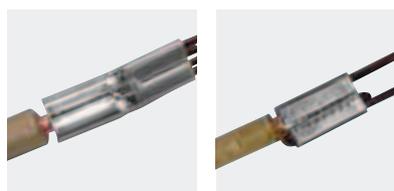
## EGRM Battery powered hydraulic press

NEW



Battery powered press for SHARK connectors:

- RM 1, RM 2
  - on winding enameled and non-enameled wires
  - equipped with SRM dies
  - efficient Li-Ion battery
  - automatic retraction when maximum pressure is achieved
  - automatic off switch ending operation cycle after a proper crimping is complete – indicated by green LED, not accurate crimping cycle - indicated by red LED
  - electronic record of operation cycle – data transfer via USB
- Length: 401 mm; Weight: 2,9 kg



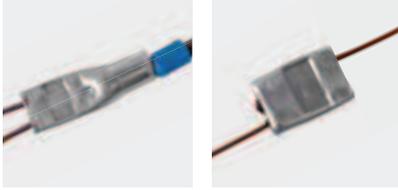
Form of crimping on wire.

## GRT 1 Hydraulic head

Head for SHARK connectors:

- RT 1, RT 2
- on winding enameled and non-enameled wires
- equipped with SRT dies
- PRT quick coupler

Lenght: 330 mm; Weight: 2,7 kg



Form of crimping on wire.



### Crimping dies for GRT 1 head



#### SRT Crimping dies

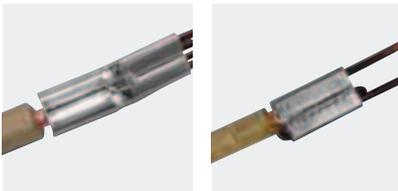
Used for RT 1, RT 2 connectors

## GRM 1 Hydraulic head

Head for SHARK connectors:

- RM 1, RM 2
- on winding enameled and non-enameled wires
- equipped with SRM dies
- ZT quick coupler

Lenght : 220 mm; Weight : 1,5 kg



Form of crimping on wire.

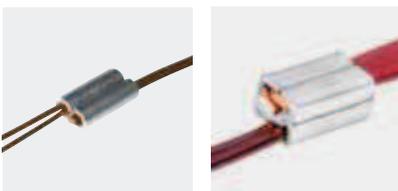


## GR 1 Hydraulic head

Head for SHARK connectors:

- R 1, R 1S, R 2, R 01
- on winding enameled and non-enameled wires
- works with SR dies
- PT quick coupler

Lenght: 330 mm; Weight (without dies): 5,6 kg



Form of crimping on wire.



### Crimping dies for GR 1 head



#### SR 01 Crimping dies

Used for R 01 connectors.

#### SR 1 Crimping dies

Used for R 1, R 1S connectors.

#### SR 2 Crimping dies

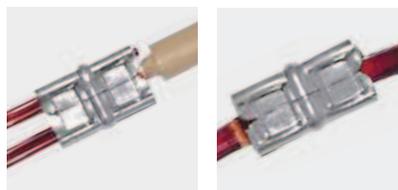
Used for R 2 connectors

## GRD 1 Hydraulic head

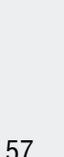
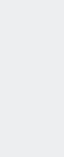
Head for SHARK connectors:

- RD 1, RD 2, RDO 1
- on winding enameled and non-enameled wires
- equipped with SRD dies
- PT quick coupler

Lenght: 420 mm; Weight: 18,5 kg



Form of crimping on wire.



## AH 300R, AH 300RM, AH 400RD, AH 200RT Electric hydraulic units



**AH 300R  
AH 300RM  
AH 400RD  
AH 200RT**

Electric hydraulic power unit:

- pressure: 200 ÷ 650 bar
- power supply voltage: 3 x 400V (sequence of phases unimportant)
- power: 1,1 kW
- efficiency: 0,66 ÷ 1,33 l/m
- works with hydraulic heads GR 1, GRM 1, GRT 1, GRD 1
- equipped with hydraulic hose
- quick coupler: PM for GR 1 and GRD 1, ZM for GRM 1, ZRT for GRT 1
- 3m long hydraulic hose

## Trolley with WB extension arm



**WB 6**



**WB 7**



**WB 1**

Trolley with extension arm along appropriate hydraulic drive and head, form integrated work site as in picture.

## AH 300R3 + WB6 – Special design



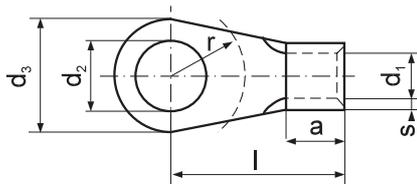
Electric hydraulic power unit ( for GR 1, GRM 1 and GRT 1 hydraulic heads) with trolley and WB 6 extension arm form integrated work site enabling work with three different heads.





KOA Ring terminal

for multi-wire Cu cables



Without insulation  
Material: galvanically tinned copper  
According to DIN 46234

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol       | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | l [mm] | a [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |    |     |      |                 |
|----------------------------------|-------------|---------------------|--------------|--------|---------------------|---------------------|--------|--------|--------|----------------|------------|--|----|-----|------|-----------------|
| 0,1 ÷ 0,5 **                     | 2           | 2,2                 | KOA 2-0,5    | 0,5    | 1                   | 5                   | 10     | 4      | 4      | 0,20           | 100        |  |    |     |      |                 |
|                                  | 2,5         | 2,7                 | KOA 2,5-0,5  |        |                     |                     |        |        |        |                |            | 5  | 10 | 4   | 0,20 |                 |
|                                  | 3           | 3,2                 | KOA 3-0,5    |        |                     |                     |        |        |        |                |            | 5  | 10 | 4,5 | 0,20 | AE22-05,        |
|                                  | 4           | 4,3                 | KOA 4-0,5    |        |                     |                     |        |        |        |                |            | 6,5  | 12 | 6   | 0,40 | ETA66           |
|                                  | 5           | 5,3                 | KOA 5-0,5    |        |                     |                     |        |        |        |                |            | 8  | 12 | 6,5 | 0,30 |                 |
|                                  | 6           | 6,5                 | KOA 6-0,5 *  |        |                     |                     |        |        |        |                |            | 10   | 13 | 7   | 0,41 |                 |
| 0,5 ÷ 1                          | 3           | 3,2                 | KOA 3-1      | 0,8    | 1,6                 | 6                   | 11     | 5      | 4,5    | 0,53           | 100        |  |    |     |      |                 |
|                                  | 4           | 4,3                 | KOA 4-1      |        |                     |                     |        |        |        |                |            | 8  | 12 | 5,5 | 0,66 |                 |
|                                  | 5           | 5,5                 | KOA 5-1-A *  |        |                     |                     |        |        |        |                |            | 8  | 12 | 6   | 0,80 |                 |
|                                  | 5           | 5,5                 | KOA 5-1      |        |                     |                     |        |        |        |                |            | 10   | 12 | 6   | 0,80 |                 |
|                                  | 6           | 6,5                 | KOA 6-1 *    |        |                     |                     |        |        |        |                |            | 12   | 17 | 10  | 1,05 |                 |
|                                  | 8           | 8,5                 | KOA 8-1 *    |        |                     |                     |        |        |        |                |            | 12   | 17 | 10  | 0,85 | PR33,<br>A22-2, |
| 1,5 ÷ 2,5                        | 3           | 3,2                 | KOA 3-2,5    | 0,8    | 2,3                 | 6                   | 11     | 5      | 4,5    | 0,60           | 100        | A11-6,<br>RA16,<br>ETA66,<br>PP8,<br>PP19  |    |     |      |                 |
|                                  | 4           | 4,3                 | KOA 4-2,5    |        |                     |                     |        |        |        |                |            |  | 8  | 12  | 6    | 0,70            |
|                                  | 5           | 5,5                 | KOA 5-2,5    |        |                     |                     |        |        |        |                |            |  | 10 | 14  | 6,5  | 0,90            |
|                                  | 6           | 6,5                 | KOA 6-2,5    |        |                     |                     |        |        |        |                |            |  | 11 | 16  | 6,5  | 1,00            |
|                                  | 8           | 8,5                 | KOA 8-2,5    |        |                     |                     |        |        |        |                |            |  | 14 | 17  | 10   | 1,24            |
|                                  | 10          | 11                  | KOA 10-2,5 * |        |                     |                     |        |        |        |                |            |  | 18 | 20  | 12   | 1,77            |
|                                  | 12          | 13                  | KOA 12-2,5 * |        |                     |                     |        |        |        |                |            |  | 18 | 20  | 13   | 1,40            |
| 4 ÷ 6                            | 4           | 4,3                 | KOA 4-6      | 1      | 3,6                 | 8                   | 14     | 6      | 6      | 1,30           | 100        | PR33,<br>A11-6,<br>RA16,<br>ETA66,<br>PP8,<br>PP19   |    |     |      |                 |
|                                  | 5           | 5,5                 | KOA 5-6      |        |                     |                     |        |        |        |                |            |  | 10 | 15  | 6,5  | 1,60            |
|                                  | 6           | 6,5                 | KOA 6-6      |        |                     |                     |        |        |        |                |            |  | 11 | 16  | 7,5  | 1,70            |
|                                  | 8           | 8,5                 | KOA 8-6      |        |                     |                     |        |        |        |                |            |  | 14 | 19  | 10   | 2,10            |
|                                  | 10          | 11                  | KOA 10-6     |        |                     |                     |        |        |        |                |            |  | 18 | 21  | 12   | 2,78            |
|                                  | 12          | 13                  | KOA 12-6 *   |        |                     |                     |        |        |        |                |            |  | 18 | 21  | 12   | 3,20            |
| 10                               | 4           | 4,3                 | KOA 4-10 *   | 1,1    | 4,5                 | 11                  | 16     | 8      | 6,5    | 2,35           | 100        | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>PRZ240, G0300,<br>HR300, GU120,<br>HR100-U,<br>PR240, R50,<br>RA16, PP19 |    |     |      |                 |
|                                  | 5           | 5,5                 | KOA 5-10 *   |        |                     |                     |        |        |        |                |            |  | 11 | 16  | 6,5  | 2,35            |
|                                  | 6           | 6,5                 | KOA 6-10     |        |                     |                     |        |        |        |                |            |  | 11 | 17  | 7,5  | 2,41            |
|                                  | 8           | 8,5                 | KOA 8-10     |        |                     |                     |        |        |        |                |            |  | 14 | 20  | 10   | 2,97            |
|                                  | 10          | 11                  | KOA 10-10    |        |                     |                     |        |        |        |                |            |  | 18 | 21  | 12   | 3,35            |
|                                  | 12          | 13                  | KOA 12-10    |        |                     |                     |        |        |        |                |            |  | 22 | 23  | 13   | 4,30            |
| 16                               | 5           | 5,5                 | KOA 5-16     | 1,2    | 5,8                 | 11                  | 20     | 10     | 7,5    | 3,85           | 100        |  |    |     |      |                 |
|                                  | 6           | 6,5                 | KOA 6-16     |        |                     |                     |        |        |        |                |            | 11   | 20 | 7,5 | 3,70 | RA16            |
|                                  | 8           | 8,5                 | KOA 8-16     |        |                     |                     |        |        |        |                |            | 14   | 22 | 10  | 4,10 | PP19            |
|                                  | 10          | 11                  | KOA 10-16    |        |                     |                     |        |        |        |                |            | 18   | 24 | 12  | 5,00 | + as below      |
|                                  | 12          | 13                  | KOA 12-16    |        |                     |                     |        |        |        |                |            | 22   | 26 | 13  | 5,85 |                 |



Form of crimping KOA terminal

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | l [mm] | a [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |
|----------------------------------|-------------|---------------------|------------|--------|---------------------|---------------------|--------|--------|--------|----------------|------------|--|
| 25                               | 6           | 6,5                 | KOA 6-25   | 1,5    | 7,5                 | 12                  | 25     | 11     | 7,5    | 6,80           | 50         | PP19<br>+ as above   |
|                                  | 8           | 8,5                 | KOA 8-25   |        |                     | 16                  | 25     | 10     | 7,60   |                |            |  |
|                                  | 10          | 11                  | KOA 10-25  |        |                     | 18                  | 26     | 12     | 7,60   |                |            |  |
|                                  | 12          | 13                  | KOA 12-25  |        |                     | 22                  | 31     | 13     | 9,70   |                |            |  |
| 35                               | 6           | 6,5                 | KOA 6-35   | 1,6    | 9                   | 15                  | 26     | 12     | 10     | 9,60           | 50         | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,<br>GO300,<br>HR300,<br>GU120,<br>HR100-U,<br>PR240,<br>R50 |
|                                  | 8           | 8,5                 | KOA 8-35   |        |                     | 16                  | 26     | 10     | 9,44   |                |            |  |
|                                  | 10          | 11                  | KOA 10-35  |        |                     | 18                  | 27     | 12     | 9,34   |                |            |  |
|                                  | 12          | 13                  | KOA 12-35  |        |                     | 22                  | 31     | 12     | 11,80  |                |            |  |
| 50                               | 6           | 6,5                 | KOA 6-50   | 1,8    | 11                  | 18                  | 34     | 16     | 10     | 17,10          | 50         | GO300,<br>HR300,<br>GU120,<br>HR100-U,<br>PR240,<br>R50  |
|                                  | 8           | 8,5                 | KOA 8-50   |        |                     | 18                  | 34     | 12     | 16,80  |                |            |  |
|                                  | 10          | 11                  | KOA 10-50  |        |                     | 18                  | 34     | 12     | 16,30  |                |            |  |
|                                  | 12          | 13                  | KOA 12-50  |        |                     | 22                  | 36     | 13     | 17,90  |                |            |  |
|                                  | 16          | 17                  | KOA 16-50  |        |                     | 28                  | 40     | 16     | 21,10  |                |            |  |
| 70                               | 6           | 6,5                 | KOA 6-70   | 2      | 13                  | 22                  | 38     | 18     | 12     | 25,90          | 20         | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,<br>GO300,<br>HR300,<br>GU120,<br>HR100-U,<br>PR240,        |
|                                  | 8           | 8,5                 | KOA 8-70   |        |                     | 22                  | 38     | 13     | 24,00  |                |            |  |
|                                  | 10          | 11                  | KOA 10-70  |        |                     | 22                  | 38     | 13     | 24,60  |                |            |  |
|                                  | 12          | 13                  | KOA 12-70  |        |                     | 22                  | 38     | 13     | 23,80  |                |            |  |
|                                  | 16          | 17                  | KOA 16-70  |        |                     | 28                  | 42     | 16     | 40,50  |                |            |  |
| 95                               | 8           | 8,5                 | KOA 8-95   | 2,5    | 15                  | 24                  | 42     | 20     | 14     | 38,10          | 20         | HRZ300,<br>PRZ240,<br>GO300,<br>HR300,<br>GU120,<br>HR100-U,<br>PR240,   |
|                                  | 10          | 11                  | KOA 10-95  |        |                     | 24                  | 42     | 14     | 41,00  |                |            |  |
|                                  | 12          | 13                  | KOA 12-95  |        |                     | 24                  | 42     | 14     | 39,60  |                |            |  |
|                                  | 16          | 17                  | KOA 16-95  |        |                     | 27                  | 41     | 14     | 41,45  |                |            |  |
| 120                              | 8           | 8,5                 | KOA 8-120  | 3      | 16,5                | 24                  | 44     | 22     | 12     | 53,80          | 20         | HR100-U,<br>PR240,   |
|                                  | 10          | 11                  | KOA 10-120 |        |                     | 24                  | 44     | 12     | 54,00  |                |            |  |
|                                  | 12          | 13                  | KOA 12-120 |        |                     | 24                  | 44     | 13     | 53,50  |                |            |  |
|                                  | 16          | 17                  | KOA 16-120 |        |                     | 29                  | 44     | 16     | 56,80  |                |            |  |

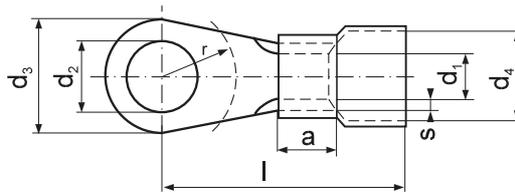
\*- outside DIN standard

\*\*- tubular part not soldered



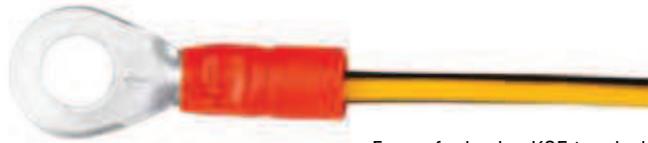
KOE Ring terminal

for multi-wire Cu cables



With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper  
 Tubular part according to DIN 46234

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol       | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | d <sub>4</sub> [mm] | l [mm] | a [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |          |     |      |      |
|----------------------------------|-------------|---------------------|--------------|--------|---------------------|---------------------|---------------------|--------|--------|--------|----------------|------------|--|----------|-----|------|------|
| 0,1 ÷ 0,5                        | 2           | 2,2                 | KOE 2-0,5    | 0,5    | 1                   | 5                   | 2,8                 | 14     | 4      | 4      | 0,35           | 100        | AE 22-05   |          |     |      |      |
|                                  | 2,5         | 2,7                 | KOE 2,5-0,5  |        |                     |                     |                     |        |        |        |                |            |  | 5        | 14  | 4    | 0,35 |
|                                  | 3           | 3,2                 | KOE 3-0,5    |        |                     |                     |                     |        |        |        |                |            |  | 5        | 14  | 4,5  | 0,30 |
|                                  | 4           | 4,3                 | KOE 4-0,5    |        |                     |                     |                     |        |        |        |                |            |  | 6,5      | 16  | 6    | 0,30 |
|                                  | 5           | 5,3                 | KOE 5-0,5    |        |                     |                     |                     |        |        |        |                |            |  | 8        | 16  | 6,5  | 0,40 |
|                                  | 6           | 6,5                 | KOE 6-0,5 *  |        |                     |                     |                     |        |        |        |                |            |  | 10       | 17  | 7    | 0,51 |
| 0,5 ÷ 1,0                        | 3           | 3,2                 | KOE 3-1      | 0,8    | 1,6                 | 6                   | 4                   | 16     | 5      | 4,5    | 0,60           | 100        | PR33, E11-6, RE6, PP8, PP19  |          |     |      |      |
|                                  | 4           | 4,3                 | KOE 4-1      |        |                     |                     |                     |        |        |        |                |            |  | 8        | 17  | 5,5  | 0,76 |
|                                  | 5           | 5,5                 | KOE 5-1-A *  |        |                     |                     |                     |        |        |        |                |            |  | 8        | 17  | 6    | 0,87 |
|                                  | 5           | 5,5                 | KOE 5-1      |        |                     |                     |                     |        |        |        |                |            |  | 10       | 17  | 6    | 0,87 |
|                                  | 6           | 6,5                 | KOE 6-1 *    |        |                     |                     |                     |        |        |        |                |            |  | 12       | 22  | 10   | 1,21 |
|                                  | 8           | 8,5                 | KOE 8-1 *    |        |                     |                     |                     |        |        |        |                |            |  | 12       | 22  | 10   | 1,03 |
| 1,5 ÷ 2,5                        | 3           | 3,2                 | KOE 3-2,5    | 0,8    | 2,3                 | 6                   | 5                   | 16     | 5      | 4,5    | 0,78           | 100        | PR33, E11-6, RE6, PP8, PP19  |          |     |      |      |
|                                  | 4           | 4,3                 | KOE 4-2,5    |        |                     |                     |                     |        |        |        |                |            |  | 8        | 17  | 6    | 0,89 |
|                                  | 5           | 5,5                 | KOE 5-2,5    |        |                     |                     |                     |        |        |        |                |            |  | 10       | 19  | 6,5  | 1,08 |
|                                  | 6           | 6,5                 | KOE 6-2,5    |        |                     |                     |                     |        |        |        |                |            |  | 11       | 21  | 6,5  | 1,20 |
|                                  | 8           | 8,5                 | KOE 8-2,5    |        |                     |                     |                     |        |        |        |                |            |  | 14       | 22  | 10   | 1,40 |
|                                  | 10          | 11                  | KOE 10-2,5 * |        |                     |                     |                     |        |        |        |                |            |  | 18       | 25  | 12   | 1,96 |
| 4 ÷ 6                            | 12          | 13                  | KOE 12-2,5 * | 18     | 25                  | 13                  | 1,70                |        |        |        |                |            |  |          |     |      |      |
|                                  | 16          | 17                  | KOE 16-2,5 * | 22     | 26                  | 16                  | 1,95                |        |        |        |                |            |  |          |     |      |      |
|                                  | 4           | 4,3                 | KOE 4-6      | 1      | 3,6                 | 8                   | 7                   | 20     | 6      | 6      | 1,73           | 100        | PR33, E11-6, RE6, PP8, PP19  |          |     |      |      |
|                                  | 5           | 5,5                 | KOE 5-6      |        |                     |                     |                     |        |        |        |                |            |  | 10       | 21  | 6,5  | 1,95 |
|                                  | 6           | 6,5                 | KOE 6-6      |        |                     |                     |                     |        |        |        |                |            |  | 11       | 22  | 7,5  | 2,02 |
|                                  | 8           | 8,5                 | KOE 8-6      |        |                     |                     |                     |        |        |        |                |            |  | 14       | 25  | 10   | 2,50 |
| 10                               | 11          | KOE 10-6            | 18           |        |                     |                     |                     |        |        |        |                |            |  | 26       | 12  | 3,10 |      |
| 12                               | 12          | KOE 12-6 *          | 18           |        |                     |                     |                     |        |        |        |                |            |  | 26       | 12  | 1,39 |      |
| 10                               | 4           | 4,3                 | KOE 4-10 *   | 1,1    | 4,5                 | 11                  | 8,4                 | 24     | 8      | 6,5    | 2,50           | 100        | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, G0300, HR300, GU120, HR100-U, PR240, R50, RE16, PP19 |          |     |      |      |
|                                  | 5           | 5,5                 | KOE 5-10 *   |        |                     |                     |                     |        |        |        |                |            |  | 11       | 24  | 6,5  | 2,80 |
|                                  | 6           | 6,5                 | KOE 6-10     |        |                     |                     |                     |        |        |        |                |            |  | 11       | 25  | 7,5  | 2,90 |
|                                  | 8           | 8,5                 | KOE 8-10     |        |                     |                     |                     |        |        |        |                |            |  | 14       | 28  | 10   | 3,40 |
|                                  | 10          | 11                  | KOE 10-10    |        |                     |                     |                     |        |        |        |                |            |  | 18       | 29  | 12   | 4,10 |
|                                  | 12          | 13                  | KOE 12-10    |        |                     |                     |                     |        |        |        |                |            |  | 22       | 31  | 13   | 4,90 |
| 16                               | 5           | 5,5                 | KOE 5-16     | 1,2    | 5,8                 | 11                  | 9,7                 | 30     | 10     | 7,5    | 4,60           | 100        | GU120, HR100-U, PR240, R50, RE16, PP19   |          |     |      |      |
|                                  | 6           | 6,5                 | KOE 6-16     |        |                     |                     |                     |        |        |        |                |            |  | 11       | 30  | 7,5  | 4,60 |
|                                  | 8           | 8,5                 | KOE 8-16     |        |                     |                     |                     |        |        |        |                |            |  | 14       | 32  | 10   | 4,90 |
|                                  | 10          | 11                  | KOE 10-16    |        |                     |                     |                     |        |        |        |                |            |  | 18       | 34  | 12   | 5,32 |
|                                  | 12          | 13                  | KOE 12-16    |        |                     |                     |                     |        |        |        |                |            |  | 22       | 36  | 13   | 6,65 |
|                                  | 25          | 6                   | 6,5          |        |                     |                     |                     |        |        |        |                |            |  | KOE 6-25 | 1,5 | 7,5  | 12   |
| 8                                |             | 8,5                 | KOE 8-25     | 16     | 36                  | 10                  | 8,70                |        |        |        |                |            |  |          |     |      |      |
| 10                               |             | 11                  | KOE 10-25    | 18     | 37                  | 12                  | 8,30                |        |        |        |                |            |  |          |     |      |      |
| 12                               |             | 13                  | KOE 12-25    | 22     | 42                  | 13                  | 11,14               |        |        |        |                |            |  |          |     |      |      |



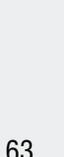
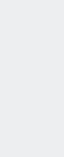
Form of crimping KOE terminal

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | d <sub>4</sub> [mm] | l [mm] | a [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |
|----------------------------------|-------------|---------------------|------------|--------|---------------------|---------------------|---------------------|--------|--------|--------|----------------|------------|--|
| 35                               | 6           | 6,5                 | KOE 6-35   | 1,6    | 9                   | 15                  | 12,8                | 38     | 12     | 10     | 10,94          | 50         | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,  |
|                                  | 8           | 8,5                 | KOE 8-35   |        |                     | 16                  | 38                  | 10     | 10,40  |        |                |            |  |
|                                  | 10          | 11                  | KOE 10-35  |        |                     | 18                  | 39                  | 12     | 10,80  |        |                |            |  |
|                                  | 12          | 13                  | KOE 12-35  |        |                     | 22                  | 43                  | 13     | 13,00  |        |                |            |  |
| 50                               | 6           | 6,5                 | KOE 6-50   | 1,8    | 11                  | 18                  | 15,5                | 50     | 16     | 10     | 20,00          | 50         | GO300,<br>HR300,<br>GU120,<br>HR100-U,<br>PR240,<br>R50  |
|                                  | 8           | 8,5                 | KOE 8-50   |        |                     | 18                  | 50                  | 12     | 19,90  |        |                |            |  |
|                                  | 10          | 11                  | KOE 10-50  |        |                     | 18                  | 50                  | 12     | 19,20  |        |                |            |  |
|                                  | 12          | 13                  | KOE 12-50  |        |                     | 22                  | 52                  | 13     | 20,90  |        |                |            |  |
|                                  | 16          | 17                  | KOE 16-50  |        |                     | 28                  | 56                  | 16     | 23,90  |        |                |            |  |
| 70                               | 6           | 6,5                 | KOE 6-70   | 2      | 13                  | 22                  | 18                  | 54     | 18     | 12     | 29,70          | 20         | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,<br>GO300,<br>HR300,<br>GU120,<br>HR100-U,<br>PR240 |
|                                  | 8           | 8,5                 | KOE 8-70   |        |                     | 22                  | 54                  | 13     | 25,30  |        |                |            |  |
|                                  | 10          | 11                  | KOE 10-70  |        |                     | 22                  | 54                  | 13     | 28,30  |        |                |            |  |
|                                  | 12          | 13                  | KOE 12-70  |        |                     | 22                  | 54                  | 13     | 29,00  |        |                |            |  |
|                                  | 16          | 17                  | KOE 16-70  |        |                     | 28                  | 58                  | 16     | 30,10  |        |                |            |  |
| 95                               | 8           | 8,5                 | KOE 8-95   | 2,5    | 15                  | 24                  | 21                  | 57     | 20     | 14     | 47,30          | 20         | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,<br>GO300,<br>HR300,<br>GU120,<br>HR100-U,<br>PR240 |
|                                  | 10          | 11                  | KOE 10-95  |        |                     | 24                  | 57                  | 14     | 46,70  |        |                |            |  |
|                                  | 12          | 13                  | KOE 12-95  |        |                     | 24                  | 57                  | 14     | 45,50  |        |                |            |  |
|                                  | 16          | 16                  | KOE 16-95  |        |                     | 27                  | 57                  | 14     | 45,00  |        |                |            |  |
| 120                              | 8           | 8,5                 | KOE 8-120  | 3      | 16,5                | 24                  | 22,5                | 60     | 22     | 12     | 29,80          | 20         | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,<br>GO300,<br>HR300,<br>GU120,<br>HR100-U,<br>PR240 |
|                                  | 10          | 11                  | KOE 10-120 |        |                     | 24                  | 60                  | 12     | 58,70  |        |                |            |  |
|                                  | 12          | 13                  | KOE 12-120 |        |                     | 24                  | 60                  | 13     | 61,20  |        |                |            |  |
|                                  | 16          | 17                  | KOE 16-120 |        |                     | 29                  | 60                  | 16     | 63,50  |        |                |            |  |

Insulation colours \* – outside DIN standard.

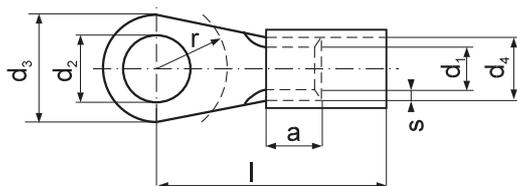
Standard production: the edges of folded tubular part are soldered.

VO class insulation on request – symbol e.g. KOE 5-1-VO.



## KOV Ring terminal

for multi-wire Cu cables



With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper  
 According to DIN 46237

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | d <sub>4</sub> [mm] | l [mm] | a [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools |       |
|----------------------------------|-------------|---------------------|------------|--------|---------------------|---------------------|---------------------|--------|--------|--------|----------------|------------|----------------|-------|
| 0,5 ÷ 1                          | 3           | 3,2                 | KOV 3-1    | 0,8    | 1,6                 | 6                   | 3,2                 | 16     | 5      | 4,5    | 0,66           | 100        |                |       |
|                                  | 4           | 4,3                 | KOV 4-1    |        |                     | 8                   |                     | 16     |        | 5,5    |                |            | 0,77           |       |
|                                  | 5           | 5,5                 | KOV 5-1    |        |                     | 10                  |                     | 17     |        | 6      |                |            | 1,00           |       |
|                                  | 6           | 6,5                 | KOV 6-1 *  |        |                     | 12                  |                     | 22     |        | 10     |                |            | 1,20           |       |
|                                  | 8           | 8,5                 | KOV 8-1 *  |        |                     | 12                  |                     | 22     |        | 10     |                |            | 1,23           |       |
| 1,5 ÷ 2,5                        | 3           | 3,2                 | KOV 3-2,5  | 0,8    | 2,3                 | 6                   | 3,9                 | 17     | 5      | 4,5    | 1,00           | 100        | PR33           |       |
|                                  | 4           | 4,3                 | KOV 4-2,5  |        |                     | 8                   |                     | 18     |        | 6      |                |            | 0,91           | RE6   |
|                                  | 5           | 5,5                 | KOV 5-2,5  |        |                     | 10                  |                     | 20     |        | 6,5    |                |            | 1,07           | PP8   |
|                                  | 6           | 6,5                 | KOV 6-2,5  |        |                     | 11                  |                     | 20     |        | 6,5    |                |            | 1,18           | PP19  |
|                                  | 8           | 8,5                 | KOV 8-2,5  |        |                     | 14                  |                     | 23     |        | 10     |                |            | 1,45           |       |
|                                  | 10          | 11                  | KOV 10-2,5 |        |                     | 18                  |                     | 26     |        | 12     |                |            | 1,70           |       |
|                                  | 12          | 13                  | KOV 12-2,5 |        |                     | 18                  |                     | 26     |        | 13     |                |            | 1,50           |       |
| 4 ÷ 6                            | 4           | 4,3                 | KOV 4-6    | 1      | 3,6                 | 8                   | 5,6                 | 20     | 6      | 6      | 1,69           | 100        | PR33           |       |
|                                  | 5           | 5,5                 | KOV 5-6    |        |                     | 10                  |                     | 21     |        | 6,5    |                |            | 1,89           | E11-6 |
|                                  | 6           | 6,5                 | KOV 6-6    |        |                     | 11                  |                     | 22     |        | 7,5    |                |            | 2,02           | RE6   |
|                                  | 8           | 8,5                 | KOV 8-6    |        |                     | 14                  |                     | 25     |        | 10     |                |            | 2,50           | PP8   |
|                                  | 10          | 11                  | KOV 10-6   |        |                     | 18                  |                     | 26     |        | 12     |                |            | 3,08           | PP19  |
| 12                               | 13          | KOV 12-6 *          | 18         | 27     | 12                  | 4,02                |                     |        |        |        |                |            |                |       |

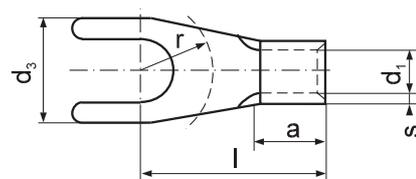
Insulation colours, \* - outside DIN standard

Standard production: the edges of folded tubular part are soldered.

VO class insulation on request – symbol e.g. KOV 5-1-VO.

## KNA Spade terminal

for multi-wire Cu cables



Without insulation  
 Material: galvanically tinned copper  
 Tubular part according to DIN 46234

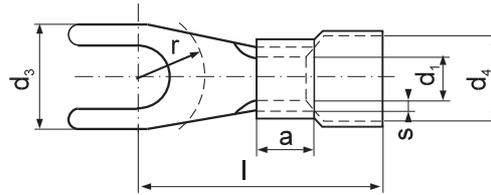
| Cross section [mm <sup>2</sup> ] | For screw M | Symbol        | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | l [mm] | a [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools          |      |                         |
|----------------------------------|-------------|---------------|--------|---------------------|---------------------|--------|--------|--------|----------------|------------|-------------------------|------|-------------------------|
| 0,5 ÷ 1                          | 3           | KNA 3-1       | 0,8    | 1,6                 | 6                   | 11     | 5      | 4,5    | 0,50           | 100        |                         |      |                         |
|                                  | 4           | KNA 4-1       |        |                     | 8                   |        |        | 12     |                |            | 4,5                     | 0,60 |                         |
|                                  | 5           | KNA 5-1       |        |                     | 10                  |        |        | 14     |                |            | 6,5                     | 0,75 | PR33                    |
|                                  | 6           | KNA 6-1 *     |        |                     | 11                  |        |        | 17     |                |            | 7,6                     | 0,95 | A22-2                   |
| 1,5 ÷ 2,5                        | 3           | KNA 3-2,5     | 0,8    | 2,3                 | 6                   | 11     | 5      | 4,5    | 0,55           | 100        | A11-6                   |      |                         |
|                                  | 3,5         | KNA 3,5-2,5   |        |                     | 6                   |        |        | 11     |                |            | 4,5                     | 0,50 | RA16                    |
|                                  | 4           | KNA 4-2,5-A * |        |                     | 6,8                 |        |        | 12     |                |            | 4,5                     | 0,69 | ETA66                   |
|                                  | 4           | KNA 4-2,5     |        |                     | 8                   |        |        | 12     |                |            | 4,5                     | 0,65 | PP8                     |
|                                  | 5           | KNA 5-2,5     |        |                     | 10                  |        |        | 14     |                |            | 6,5                     | 0,90 | PP19                    |
|                                  | 6           | KNA 6-2,5     |        |                     | 11                  |        |        | 16     |                |            | 7                       | 1,00 |                         |
|                                  | 8           | KNA 8-2,5     |        |                     | 14                  |        |        | 17     |                |            | 10                      | 1,20 |                         |
| 4 ÷ 6                            | 4           | KNA 4-6       | 1      | 3,6                 | 8                   | 14     | 6      | 4,5    | 1,40           | 100        | PR33, A11-6             |      |                         |
|                                  | 5           | KNA 5-6       |        |                     | 10                  |        |        | 15     |                |            | 6,5                     | 1,60 | RA16                    |
|                                  | 6           | KNA 6-6       |        |                     | 11                  |        |        | 16     |                |            | 7                       | 1,70 | ETA66                   |
|                                  | 8           | KNA 8-6       |        |                     | 14                  |        |        | 19     |                |            | 10                      | 2,20 | PP8, PP19               |
| 10                               | 5           | KNA 5-10      | 1,1    | 4,5                 | 10                  | 17     | 8      | 6,5    | 2,35           | 100        | EPZC300, EPZ300, GZ300, |      |                         |
|                                  | 6           | KNA 6-10      |        |                     | 11                  |        |        | 17     |                |            | 7,5                     | 2,30 | HR300, PRZ240, GO300,   |
|                                  | 8           | KNA 8-10      |        |                     | 14                  |        |        | 19     |                |            | 10                      | 2,80 | HRZ300, GU120, HR100-U, |

\* – outside DIN standard

for multi-wire Cu cables

KNE Spade terminal

With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper  
 Tubular part according to DIN 46234



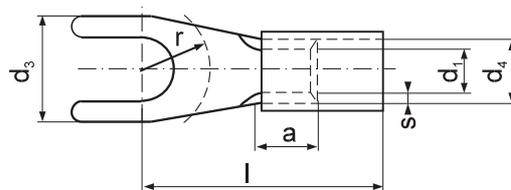
| Cross section [mm <sup>2</sup> ] | For screw M | Symbol        | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | d <sub>4</sub> [mm] | l [mm] | a [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |       |       |
|----------------------------------|-------------|---------------|--------|---------------------|---------------------|---------------------|--------|--------|--------|----------------|------------|--|-------|-------|
| 0,5 ÷ 1                          | 3           | KNE 3-1       | 0,8    | 1,6                 | 6                   | 4                   | 16     | 5      | 4,5    | 0,64           | 100        |  |       |       |
|                                  | 4           | KNE 4-1-A *   |        |                     | 6,8                 |                     | 17     |        | 4,5    |                |            |  | 0,75  |       |
|                                  | 4           | KNE 4-1       |        |                     | 8                   |                     | 17     |        | 4,5    |                |            |  | 0,73  |       |
|                                  | 5           | KNE 5-1       |        |                     | 10                  |                     | 19     |        | 6,5    |                |            |  | 0,887 | PR33  |
|                                  | 6           | KNE 6-1 *     |        |                     | 11                  |                     | 22     |        | 7      |                |            |  | 1,10  | E11-6 |
| 1,5 ÷ 2,5                        | 3           | KNE 3-2,5     | 0,8    | 2,3                 | 6                   | 5                   | 11     | 5      | 4,5    | 0,77           | 100        | RE6  |       |       |
|                                  | 3,5         | KNE 3,5-2,5   |        |                     | 6                   |                     | 11     |        | 4,5    |                |            |  | 0,72  | PP8   |
|                                  | 4           | KNE 4-2,5-A * |        |                     | 6,8                 |                     | 17     |        | 4,5    |                |            |  | 0,86  | PP19  |
|                                  | 4           | KNE 4-2,5     |        |                     | 8                   |                     | 17     |        | 4,5    |                |            |  | 0,88  |       |
|                                  | 5           | KNE 5-2,5     |        |                     | 10                  |                     | 19     |        | 6,5    |                |            |  | 1,07  |       |
|                                  | 6           | KNE 6-2,5     |        |                     | 11                  |                     | 21     |        | 7      |                |            |  | 1,21  |       |
|                                  | 8           | KNE 8-2,5     |        |                     | 14                  |                     | 22     |        | 10     |                |            |  | 1,45  |       |
|                                  | 8           | KNE 8-2,5     |        |                     | 14                  |                     | 22     |        | 10     |                |            |  | 1,45  |       |
| 4 ÷ 6                            | 4           | KNE 4-6       | 1      | 3,6                 | 8                   | 7                   | 20     | 6      | 4,5    | 1,68           | 100        | PR33, E11-6  |       |       |
|                                  | 5           | KNE 5-6       |        |                     | 10                  |                     | 21     |        | 6,5    |                |            |  | 1,87  | RE6   |
|                                  | 6           | KNE 6-6       |        |                     | 11                  |                     | 22     |        | 7      |                |            |  | 2,03  | PP8   |
|                                  | 8           | KNE 8-6       |        |                     | 14                  |                     | 25     |        | 10     |                |            |  | 2,49  | PP19  |
| 10                               | 5           | KNE 5-10      | 1,1    | 4,5                 | 10                  | 8,4                 | 25     | 8      | 6,5    | 3,00           | 100        | EPZC300, EPZ300, GZ300, HR300, PRZ240, GO300, HRZ300, GU120, HR100-U, PR240, R50, PP19, RA16 |       |       |
|                                  | 6           | KNE 6-10      |        |                     | 11                  |                     | 25     |        | 7,5    |                |            |  | 3,30  |       |
|                                  | 8           | KNE 8-10      |        |                     | 14                  |                     | 27     |        | 10     |                |            |  | 3,04  |       |

Insulation colours, \* – outside DIN standard  
 Standard production: the edges of folded tubular part are soldered.  
 VO class insulation on request – symbol e.g. KNE 5-1-VO.

for multi-wire Cu cables

KNV Spade terminal

With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper  
 Tubular part according to DIN 46234



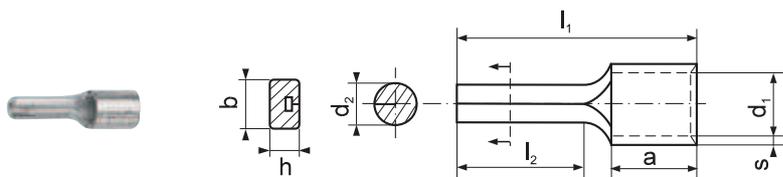
| Cross section [mm <sup>2</sup> ] | For screw M | Symbol        | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | d <sub>4</sub> [mm] | l [mm] | a [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools |      |       |
|----------------------------------|-------------|---------------|--------|---------------------|---------------------|---------------------|--------|--------|--------|----------------|------------|----------------|------|-------|
| 0,5 ÷ 1                          | 3           | KNV 3-1       | 0,8    | 1,6                 | 6                   | 3,2                 | 16     | 5      | 4,5    | 0,60           | 100        |                |      |       |
|                                  | 4           | KNV 4-1-A *   |        |                     | 6,8                 |                     | 17     |        | 4,5    |                |            |                | 0,70 |       |
|                                  | 4           | KNV 4-1       |        |                     | 8                   |                     | 17     |        | 4,5    |                |            |                | 0,70 |       |
|                                  | 5           | KNV 5-1       |        |                     | 10                  |                     | 19     |        | 6,5    |                |            |                | 0,75 | PR33  |
|                                  | 6           | KNV 6-1 *     |        |                     | 11                  |                     | 22     |        | 7      |                |            |                | 1,05 | E11-6 |
| 1,5 ÷ 2,5                        | 3           | KNV 3-2,5     | 0,8    | 2,3                 | 6                   | 3,9                 | 11     | 5      | 4,5    | 0,76           | 100        | RE6            |      |       |
|                                  | 3,5         | KNV 3,5-2,5   |        |                     | 6                   |                     | 11     |        | 4,5    |                |            |                | 0,75 | PP8   |
|                                  | 4           | KNV 4-2,5-A * |        |                     | 6,8                 |                     | 17     |        | 4,5    |                |            |                | 0,89 | PP19  |
|                                  | 4           | KNV 4-2,5     |        |                     | 8                   |                     | 17     |        | 4,5    |                |            |                | 0,88 |       |
|                                  | 5           | KNV 5-2,5     |        |                     | 10                  |                     | 19     |        | 6,5    |                |            |                | 1,08 |       |
|                                  | 6           | KNV 6-2,5     |        |                     | 11                  |                     | 21     |        | 7      |                |            |                | 1,08 |       |
|                                  | 8           | KNV 8-2,5     |        |                     | 14                  |                     | 22     |        | 10     |                |            |                | 1,45 |       |
|                                  | 8           | KNV 8-2,5     |        |                     | 14                  |                     | 22     |        | 10     |                |            |                | 1,45 |       |
| 4 ÷ 6                            | 4           | KNV 4-6       | 1      | 3,6                 | 8                   | 5,6                 | 20     | 6      | 6,5    | 1,76           | 100        | PR33, E11-6    |      |       |
|                                  | 5           | KNV 5-6       |        |                     | 10                  |                     | 21     |        | 7,5    |                |            |                | 1,77 | RE6   |
|                                  | 6           | KNV 6-6       |        |                     | 11                  |                     | 22     |        | 10     |                |            |                | 1,80 | PP8   |
|                                  | 8           | KNV 8-6       |        |                     | 14                  |                     | 25     |        | 10     |                |            |                | 2,45 | PP19  |

Insulation colours, \* – outside DIN standard  
 Standard production: the edges of folded tubular part are soldered.  
 VO class insulation on request – symbol e.g. KNV 5-1-VO.



### KWA Pin terminal

for multi-wire Cu cables

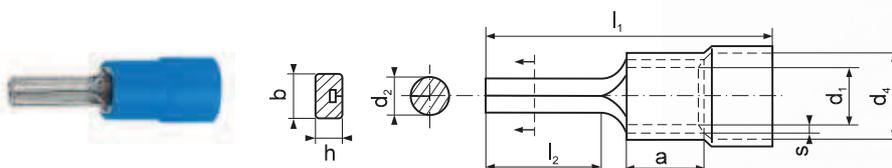


Without insulation  
Material: galvanically tinned copper  
According to DIN 46230

| Cross section [mm <sup>2</sup> ] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>2</sub> [mm] | b [mm] | h [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | a [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |
|----------------------------------|------------|--------|---------------------|---------------------|--------|--------|---------------------|---------------------|--------|----------------|------------|--|
| 0,5 ÷ 1                          | KWA 1      | 0,8    | 1,6                 | 1,9                 | -      | -      | 17                  | 10                  | 5      | 0,55           | 100        | PR33,  |
|                                  | KWA 1-A    | 0,8    | 1,6                 | 1,9                 | -      | -      | 19                  | 12                  | 5      | 0,60           | 100        | A11-6,   |
|                                  | KWA 1-20   | 0,8    | 1,6                 | 1,9                 | -      | -      | 28                  | 20                  | 5      | 0,80           | 100        | RA16,  |
| 1,5 ÷ 2,5                        | KWA 2,5    | 0,8    | 2,3                 | 1,9                 | -      | -      | 17                  | 10                  | 5      | 0,61           | 100        | ETA66,   |
|                                  | KWA 2,5-A  | 0,8    | 2,3                 | 1,9                 | -      | -      | 19                  | 12                  | 5      | 0,62           | 100        | PP8,   |
|                                  | KWA 2,5-20 | 0,8    | 2,3                 | 1,9                 | -      | -      | 28                  | 20                  | 5      | 0,71           | 100        | PP19   |
| 4 ÷ 6                            | KWA 6      | 1      | 3,6                 | 2,7                 | -      | -      | 20                  | 10                  | 6      | 1,45           | 100        | A11-6, PR33, RA16, ETA66, PP19   |
| 10                               | KWA 10     | 1,1    | 4,5                 | -                   | 4,3    | 2,4    | 22                  | 12                  | 8      | 2,54           | 100        | EPZC300, EPZ300, GZ300, HR300, PRZ240, GO300, HRZ300, GU120, HR100-U, PR240, R50, PP19, RA16 |
| 16                               | KWA 16     | 1,2    | 5,8                 | -                   | 5,5    | 2,6    | 26                  | 13                  | 10     | 4,25           | 100        |  |

### KWE Pin terminal

for multi-wire Cu cables



With polyamide insulation  
Thermal resistance: -40°C to +125°C  
Material: galvanically tinned copper  
According to DIN 46230 special edition

| Cross section [mm <sup>2</sup> ] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>2</sub> [mm] | d <sub>4</sub> [mm] | b [mm] | h [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | a [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |
|----------------------------------|------------|--------|---------------------|---------------------|---------------------|--------|--------|---------------------|---------------------|--------|----------------|------------|--|
| 0,5 ÷ 1                          | KWE 1      | 0,8    | 1,6                 | 1,9                 | 4                   | -      | -      | 22                  | 10                  | 5      | 0,65           | 100        | PR33   |
|                                  | KWE 1-A    | 0,8    | 1,6                 | 1,9                 | 4                   | -      | -      | 24                  | 12                  | 5      | 0,70           | 100        | RE6  |
|                                  | KWE 1-20   | 0,8    | 1,6                 | 1,9                 | 4                   | -      | -      | 33                  | 20                  | 5      | 0,90           | 100        | E11-6  |
| 1,5 ÷ 2,5                        | KWE 2,5    | 0,8    | 2,3                 | 1,9                 | 5,1                 | -      | -      | 22                  | 10                  | 5      | 0,78           | 100        | PP8  |
|                                  | KWE 2,5-A  | 0,8    | 2,3                 | 1,9                 | 5,1                 | -      | -      | 24                  | 12                  | 5      | 0,72           | 100        | PP19   |
|                                  | KWE 2,5-20 | 0,8    | 2,3                 | 1,9                 | 5,1                 | -      | -      | 33                  | 20                  | 5      | 1,05           | 100        |  |
| 4 ÷ 6                            | KWE 6      | 1      | 3,6                 | 2,7                 | 7,2                 | -      | -      | 26                  | 10                  | 6      | 1,77           | 100        | PR33, E11-6, RE6, PP8, PP19  |
| 10                               | KWE 10     | 1,1    | 4,5                 | -                   | 8,4                 | 4,3    | 2,4    | 30                  | 12                  | 8      | 3,04           | 100        | EPZC300, EPZ300, GZ300, HR300, PRZ240, GO300, HRZ300, GU120, HR100-U, PR240, R50, PP19, RE16 |
| 16                               | KWE 16     | 1,2    | 5,8                 | -                   | 9,7                 | 5,5    | 2,6    | 36                  | 13                  | 10     | 4,50           | 100        |  |

Insulation colours

Standard production: the edges of folded tubular part are soldered.

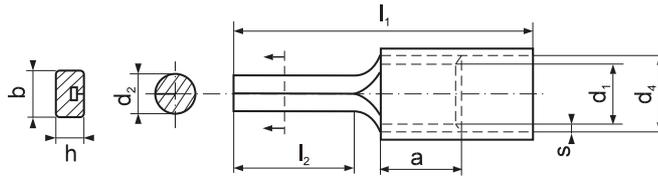
VO class insulation on request – symbol e.g. KWE 6-VO.



for multi-wire Cu cables

### KWV Pin terminal

With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper  
 According to DIN 46231



| Cross section [mm <sup>2</sup> ] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>2</sub> [mm] | d <sub>4</sub> [mm] | b [mm] | h [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | a [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools              |
|----------------------------------|------------|--------|---------------------|---------------------|---------------------|--------|--------|---------------------|---------------------|--------|----------------|------------|-----------------------------|
| 0,5 ÷ 1                          | KWV 1      | 0,8    | 1,6                 | 1,9                 | 3,2                 | -      | -      | 22                  | 10                  | 5      | 0,60           | 100        | PR33                        |
|                                  | KWV 1-A    | 0,8    | 1,6                 | 1,9                 | 3,2                 | -      | -      | 24                  | 12                  | 5      | 0,75           | 100        | RE6                         |
|                                  | KWV 1-20   | 0,8    | 1,6                 | 1,9                 | 3,2                 | -      | -      | 33                  | 20                  | 5      | 0,85           | 100        | E11-6                       |
| 1,5 ÷ 2,5                        | KWV 2,5    | 0,8    | 2,3                 | 1,9                 | 3,9                 | -      | -      | 22                  | 10                  | 5      | 0,68           | 100        | PP8                         |
|                                  | KWV 2,5-A  | 0,8    | 2,3                 | 1,9                 | 3,9                 | -      | -      | 24                  | 12                  | 5      | 0,68           | 100        | PP19                        |
|                                  | KWV 2,5-20 | 0,8    | 2,3                 | 1,9                 | 3,9                 | -      | -      | 33                  | 20                  | 5      | 0,95           | 100        |                             |
| 4 ÷ 6                            | KWV 6      | 1      | 3,6                 | 2,7                 | 5,6                 | -      | -      | 26                  | 10                  | 6      | 1,60           | 100        | PR33, E11-6, RE6, PP8, PP19 |

Insulation colours

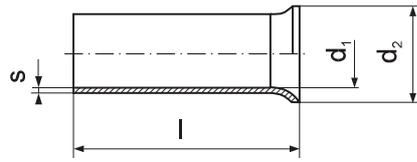
Standard production: the edges of folded tubular part are soldered.

VO class insulation on request – symbol e.g. KWV 6-VO.



TA Cable end-sleeve

for multi-wire Cu cables



Without insulation  
Material: galvanically tinned copper  
According to DIN 46228 part 1

| Cross section [mm <sup>2</sup> ] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>2</sub> [mm] | l [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |     |     |      |     |   |
|----------------------------------|------------|--------|---------------------|---------------------|--------|----------------|------------|--|-----|-----|------|-----|---|
| 0,5                              | TA 0,5-6   | 0,15   | 1                   | 2,1                 | 6      | 0,03           | 100        | PR33, T10,<br>T3, TC6<br>T16, T22-6                                      |     |     |      |     |   |
|                                  | TA 0,5-8   |        |                     |                     | 8 *    | 0,04           |            |  |     |     |      |     |   |
|                                  | TA 0,5-10  |        |                     |                     | 10     | 0,06           |            |  |     |     |      |     |   |
|                                  | TA 0,5-12  |        |                     |                     | 12 *   | 0,07           |            |  |     |     |      |     |   |
| 0,75                             | TA 0,75-6  | 0,15   | 1,2                 | 2,3                 | 6      | 0,04           | 100        |  |     |     |      |     |   |
|                                  | TA 0,75-8  |        |                     |                     | 8 *    | 0,05           |            |  |     |     |      |     |   |
|                                  | TA 0,75-10 |        |                     |                     | 10     | 0,07           |            |  |     |     |      |     |   |
|                                  | TA 0,75-12 |        |                     |                     | 12 *   | 0,06           |            |  |     |     |      |     |   |
| 1                                | TA 1-6     | 0,15   | 1,4                 | 2,5                 | 6      | 0,05           | 100        |  |     |     |      |     |   |
|                                  | TA 1-8     |        |                     |                     | 8 *    | 0,06           |            |  |     |     |      |     |   |
|                                  | TA 1-10    |        |                     |                     | 10     | 0,10           |            |  |     |     |      |     |   |
|                                  | TA 1-12    |        |                     |                     | 12 *   | 0,11           |            |  |     |     |      |     |   |
| 1,5                              | TA 1,5-7   | 0,15   | 1,7                 | 2,8                 | 7      | 0,06           | 100        | PR33,<br>T10,<br>T3,<br>TC6,<br>T16,<br>T22-6,<br>ETA66,<br>PP8,<br>PP19 |     |     |      |     |   |
|                                  | TA 1,5-8   |        |                     |                     | 8 *    | 0,07           |            |  |     |     |      |     |   |
|                                  | TA 1,5-10  |        |                     |                     | 10     | 0,09           |            |  |     |     |      |     |   |
|                                  | TA 1,5-12  |        |                     |                     | 12     | 0,11           |            |  |     |     |      |     |   |
| 2,5                              | TA 1,5-14  | 0,15   | 1,7                 | 2,8                 | 14 *   | 0,13           | 100        |  |     |     |      |     |   |
|                                  | TA 1,5-18  |        |                     |                     | 18     | 0,16           |            |  |     |     |      |     |   |
|                                  | TA 1,5-20  |        |                     |                     | 20 *   | 0,17           |            |  |     |     |      |     |   |
|                                  | TA 2,5-7   |        |                     |                     | 0,15   | 2,2            |            |  | 3,4 | 7   | 0,08 | 100 |   |
| TA 2,5-8                         | 8 *        | 0,09   |                     |                     |        |                |            |  |     |     |      |     |   |
| TA 2,5-10                        | 10         | 0,12   |                     |                     |        |                |            |  |     |     |      |     |   |
| TA 2,5-12                        | 12         | 0,14   |                     |                     |        |                |            |  |     |     |      |     |   |
| 4                                | TA 2,5-14  | 0,15   | 2,2                 | 3,4                 | 14 *   | 0,16           | 100        |  |     |     |      |     |   |
|                                  | TA 2,5-18  |        |                     |                     | 18     | 0,21           |            |  |     |     |      |     |   |
|                                  | TA 2,5-20  |        |                     |                     | 20 *   | 0,20           |            |  |     |     |      |     |   |
|                                  | TA 4-6     |        |                     |                     | 0,2    | 2,8            |            |  | 4,0 | 6 * | 0,11 | 100 | PR33, T10, TC6,<br>T16,<br>T22-6,<br>ETA66,<br>PP8,<br>PP19       |
| TA 4-9                           | 9          | 0,17   |                     |                     |        |                |            |  |     |     |      |     |   |
| TA 4-12                          | 12         | 0,23   |                     |                     |        |                |            |  |     |     |      |     |   |
| TA 4-14                          | 14 *       | 0,27   |                     |                     |        |                |            |  |     |     |      |     |   |
| 6                                | TA 4-18    | 0,2    | 2,8                 | 4,0                 | 18     | 0,35           | 100        |  |     |     |      |     |   |
|                                  | TA 4-20    |        |                     |                     | 20 *   | 0,36           |            |  |     |     |      |     |   |
|                                  | TA 6-10    |        |                     |                     | 0,2    | 3,5            |            |  | 4,7 | 10  | 0,24 | 100 | PR33, T10, TC6, T16,<br>T11-16,<br>T22-6,<br>ETA66,<br>PP8, PP19  |
|                                  | TA 6-12    |        |                     |                     |        |                |            |  |     | 12  | 0,26 |     |   |
| TA 6-15                          | 15         | 0,35   |                     |                     |        |                |            |  |     |     |      |     |   |
| TA 6-18                          | 18         | 0,40   |                     |                     |        |                |            |  |     |     |      |     |   |
| 10                               | TA 6-21    | 0,2    | 3,5                 | 4,7                 | 21 *   | 0,46           | 100        |  |     |     |      |     |   |
|                                  | TA 10-12   |        |                     |                     | 0,2    | 4,5            |            |  | 5,8 | 12  | 0,34 | 100 | PR33,<br>T10,<br>T16,<br>T11-16,<br>T22-6,<br>ETA66,<br>PP8, PP19 |
|                                  | TA 10-15   |        |                     |                     |        |                |            |  |     | 15  | 0,46 |     |   |
|                                  | TA 10-18   |        |                     |                     |        |                |            |  |     | 18  | 0,50 |     |   |
| TA 10-21                         | 21 *       | 0,61   |                     |                     |        |                |            |  |     |     |      |     |   |
| 16                               | TA 16-12   | 0,2    | 5,8                 | 7,5                 | 12     | 0,47           | 100        |  |     |     |      |     |   |
|                                  | TA 16-15   |        |                     |                     | 15     | 0,56           |            |  |     |     |      |     |   |
|                                  | TA 16-18   |        |                     |                     | 18     | 0,71           |            |  |     |     |      |     |   |
|                                  | TA 16-21   |        |                     |                     | 21 *   | 0,80           |            |  |     |     |      |     |   |
|                                  | TA 16-25   |        |                     |                     | 25     | 0,96           |            |  |     |     |      |     |   |
| TA 16-32                         | 32         | 1,22   |                     |                     |        |                |            |  |     |     |      |     |   |



Form of crimping TA cable end-sleeve

| Cross section [mm <sup>2</sup> ] | Symbol    | s [mm] | d <sub>1</sub> [mm] | d <sub>2</sub> [mm] | l [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |
|----------------------------------|-----------|--------|---------------------|---------------------|--------|----------------|------------|--|
| 25                               | TA 25-15  | 0,2    | 7,3                 | 9,5                 | 15     | 0,78           | 50         | EPZC300, EPZ300,<br>GZ300, HR300,<br>PRZ240, GO300,<br>HRZ300, PR33                          |
|                                  | TA 25-18  |        |                     |                     | 18     | 0,96           |            |  |
|                                  | TA 25-21  |        |                     |                     | 21 *   | 1,14           |            |  |
|                                  | TA 25-23  |        |                     |                     | 23 *   | 1,30           |            |  |
|                                  | TA 25-27  |        |                     |                     | 27 *   | 1,44           |            |  |
|                                  | TA 25-32  |        |                     |                     | 32     | 1,54           |            |  |
| 35                               | TA 35-15  | 0,2    | 8,3                 | 11                  | 15 *   | 0,92           | 50         | GU120, HR100-U,<br>PR240, R50, PP8,<br>PP19, T25/35,   |
|                                  | TA 35-18  |        |                     |                     | 18     | 0,94           |            |  |
|                                  | TA 35-21  |        |                     |                     | 21 *   | 1,12           |            |  |
|                                  | TA 35-23  |        |                     |                     | 23 *   | 1,22           |            |  |
|                                  | TA 35-25  |        |                     |                     | 25     | 1,32           |            |  |
|                                  | TA 35-32  |        |                     |                     | 32     | 1,76           |            |  |
| 50                               | TA 50-18  | 0,3    | 10,3                | 13                  | 18     | 1,71           | 20         | T50, PP19, PP8<br>+ as below   |
|                                  | TA 50-25  |        |                     |                     | 25     | 2,15           |            |  |
|                                  | TA 50-30  |        |                     |                     | 30 *   | 2,86           |            |  |
|                                  | TA 50-32  |        |                     |                     | 32     | 2,99           |            |  |
| 70 *                             | TA 70-25  | 0,5    | 13                  | 16                  | 25     | 4,70           | 20         |  |
|                                  | TA 70-30  |        |                     |                     | 30     | 5,89           |            |  |
| 95 *                             | TA 95-25  | 0,5    | 15                  | 18                  | 25     | 5,70           | 20         | EPZC300, EPZ300,<br>GZ300, HR300,<br>PRZ240, GO300,<br>HRZ300, GU120,<br>HR100-U, PR240, R50 |
|                                  | TA 95-30  |        |                     |                     | 30     | 6,80           |            |  |
| 120 *                            | TA 120-30 | 0,5    | 17                  | 20                  | 30     | 8,34           | 20         |  |
|                                  | TA 120-34 |        |                     |                     | 34     | 9,11           |            |  |
| 150 *                            | TA 150-32 | 0,5    | 18,5                | 21                  | 32     | 9,70           | 20         |  |
|                                  | TA 150-40 |        |                     |                     | 40     | 11,55          |            |  |
| 185 *                            | TA 185-32 | 0,6    | 20                  | 23,5                | 32     | 11,50          | 20         | EPZC300, EPZ300, GZ300,<br>HR300, PRZ240, GO300,<br>HRZ300, GU120,<br>HR100-U, PR240         |
|                                  | TA 185-40 |        |                     |                     | 40     | 14,45          |            |  |

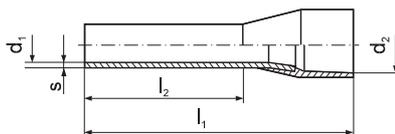
\* - lenght outside DIN standard

Cable end-sleeves of other dimensions on request.



TE Cable end sleeve

for multi-wire Cu cables



With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper  
 According to DIN 46228 part 4

| Cross section [mm <sup>2</sup> ] | Symbol       | Insulation colour | s [mm] | d <sub>1</sub> [mm]         | d <sub>2</sub> [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools                 |        |                                |
|----------------------------------|--------------|-------------------|--------|-----------------------------|---------------------|---------------------|---------------------|----------------|------------|--------------------------------|--------|--------------------------------|
| 0,14 *                           | TE 0,14-6    | grey              | 0,15   | 0,7                         | 1,6                 | 10                  | 6                   | 0,04           | 100        |                                |        |                                |
|                                  | 12           |                   |        |                             |                     | 8                   | 0,04                |                |            |                                |        |                                |
| 0,25 *                           | TE 0,25-6    | light blue        | 0,15   | 0,75                        | 1,8                 | 10                  | 6                   | 0,05           | 100        | T3,                            |        |                                |
|                                  | 12           |                   |        |                             |                     | 8                   | 0,05                |                |            |                                |        |                                |
| 0,34 *                           | TE 0,34-6    | turquoise         | 0,15   | 0,8                         | 2                   | 10                  | 6                   | 0,04           | 100        | T16                            |        |                                |
|                                  | 12           |                   |        |                             |                     | 8                   | 0,05                |                |            |                                |        |                                |
| 0,5                              | TE 0,5-6 V   | white             | 0,15   | 1                           | 2,6                 | 12                  | 6                   | 0,08           | 100        | PR33,                          |        |                                |
|                                  | TE 0,5-8 V   |                   |        |                             |                     | 14                  | 8                   | 0,08           |            |                                | T10    |                                |
|                                  | TE 0,5-10 V  |                   |        |                             |                     | 16                  | 10                  | 0,10           |            |                                |        |                                |
| 0,5                              | TE 0,5-6     | yellow *          | 0,15   | 1                           | 2,6                 | 12                  | 6                   | 0,08           | 100        | T16, TC6,                      |        |                                |
|                                  | TE 0,5-8     |                   |        |                             |                     | 14                  | 8                   | 0,09           |            |                                | T22-6, |                                |
|                                  | TE 0,5-10    |                   |        |                             |                     | 16                  | 10                  | 0,10           |            |                                |        | T3                             |
| 0,75                             | TE 0,75-6 V  | grey              | 0,15   | 1,2                         | 2,8                 | 12                  | 6                   | 0,08           | 100        |                                |        |                                |
|                                  | TE 0,75-8 V  |                   |        |                             |                     | 14                  | 8                   | 0,08           |            |                                |        |                                |
|                                  | TE 0,75-10 V |                   |        |                             |                     | 16                  | 10                  | 0,09           |            |                                |        |                                |
|                                  | TE 0,75-12 V |                   |        |                             |                     | 18                  | 12                  | 0,13           |            |                                |        |                                |
| 0,75                             | TE 0,75-6    | blue *            | 0,15   | 1,2                         | 2,8                 | 12                  | 6                   | 0,08           | 100        | PR33,                          |        |                                |
|                                  | TE 0,75-8    |                   |        |                             |                     | 14                  | 8                   | 0,08           |            |                                |        |                                |
|                                  | TE 0,75-10   |                   |        |                             |                     | 16                  | 10                  | 0,09           |            |                                |        |                                |
|                                  | TE 0,75-12   |                   |        |                             |                     | 18                  | 12                  | 0,12           |            |                                |        |                                |
| 1                                | TE 1-6       | red               | 0,15   | 1,4                         | 3                   | 12                  | 6                   | 0,09           | 100        | T10,                           |        |                                |
|                                  | TE 1-8       |                   |        |                             |                     | 14                  | 8                   | 0,09           |            |                                | T3,    |                                |
|                                  | TE 1-10      |                   |        |                             |                     | 16                  | 10                  | 0,12           |            |                                |        | TC6,                           |
|                                  | TE 1-12      |                   |        |                             |                     | 18                  | 12                  | 0,12           |            |                                |        |                                |
| 1,5                              | TE 1,5-8 V   | black             | 0,15   | 1,7                         | 3,5                 | 14                  | 8                   | 0,12           | 100        | T16,                           |        |                                |
|                                  | TE 1,5-10 V  |                   |        |                             |                     | 16                  | 10                  | 0,15           |            |                                | T22-6, |                                |
|                                  | TE 1,5-12 V  |                   |        |                             |                     | 18                  | 12                  | 0,16           |            |                                |        | ETA66,                         |
|                                  | TE 1,5-18 V  |                   |        |                             |                     | 24                  | 18                  | 0,21           |            |                                | PP8,   |                                |
|                                  | TE 1,5-8     |                   |        |                             |                     | 14                  | 8                   | 0,12           |            |                                |        |                                |
| 1,5                              | TE 1,5-8     | yellow *          | 0,15   | 1,7                         | 3,5                 | 14                  | 8                   | 0,12           | 100        |                                |        |                                |
|                                  | TE 1,5-10    |                   |        |                             |                     | 16                  | 10                  | 0,15           |            |                                |        |                                |
|                                  | TE 1,5-12    |                   |        |                             |                     | 18                  | 12                  | 0,15           |            |                                |        |                                |
|                                  | TE 1,5-18    |                   |        |                             |                     | 24                  | 18                  | 0,20           |            |                                |        |                                |
|                                  | TE 2,5-8     |                   |        |                             |                     | 14                  | 8                   | 0,14           |            |                                |        |                                |
| 2,5                              | TE 2,5-10    | blue              | 0,15   | 2,2                         | 4,2                 | 16                  | 10 *                | 0,19           | 100        |                                |        |                                |
|                                  | TE 2,5-12    |                   |        |                             |                     | 18                  | 12                  | 0,18           |            |                                |        |                                |
|                                  | TE 2,5-18    |                   |        |                             |                     | 24                  | 18                  | 0,26           |            |                                |        |                                |
|                                  | TE 4-10 V    |                   |        |                             |                     | 17                  | 10                  | 0,26           |            |                                | 100    | PR33, T10, TC6,                |
| TE 4-12 V                        | 20           | 12                | 0,29   | T16, T22-6,                 |                     |                     |                     |                |            |                                |        |                                |
| TE 4-18 V                        | 26           | 18                | 0,40   |                             | ETA66, PP8, PP19    |                     |                     |                |            |                                |        |                                |
| 4                                | TE 4-10      | red *             | 0,2    | 2,8                         | 4,8                 | 17                  | 10                  | 0,26           | 100        |                                |        |                                |
|                                  | TE 4-12      |                   |        |                             |                     | 20                  | 12                  | 0,29           |            |                                |        |                                |
|                                  | TE 4-18      |                   |        |                             |                     | 26                  | 18                  | 0,40           |            |                                |        |                                |
|                                  | TE 6-10      |                   |        |                             |                     | 18                  | 10 *                | 0,40           |            |                                | 100    | PR33, T10, T22-6, TC6,         |
| TE 6-12                          | 20           | 12                | 0,44   | T11-16, T16,                |                     |                     |                     |                |            |                                |        |                                |
| TE 6-15                          | 23           | 15 *              | 0,55   |                             | ETA66, PP8, PP19    |                     |                     |                |            |                                |        |                                |
| TE 6-18                          | 26           | 18                | 0,62   |                             |                     |                     |                     |                |            |                                |        |                                |
| 10                               | TE 10-12     | red               | 0,2    | 4,5                         | 7,6                 | 22                  | 12                  | 0,62           | 100        |                                |        |                                |
|                                  | TE 10-15     |                   |        |                             |                     | 24                  | 15 *                | 0,80           |            |                                |        |                                |
|                                  | TE 10-18     |                   |        |                             |                     | 28                  | 18                  | 0,79           |            |                                |        |                                |
|                                  | TE 10-25*    |                   |        |                             |                     | 35                  | 25                  | 1,05           |            |                                |        |                                |
|                                  | TE 16-12     |                   |        |                             |                     | 24                  | 12                  | 0,78           |            |                                | 100    | PR33, T10, T16, T11-16,        |
| TE 16-15                         | 27           | 15 *              | 0,95   | ETA66, PP8, PP19            |                     |                     |                     |                |            |                                |        |                                |
| TE 16-18                         | 28           | 18                | 1,10   |                             |                     |                     |                     |                |            |                                |        |                                |
| 25                               | TE 25-16     | yellow            | 0,2    | 7,3                         | 11,2                | 30                  | 16                  | 1,26           | 50         |                                |        |                                |
|                                  | TE 25-18     |                   |        |                             |                     | 30                  | 18                  | 1,38           |            |                                |        |                                |
|                                  | TE 25-22     |                   |        |                             |                     | 36                  | 22                  | 1,94           |            |                                |        |                                |
|                                  | TE 35-16     |                   |        |                             |                     | 30                  | 16                  | 1,44           |            |                                | 50     | EPZC300, EPZ300, GZ300, HR300, |
| TE 35-18                         | 30           | 18                | 1,54   | GU120, HR100-U, PR240, R50, |                     |                     |                     |                |            |                                |        |                                |
| TE 35-25                         | 39           | 25                | 2,43   |                             | T25/35, PP8, PP19   |                     |                     |                |            |                                |        |                                |
| 50                               | TE 50-20     | blue              | 0,3    | 10,3                        | 15                  | 36                  | 20                  | 2,75           | 20         | T50, PP19, PP8 + as below      |        |                                |
|                                  | TE 50-25     |                   |        |                             |                     | 40                  | 25                  | 3,10           |            |                                |        |                                |
|                                  | TE 70-20     |                   |        |                             |                     | 37                  | 20                  | 5,90           |            |                                |        |                                |
| 70 *                             | TE 70-20     | yellow            | 0,5    | 13                          | 16,2                | 37                  | 20                  | 5,90           | 20         | EPZC300, EPZ300, GZ300, HR300, |        |                                |
| 95 *                             | TE 95-25     | red               | 0,5    | 15                          | 19,5                | 45                  | 25                  | 8,95           | 20         | PRZ240, GO300, HRZ300,         |        |                                |
| 120 *                            | TE 120-27    | blue              | 0,5    | 17                          | 21,2                | 51                  | 27                  | 10,05          | 20         | GU120, HR100-U, PR240, R50     |        |                                |
| 150 *                            | TE 150-32    | yellow            | 0,5    | 18,5                        | 24                  | 58                  | 32                  | 14,85          | 20         |                                |        |                                |

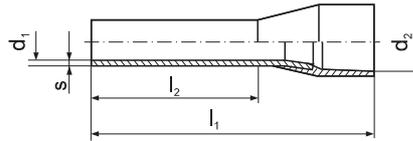
\* – parameter outside standard

Insulating sleeves are available in other colours. Cable end-sleeves of other dimensions on request.  
 VO class insulation on request – symbol e.g. TE 1-8-VO.

for multi-wire Cu cables

TP Cable end sleeve strip

With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper  
 According to DIN 46228 part 4



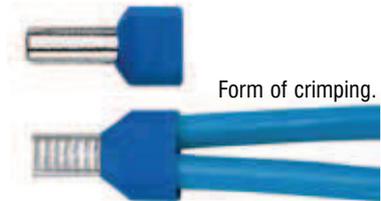
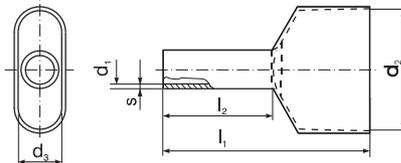
| Cross section [mm <sup>2</sup> ] | Symbol    | Insulation colour | s [mm] | d <sub>1</sub> [mm] | d <sub>2</sub> [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools |
|----------------------------------|-----------|-------------------|--------|---------------------|---------------------|---------------------|---------------------|----------------|------------|----------------|
| 0,5                              | TP 0,5-8  | white             | 0,15   | 1                   | 2,6                 | 14                  | 8                   | 3,40           | 40         | PR33, T10, T3, |
| 0,75                             | TP 0,75-8 | grey              | 0,15   | 1,2                 | 2,8                 | 14                  | 8                   | 3,87           | 40         | TC6,           |
| 1                                | TP 1-8    | red               | 0,15   | 1,4                 | 3                   | 14                  | 8                   | 4,43           | 40         | T16,           |
| 1,5                              | TP 1,5-8  | black             | 0,15   | 1,7                 | 3,5                 | 14                  | 8                   | 5,16           | 40         | T22-6,         |
| 2,5                              | TP 2,5-8  | blue              | 0,15   | 2,2                 | 4,2                 | 14                  | 8                   | 6,37           | 40         | ETA66          |

VO class insulation on request – symbol e.g. TP 1-8-VO.  
 Insulating sleeves are available in other colours.

for multi-wire Cu cables

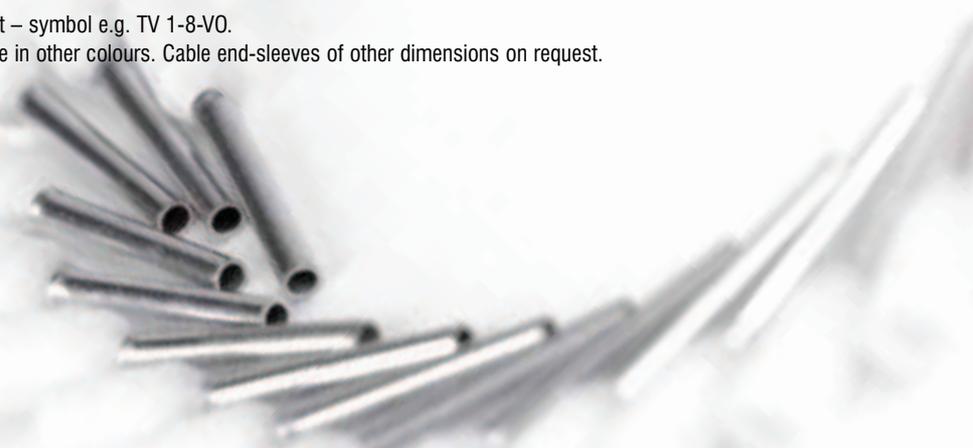
TV Double cable end sleeve

With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper



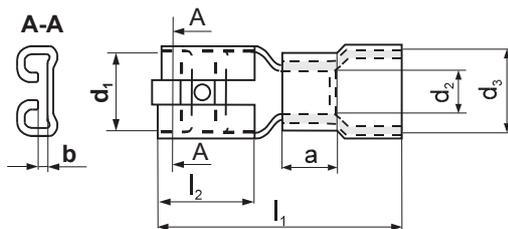
| Cross section [mm <sup>2</sup> ] | Symbol     | Insulation colour | s [mm] | d <sub>1</sub> [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | d <sub>3</sub> [mm] | d <sub>2</sub> [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools                              |
|----------------------------------|------------|-------------------|--------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------|------------|---|
| 2 x 0,5                          | TV 0,5-8   | white             | 0,15   | 1,4                 | 15                  | 8                   | 2,5                 | 4,7                 | 0,14           | 100        | T10, T3, PR33, TC6, T16, PR33, T22-6, ETA66 |
| 2 x 0,75                         | TV 0,75-8  | grey              | 0,15   | 1,7                 | 15                  | 8                   | 2,8                 | 5,0                 | 0,09           | 100        |   |
|                                  | TV 0,75-10 |                   |        |                     | 17                  | 10                  |                     |                     | 0,14           |            |   |
| 2 x 1                            | TV 1-8     | red               | 0,15   | 2,0                 | 15                  | 8                   | 3,4                 | 5,4                 | 0,17           | 100        |   |
|                                  | TV 1-10    |                   |        |                     | 17                  | 10                  |                     |                     | 0,18           |            |   |
| 2 x 1,5                          | TV 1,5-8   | black             | 0,15   | 2,2                 | 16                  | 8                   | 3,6                 | 6,6                 | 0,21           | 100        |   |
|                                  | TV 1,5-10  |                   |        |                     | 18                  | 10                  |                     |                     | 0,21           |            |   |
|                                  | TV 1,5-12  |                   |        |                     | 20                  | 12                  |                     |                     | 0,23           |            |   |
| 2 x 2,5                          | TV 2,5-10  | blue              | 0,2    | 2,8                 | 18                  | 10                  | 4,2                 | 7,8                 | 0,35           | 100        |   |
|                                  | TV 2,5-12  |                   |        |                     | 20                  | 12                  |                     |                     | 0,35           |            |   |
| 2 x 4                            | TV 4-12    | grey              | 0,2    | 3,7                 | 23                  | 12                  | 4,9                 | 8,8                 | 0,53           | 100        | T10, TC6, T16, T22-6,                       |
| 2 x 6                            | TV 6-14    | yellow            | 0,2    | 4,8                 | 26                  | 14                  | 6,9                 | 10                  | 0,78           | 100        | T11-16, PP8, PP19                           |
| 2 x 10                           | TV 10-14   | red               | 0,2    | 6,4                 | 26                  | 14                  | 8                   | 14,6                | 1,00           | 100        | T10-16V, PP8, PP19                          |
| 2 x 16                           | TV 16-14   | blue              | 0,2    | 8,3                 | 30                  | 14                  | 9,6                 | 18,4                | 1,65           | 100        |   |

VO class insulation on request – symbol e.g. TV 1-8-VO.  
 Insulating sleeves are available in other colours. Cable end-sleeves of other dimensions on request.



## MSE Receptacle

for multi-wire Cu cables



With copper tube and polyamid insulation  
 Thermal resistance: -40°C to +125°C  
 Material: brass  
 According to DIN 46245

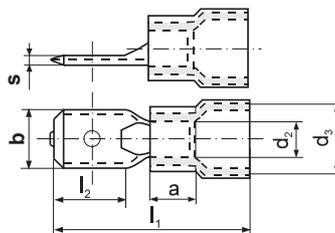
| Nominal wire cross section [mm <sup>2</sup> ] | Cross section [mm <sup>2</sup> ] | Symbol    | b [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | d <sub>1</sub> [mm] | a <sub>min</sub> [mm] | d <sub>2</sub> [mm] | d <sub>3</sub> [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools |
|---|----------------------------------|-----------|--------|---------------------|---------------------|---------------------|-----------------------|---------------------|---------------------|----------------|------------|----------------|
| 1   | > 0,5 ÷ 1                        | MSE 6,3-1 | 0,8    | 21                  | 7,5                 | 6,7                 | 4,5                   | 1,6                 | 3,2                 | 0,92           | 100        | PR33,E11-6,    |
| 2,5   | > 1 ÷ 2,5                        | MSE 6,3-2 | 0,8    | 21                  | 7,5                 | 6,7                 | 4,5                   | 2,3                 | 3,8                 | 1,09           | 100        | RE6, PP8,      |
| 6   | > 2,5 ÷ 6                        | MSE 6,3-6 | 0,8    | 21                  | 7,5                 | 6,7                 | 4,5                   | 3,4                 | 5,5                 | 1,49           | 100        | PP19           |

Standard production –tinned.

VO class insulation on request – symbol e.g. MSE 6,3-1-VO.

## TSE Tab

for multi-wire Cu cables



With copper tube and polyamid insulation  
 Thermal resistance: -40°C to +125°C  
 Material: brass

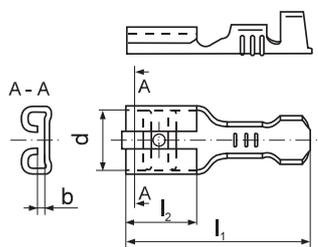
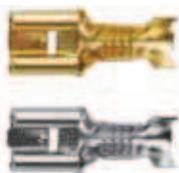
| Nominal wire cross section [mm <sup>2</sup> ] | Cross section [mm <sup>2</sup> ] | Symbol    | s [mm] | l <sub>1</sub> [mm] | l <sub>2min</sub> [mm] | b [mm] | a <sub>min</sub> [mm] | d <sub>2</sub> [mm] | d <sub>3</sub> [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools |
|---|----------------------------------|-----------|--------|---------------------|------------------------|--------|-----------------------|---------------------|---------------------|----------------|------------|----------------|
| 1   | > 0,5 ÷ 1                        | TSE 6,3-1 | 0,8    | 21                  | 8                      | 6,3    | 4,5                   | 1,6                 | 3,2                 | 0,82           | 100        | PR33, E11-6,   |
| 2,5   | > 1 ÷ 2,5                        | TSE 6,3-2 | 0,8    | 21                  | 8                      | 6,3    | 4,5                   | 2,3                 | 3,8                 | 1,01           | 100        | RE6, PP8,      |
| 6   | > 2,5 ÷ 6                        | TSE 6,3-6 | 0,8    | 21                  | 8                      | 6,3    | 4,5                   | 3,4                 | 5,2                 | 1,39           | 100        | PP19           |

Standard production –tinned.

VO class insulation on request – symbol e.g. TSE 6,3-1-VO.

## MS Receptacle

for multi-wire Cu cables



Material: brass  
 According to DIN 46247

| Nominal wire cross section [mm <sup>2</sup> ] | Cross section [mm <sup>2</sup> ] | Symbol    | b [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | d [mm] | Cable insulation diameter | Weight [g/pce] | Unit [pcs] | Crimping tools |
|---|----------------------------------|-----------|--------|---------------------|---------------------|--------|---------------------------|----------------|------------|----------------|
| 1   | > 0,5 ÷ 1                        | MS 2,8-1  | 0,4    | 14                  | 6,3                 | 3,1    | 2 ÷ 3,3                   | 0,23           | 100        | PR33, S33-1,   |
| 1   | > 0,5 ÷ 1                        | MS 2,8-1A | 0,8    | 14                  | 6,3                 | 3,1    | 2 ÷ 3,3                   | 0,22           | 100        | S55            |
| 1   | > 0,5 ÷ 1                        | MS 6,3-1  | 0,8    | 19,2                | 7,5                 | 6,7    | 2 ÷ 3,3                   | 0,68           | 100        | PR33, S11-6,   |
| 2,5   | > 1,0 ÷ 2,5                      | MS 4,8-2  | 0,8    | 15,6                | 6,3                 | 5,1    | 2,7 ÷ 4,3                 | 0,57           | 100        | S55,           |
| 2,5   | > 1,0 ÷ 2,5                      | MS 6,3-2  | 0,8    | 19,2                | 7,5                 | 6,7    | 2,7 ÷ 4,3                 | 0,72           | 100        | PP8, PP19      |
| 6   | > 2,5 ÷ 6                        | MS 6,3-6  | 0,8    | 19,2                | 7,5                 | 6,7    | 3,8 ÷ 5,1                 | 0,86           | 100        |                |

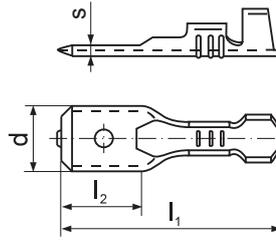
Standard production – non tinned. When ordering tinned add 'Sn' symbol e.g. MS 6,3-2 Sn.

When ordering nickel plated add 'Ni' symbol e.g. MS 6,3-6 Ni. Made on request.

for multi-wire Cu cables

TS Tab

Material: brass  
According to DIN 46248



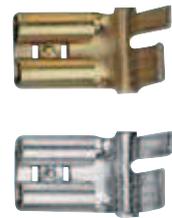
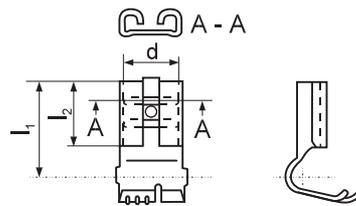
| Nominal wire cross section [mm <sup>2</sup> ] | Cross section [mm <sup>2</sup> ] | Symbol    | s [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | d [mm] | Cable insulation diameter | Weight [g/pce] | Unit [pcs] | Crimping tools              |
|---|----------------------------------|-----------|--------|---------------------|---------------------|--------|---------------------------|----------------|------------|-----------------------------|
| 1   | > 0,5 ÷ 1                        | TS 6,3-1  | 0,8    | 20                  | 8,5                 | 6,3    | 2 ÷ 3,3                   | 0,59           | 100        | PR33, S11-6, S55, PP8, PP19 |
| 2,5   | > 1 ÷ 2,5                        | TS 4,8-2* | 0,8    | 17                  | 7,2                 | 4,8    | 2,7 ÷ 4,3                 | 0,50           | 100        |                             |
| 2,5   | > 1 ÷ 2,5                        | TS 6,3-2  | 0,8    | 20                  | 8,5                 | 6,3    | 2,7 ÷ 4,3                 | 0,67           | 100        |                             |
| 6   | > 2,5 ÷ 6                        | TS 6,3-6  | 0,8    | 20                  | 8,5                 | 6,3    | 3,8 ÷ 5,1                 | 0,76           | 100        |                             |

Standard production – non tinned. When ordering tinned add 'Sn' symbol e.g. TS 6,3-2 Sn. When ordering nickel plated add 'Ni' symbol e.g. TS 6,3-6 Ni. Made on request.

for multi-wire Cu cables

MK Angle terminal

Material: brass  
According to DIN 46346 - part B



| Cross section [mm <sup>2</sup> ] | Symbol   | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | d [mm] | Cable insulation diameter | Weight [g/pce] | Unit [pcs] | Crimping tools  |
|----------------------------------|----------|---------------------|---------------------|--------|---------------------------|----------------|------------|-----------------|
| 0,75 ÷ 1                         | MK 6,3-2 | 11                  | 7,5                 | 6,7    | 2 ÷ 3,3                   | 0,69           | 100        | SK1, PP8, PP19  |
| 1,5 ÷ 2,5 *                      | MK 6,3-2 | 11                  | 7,5                 | 6,7    | 2,7 ÷ 4,3                 | 0,72           | 100        | SK2N, PP8, PP19 |

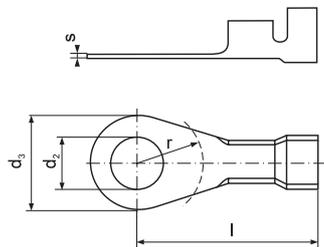
\* – outside DIN standard.

Standard production – non tinned. When ordering tinned add 'Sn' symbol e.g. MK 6,3-2 Sn.

for multi-wire Cu cables

KOP Claw terminal

Material: brass  
According to DIN 46225



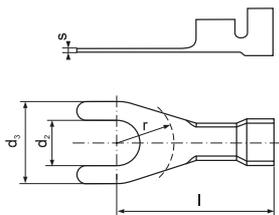
| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol    | s [mm] | d <sub>3</sub> [mm] | l [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools   |
|----------------------------------|-------------|---------------------|-----------|--------|---------------------|--------|--------|----------------|------------|------------------|
| 0,5 ÷ 1                          | 3           | 3,2                 | KOP 3-1   | 0,6    | 8                   | 18,3   | 4,5    | 0,71           | 100        |                  |
|                                  | 4           | 4,3                 | KOP 4-1   |        | 8                   | 18,3   | 6,5    | 0,68           |            |                  |
|                                  | 5           | 5,3                 | KOP 5-1   |        | 9,5                 | 17,5   | 6,5    | 0,71           |            |                  |
|                                  | 6           | 6,5                 | KOP 6-1   |        | 12                  | 22     | 7,5    | 0,98           |            |                  |
| 1 ÷ 2,5                          | 3           | 3,2                 | KOP 3-2,5 | 0,6    | 8                   | 18,3   | 4,5    | 0,86           | 100        | S44-2, PP8, PP19 |
|                                  | 4           | 4,3                 | KOP 4-2,5 |        | 8                   | 18,3   | 6,5    | 0,82           |            |                  |
|                                  | 5           | 5,3                 | KOP 5-2,5 |        | 9,5                 | 17,5   | 6,5    | 0,83           |            |                  |
|                                  | 6           | 6,5                 | KOP 6-2,5 |        | 12                  | 22     | 7,5    | 1,12           |            |                  |

Standard production – non tinned. When ordering tinned add 'Sn' symbol e.g. KOP 3-1 Sn.



## KNP Claw terminal

for multi-wire Cu cables



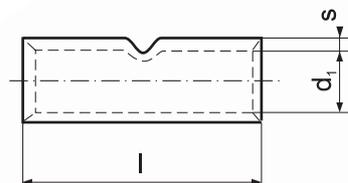
Material: brass  
According to DIN 46225

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol    | s [mm] | d <sub>3</sub> [mm] | l [mm] | r [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools |     |      |     |      |
|----------------------------------|-------------|---------------------|-----------|--------|---------------------|--------|--------|----------------|------------|----------------|-----|------|-----|------|
| 0,5 ÷ 1                          | 3           | 3,2                 | KNP 3-1   | 0,6    | 8                   | 18,3   | 4,5    | 0,70           | 100        | S44-2,         |     |      |     |      |
|                                  | 4           | 4,3                 | KNP 4-1   |        |                     |        |        |                |            |                | 8   | 18,3 | 6,5 | 0,67 |
|                                  | 5           | 5,3                 | KNP 5-1   |        |                     |        |        |                |            |                | 9,5 | 17,5 | 6,5 | 0,67 |
| 1 ÷ 2,5                          | 4           | 4,3                 | KNP 4-2,5 | 0,6    | 8                   | 18,3   | 6,5    | 0,81           | 100        | PP8,<br>PP19   |     |      |     |      |
|                                  | 5           | 5,3                 | KNP 5-2,5 |        |                     |        |        |                |            |                | 9,5 | 17,5 | 6,5 | 0,83 |
|                                  | 6           | 6,5                 | KNP 6-2,5 |        |                     |        |        |                |            |                | 12  | 22   | 7,5 | 1,11 |

Standard production – non tinned. When ordering tinned add 'Sn' symbol e.g. KNP 3-1 Sn.

## KLA Connector

for multi-wire Cu cables



Material: galvanically tinned copper  
Non tinned on request

| Cross section [mm <sup>2</sup> ] | Symbol      | s [mm] | d <sub>1</sub> [mm] | l [mm] | Weight [g/pce] | Unit [pcs] | Dies discriminant            | Crimping tools   |
|----------------------------------|-------------|--------|---------------------|--------|----------------|------------|------------------------------|--|
| 0,5 ÷ 1                          | KLA 1-15    | 0,8    | 1,6                 | 15     | 0,81           | 100        | PR33, A11-6, A22-2,          |  |
|                                  | KLA 1-20    |        |                     | 20     | 1,06           |            |                              |  |
| 1,5 ÷ 2,5                        | KLA 2,5-15  | 0,95   | 2,3                 | 15     | 1,25           | 100        | RA16, PP8, PP19              |  |
|                                  | KLA 2,5-20  |        |                     | 20     | 1,76           |            |                              |  |
| 4                                | KLA 4-15    | 1      | 3                   | 15     | 1,64           | 100        | PR33, A11-6, RA16, PP8, PP19 |  |
|                                  | KLA 4-20    |        |                     | 20     | 2,19           |            |                              |  |
| 6                                | KLA 6-15    | 1      | 4                   | 15     | 2,06           | 100        | 6                            | PR33, PRZ240, A11-6, RA16, PR50, PR240, PP8, PP19                  |
|                                  | KLA 6-20    |        |                     | 20     | 2,76           |            |                              |  |
|                                  | KLA 6-30    |        |                     | 30     | 4,21           |            |                              |  |
| 10                               | KLA 10-20   | 1,2    | 4,5                 | 20     | 3,72           | 50         | 7                            | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300        |
|                                  | KLA 10-30   |        |                     | 30     | 5,76           |            |                              |  |
| 16                               | KLA 16-25   | 1,5    | 5,5                 | 25     | 7,18           | 50         | 8                            | GU120, HR100-U, PR240, PR120, PR50, R50, PP19, RA16                |
|                                  | KLA 16-30   |        |                     | 30     | 8,64           |            |                              |  |
|                                  | KLA 16-50   |        |                     | 50     | 14,36          |            |                              |  |
| 25                               | KLA 25-29   | 1,5    | 7                   | 29     | 10,20          | 50         | 10                           | PP19, + as below   |
|                                  | KLA 25-35   |        |                     | 35     | 12,22          |            |                              |  |
|                                  | KLA 25-50   |        |                     | 50     | 16,80          |            |                              |  |
| 35                               | KLA 35-32   | 1,75   | 8,5                 | 32     | 15,70          | 50         | 12                           | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300        |
|                                  | KLA 35-50   |        |                     | 50     | 25,00          |            |                              |  |
| 50                               | KLA 50-38   | 2      | 10                  | 38     | 25,00          | 20         | 14                           | GU120, HR100-U, PR240, PR120, PR150, PR50, R50                     |
|                                  | KLA 50-56   |        |                     | 56     | 37,05          |            |                              |  |
| 70                               | KLA 70-42   | 2,25   | 12                  | 42     | 37,30          | 20         | 16                           | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300        |
|                                  | KLA 70-56   |        |                     | 56     | 49,65          |            |                              |  |
| 95                               | KLA 95-48   | 2,25   | 13,5                | 48     | 48,90          | 10         | 17                           | GU120, HR100-U, PR240, PR120, PR150                                |
|                                  | KLA 95-70   |        |                     | 70     | 68,34          |            |                              |  |
| 120                              | KLA 120-52  | 2,25   | 15,5                | 52     | 58,10          | 10         | 19                           | PR120, PR150   |
|                                  | KLA 120-70  |        |                     | 70     | 78,50          |            |                              |  |
| 150                              | KLA 150-56  | 2,25   | 17                  | 56     | 67,70          | 10         | 20                           | PR150, + as below  |
|                                  | KLA 150-80  |        |                     | 80     | 95,70          |            |                              |  |
| 185                              | KLA 185-85  | 2,5    | 19                  | 85     | 125,90         | 10         | 23                           | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, PR240 |
| 240                              | KLA 240-90  | 2,5    | 21,5                | 90     | 155,00         | 1          | 25                           | EPZC300, EPZ300, GZ300, HRZ300, GO300, HR300, GU300                |
| 300                              | KLA 300-100 | 3      | 24,5                | 100    | 220,00         | 1          | 30                           | EPZC300, EPZ300, GZ300, HRZ300, GO300, HR300, GU300                |
| 400                              | KLA 400-100 | 3,5    | 27                  | 100    | 287,50         | 1          | 34                           | GU625  |

Production on request. - Connectors of other dimensions.

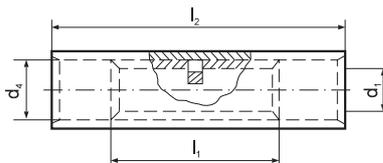
for multi-wire Cu cables

### KLA Connector

With polyamide insulation

Thermal resistance: -40°C to +125°C

Material: galvanically tinned copper



| Cross section [mm <sup>2</sup> ] | Symbol  | d <sub>1</sub> [mm] | d <sub>4</sub> [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools  |
|----------------------------------|---------|---------------------|---------------------|---------------------|---------------------|----------------|------------|---|
| 0,5 ÷ 1                          | KLE 1   | 1,6                 | 3,2                 | 15                  | 25                  | 1,18           | 100        | PR33, E11-6, RE6, PP8, PP19   |
| 1,5 ÷ 2,5                        | KLE 2,5 | 2,3                 | 4,2                 | 15                  | 25                  | 1,70           | 100        |   |
| 4                                | KLE 4   | 3                   | 5                   | 15                  | 25                  | 2,30           | 50         | PR33, E11-6, RE6, PP8, PP19<br>EPZC300, EPZ300, GZ300, HRZ300, PRZ240, G0300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR50, R50, PP19, RE16 |
| 6                                | KLE 6   | 3,8                 | 5,5                 | 15                  | 25                  | 2,32           | 50         |   |
| 10                               | KLE 10  | 4,5                 | 6,9                 | 20                  | 32                  | 4,88           | 50         |   |

Insulation colours

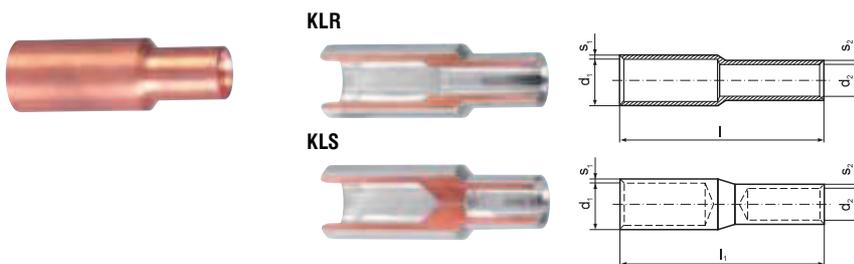
VO class insulation on request – symbol e.g. KLE 1-VO.



# KLS and KLR Reducing connector

for multi-wire Cu cables

Material: galvanically tinned copper

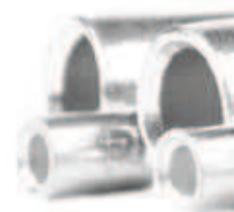


| Cross section [mm <sup>2</sup> ]<br>from | Cross section [mm <sup>2</sup> ]<br>to | Symbol      | s <sub>1</sub><br>[mm] | d <sub>1</sub><br>[mm] | s <sub>2</sub><br>[mm] | d <sub>2</sub><br>[mm] | l<br>[mm] | l <sub>1</sub><br>[mm] | Dies<br>discriminant | Crimping tools |
|--|--|-------------|------------------------|------------------------|------------------------|------------------------|-----------|------------------------|----------------------|----------------|
| 16                                       | 10                                     | KLR 16-10   | 1,5                    | 5,5                    | 1,2                    | 4,5                    | 28        | 30                     | 8-7                  |                |
| 25                                       | 10                                     | KLR 25-10   | 1,5                    | 7                      | 1,2                    | 4,5                    | 30        | 32                     | 10-7                 |                |
|  | 16                                     | KLR 25-16   |                        |                        | 1,5                    | 5,5                    | 34        | 36                     | 10-8                 |                |
| 35                                       | 10                                     | KLR 35-10   | 1,75                   | 8,5                    | 1,2                    | 4,5                    | 32        | 34                     | 12-7                 |                |
|  | 16                                     | KLR 35-16   |                        |                        | 1,5                    | 5,5                    | 36        | 38                     | 12-8                 |                |
|  | 25                                     | KLR 35-25   |                        |                        | 1,5                    | 7                      | 39        | 41                     | 12-10                |                |
| 50                                       | 10                                     | KLR 50-10   | 2                      | 10                     | 1,2                    | 4,5                    | 34        | 36                     | 14-7                 |                |
|  | 16                                     | KLR 50-16   |                        |                        | 1,5                    | 5,5                    | 38        | 40                     | 14-8                 |                |
|  | 25                                     | KLR 50-25   |                        |                        | 1,5                    | 7                      | 41        | 43                     | 14-10                |                |
|  | 35                                     | KLR 50-35   |                        |                        | 1,75                   | 8,5                    | 45        | 47                     | 14-12                |                |
| 70                                       | 16                                     | KLR 70-16   | 2,25                   | 12                     | 1,5                    | 5,5                    | 40        | 42                     | 16-8                 |                |
|  | 25                                     | KLR 70-25   |                        |                        | 1,5                    | 7                      | 43        | 45                     | 16-10                |                |
|  | 35                                     | KLR 70-35   |                        |                        | 1,75                   | 8,5                    | 47        | 49                     | 16-12                |                |
|  | 50                                     | KLR 70-50   |                        |                        | 2                      | 10                     | 50        | 52                     | 16-14                |                |
| 95                                       | 25                                     | KLR 95-25   | 2,25                   | 13,5                   | 1,5                    | 7                      | 47        | 49                     | 17-10                |                |
|  | 35                                     | KLR 95-35   |                        |                        | 1,75                   | 8,5                    | 51        | 53                     | 17-12                |                |
|  | 50                                     | KLR 95-50   |                        |                        | 2                      | 10                     | 54        | 56                     | 17-14                |                |
|  | 70                                     | KLR 95-70   |                        |                        | 2,25                   | 12                     | 58        | 60                     | 17-16                |                |
| 120                                      | 35                                     | KLR 120-35  | 2,25                   | 15,5                   | 1,75                   | 8,5                    | 52        | 54                     | 19-12                |                |
|  | 50                                     | KLR 120-50  |                        |                        | 2                      | 10                     | 55        | 57                     | 19-14                |                |
|  | 70                                     | KLR 120-70  |                        |                        | 2,25                   | 12                     | 59        | 61                     | 19-16                |                |
|  | 95                                     | KLR 120-95  |                        |                        | 2,25                   | 13,5                   | 65        | 67                     | 19-17                |                |
| 150                                      | 50                                     | KLR 150-50  | 2,25                   | 17                     | 2                      | 10                     | 59        | 61                     | 20-14                |                |
|  | 70                                     | KLR 150-70  |                        |                        | 2,25                   | 12                     | 63        | 65                     | 20-16                |                |
|  | 95                                     | KLR 150-95  |                        |                        | 2,25                   | 13,5                   | 69        | 71                     | 20-17                |                |
|  | 120                                    | KLR 150-120 |                        |                        | 2,25                   | 15,5                   | 71        | 73                     | 20-19                |                |
| 185                                      | 70                                     | KLR 185-70  | 2,5                    | 19                     | 2,25                   | 12                     | 63        | 65                     | 23-16                |                |
|  | 95                                     | KLR 185-95  |                        |                        | 2,25                   | 13,5                   | 69        | 71                     | 23-17                |                |
|  | 120                                    | KLR 185-120 |                        |                        | 2,25                   | 15,5                   | 71        | 73                     | 23-19                |                |
|  | 150                                    | KLR 185-150 |                        |                        | 2,25                   | 17                     | 77        | 79                     | 23-20                |                |
| 240                                      | 95                                     | KLR 240-95  | 2,5                    | 21,5                   | 2,25                   | 13,5                   | 74        | 76                     | 25-17                |                |
|  | 120                                    | KLR 240-120 |                        |                        | 2,25                   | 15,5                   | 76        | 78                     | 25-19                |                |
|  | 150                                    | KLR 240-150 |                        |                        | 2,25                   | 17                     | 82        | 84                     | 25-20                |                |
|  | 185                                    | KLR 240-185 |                        |                        | 2,5                    | 19                     | 84        | 86                     | 25-23                |                |
| 300                                      | 120                                    | KLR 300-120 | 3                      | 24,5                   | 2,25                   | 15,5                   | 85        | 87                     | 30-19                |                |
|  | 150                                    | KLR 300-150 |                        |                        | 2,25                   | 17                     | 91        | 93                     | 30-20                |                |
|  | 185                                    | KLR 300-185 |                        |                        | 2,5                    | 19                     | 93        | 95                     | 30-23                |                |
|  | 240                                    | KLR 300-240 |                        |                        | 2,5                    | 21,5                   | 100       | 102                    | 30-25                |                |

EPZC300, EPZ300,  
GZ300, HRZ300,  
PRZ240, GO300,  
HR300, GU300,  
GU120, HR100-U,  
PR240, PR120,  
PR15, PR50, R50

Production on request. - Connectors of dimensions other than in chart.

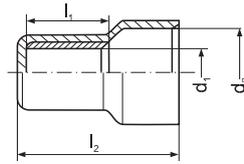
Tight connector: symbol KLS, e.g. KLS 16-10.



for multi-wire Cu cables

KLK End connector

With polyamide insulation  
 Thermal resistance: -40°C to +125°C  
 Material: galvanically tinned copper



| Cross section [mm <sup>2</sup> ] | Symbol  | d <sub>1</sub> [mm] | d <sub>2</sub> [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools |
|----------------------------------|---------|---------------------|---------------------|---------------------|---------------------|----------------|------------|----------------|
| 0,5 ÷ 2,5                        | KLK 2,5 | 2,3                 | 5                   | 7                   | 15                  | 0,74           | 100        | PR33, E11-6,   |
| 2,5 ÷ 6                          | KLK 6   | 3,8                 | 7,5                 | 7                   | 17,5                | 1,26           | 50         | RE6, PP8, PP19 |

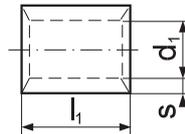
Insulation colours

VO class insulation on request – symbol e.g. KLK 6-VO.

for multi-wire Cu cables

KLB Parallel connector

Without insulation  
 Material: galvanically tinned copper  
 Non tinned on request



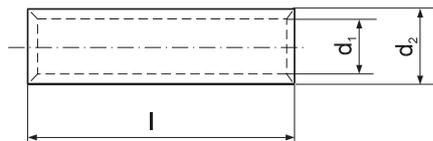
| Cross section [mm <sup>2</sup> ] | Symbol  | s [mm] | d <sub>1</sub> [mm] | l <sub>1</sub> [mm] | Weight [g/pce] | Unit [pcs] | Dies discriminant | Crimping tools   |
|----------------------------------|---------|--------|---------------------|---------------------|----------------|------------|-------------------|--|
| 0,5 ÷ 1                          | KLB 1   | 0,8    | 1,6                 | 7                   | 0,36           | 100        |                   |  |
| 1 ÷ 2,5                          | KLB 2,5 | 0,95   | 2,3                 | 7                   | 0,65           | 100        |                   | PR33, A11-6, RA16, PP8, PP19   |
| 2,5 ÷ 4                          | KLB 4   | 1      | 3                   | 7                   | 0,72           | 50         |                   |  |
| 4 ÷ 6                            | KLB 6   | 1      | 4                   | 7                   | 0,90           | 50         | 6                 | PR33, A11-6, RA16, PR50, PP8, PP19,                                      |
| 6 ÷ 10                           | KLB 10  | 1,2    | 4,5                 | 10                  | 1,86           | 50         | 7                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240,                                  |
| 10 ÷ 16                          | KLB 16  | 1,5    | 5,5                 | 11                  | 3,24           | 50         | 8                 | GO300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR50, PP19, R50, RA16 |
| 16 ÷ 25                          | KLB 25  | 1,5    | 7                   | 14                  | 6,00           | 50         | 10                |  |
| 25 ÷ 35                          | KLB 35  | 1,75   | 8,5                 | 16                  | 7,91           | 1          | 12                | R50, PR50  |
| 35 ÷ 50                          | KLB 50  | 2      | 10                  | 19                  | 12,48          | 1          | 14                | + as below   |
| 50 ÷ 70                          | KLB 70  | 2,25   | 12                  | 19                  | 17,19          | 1          | 16                | EPZC300, EPZ300, GZ300, HRZ300,  |
| 70 ÷ 95                          | KLB 95  | 2,75   | 13,5                | 20                  | 24,91          | 1          | 18                | PRZ240, GO300, HR300, GU300, GU120,                                      |
| 95 ÷ 120                         | KLB 120 | 2,75   | 15,5                | 22                  | 32,00          | 1          | 20                | HR100-U, PR240, PR120, PR150   |

For parallel connecting e.g. wires of different cross sections.  
 Production on request. - Connectors of dimensions other than in chart.



### KLD Connector

for multi-wire Cu cables



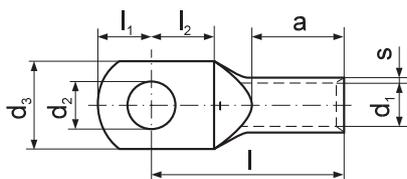
Material: galvanically tinned copper  
Non tinned on request.

| Cross section [mm <sup>2</sup> ] | Symbol  | Wire diameter Ø [mm] | d <sub>1</sub> [mm] | d <sub>2</sub> [mm] | l [mm] | Weight [g/pce] | Unit [pcs] | Crimping tools  |
|----------------------------------|---------|----------------------|---------------------|---------------------|--------|----------------|------------|---|
| 1,5 ÷ 2,5                        | KLD 2,5 | 1,38 ÷ 1,78          | 1,9                 | 3,9                 | 25     | 2,08           | 50         | D11-6, PP8, PP19  |
| 4                                | KLD 4   | 2,25                 | 2,3                 | 4,2                 | 25     | 2,30           | 50         |   |
| 6                                | KLD 6   | 2,75                 | 3                   | 5                   | 25     | 2,68           | 50         | PP19 (Z PPH12 + SD)<br>+ as below   |
| 10                               | KLD 10  | 3,55                 | 4                   | 6                   | 25     | 3,40           | 20         |   |
| 16                               | KLD 16  | 4,50                 | 5,5                 | 8,5                 | 35     | 10,14          | 20         |   |
| 25                               | KLD 25  | 5,65                 | 6                   | 10                  | 40     | 17,60          | 20         | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR150, R50, PR50 |
| 35                               | KLD 35  | 6,70                 | 7                   | 10                  | 40     | 13,90          | 10         |   |
| 50                               | KLD 50  | 8,00                 | 8,5                 | 12                  | 70     | 35,60          | 10         |   |

Production on request. - Connectors of dimensions other than in chart.

### KCS Tubular terminal

for multi-wire Cu cables

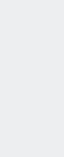


Material: galvanically tinned copper  
Non tinned on request.

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol    | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | a [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | l [mm] | Weight [g/pce] | Unit [pcs] | Dies discriminant | Crimping tools  |
|----------------------------------|-------------|---------------------|-----------|--------|---------------------|---------------------|--------|---------------------|---------------------|--------|----------------|------------|-------------------|---|
| 2,5                              | 4           | 4,3                 | KCS 4-2,5 | 0,95   | 2,3                 | 7,5                 | 7      | 5                   | 6                   | 17     | 1,66           | 100        |                   |   |
|                                  | 5           | 5,3                 | KCS 5-2,5 |        |                     | 8,5                 | 5,5    | 6,2                 | 17                  | 1,70   |                |            |                   |   |
|                                  | 6           | 6,4                 | KCS 6-2,5 |        |                     | 9,5                 | 6,7    | 7,3                 | 18                  | 1,82   |                |            |                   |   |
|                                  | 8           | 8,4                 | KCS 8-2,5 |        |                     | 13                  | 7,3    | 10                  | 22                  | 2,05   |                |            |                   |   |
| 4                                | 4           | 4,3                 | KCS 4-4   | 1      | 3                   | 8,5                 | 8      | 5                   | 6                   | 19     | 2,30           | 50         |                   | PR33, A11-6, PP19   |
|                                  | 5           | 5,3                 | KCS 5-4   |        |                     | 9                   | 5,5    | 6,2                 | 19                  | 2,30   |                |            |                   |   |
|                                  | 6           | 6,4                 | KCS 6-4   |        |                     | 10                  | 6,5    | 7,3                 | 20                  | 2,44   |                |            |                   |   |
|                                  | 8           | 8,4                 | KCS 8-4   |        |                     | 13                  | 9,5    | 10                  | 23                  | 2,90   |                |            |                   |   |
| 6                                | 4           | 4,3                 | KCS 4-6   | 1      | 4                   | 9,5                 | 9      | 5                   | 6                   | 20     | 3,26           | 50         | 6                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, PR33, GO300, HR300, GU300, GU120, HR100-U, PR240, PR50, PP19, A11/6 |
|                                  | 5           | 5,3                 | KCS 5-6   |        |                     | 9,5                 | 6      | 6,2                 | 20                  | 3,32   |                |            |                   |   |
|                                  | 6           | 6,4                 | KCS 6-6   |        |                     | 11                  | 6,5    | 7,5                 | 22                  | 3,48   |                |            |                   |   |
|                                  | 8           | 8,4                 | KCS 8-6   |        |                     | 13                  | 9,5    | 10                  | 24                  | 4,10   |                |            |                   |   |
| 10                               | 5           | 5,3                 | KCS 5-10  | 1,2    | 4,5                 | 12                  | 10     | 7,5                 | 8                   | 23     | 5,32           | 50         | 7                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR50, R50, PP19         |
|                                  | 6           | 6,4                 | KCS 6-10  |        |                     | 12                  | 8,5    | 8,5                 | 24                  | 5,54   |                |            |                   |   |
|                                  | 8           | 8,4                 | KCS 8-10  |        |                     | 14                  | 10     | 10,5                | 26                  | 5,96   |                |            |                   |   |
|                                  | 10          | 10,5                | KCS 10-10 |        |                     | 16                  | 12     | 12,5                | 28                  | 6,36   |                |            |                   |   |
| 16                               | 5           | 5,3                 | KCS 5-16  | 1,5    | 5,5                 | 13                  | 13     | 8,2                 | 8,2                 | 28     | 9,96           | 50         | 8                 |   |
|                                  | 6           | 6,4                 | KCS 6-16  |        |                     | 12,5                | 7,5    | 8,5                 | 27                  | 9,12   |                |            |                   |   |
|                                  | 8           | 8,4                 | KCS 8-16  |        |                     | 14,5                | 8,5    | 9,5                 | 27                  | 10,06  |                |            |                   |   |
|                                  | 10          | 10,5                | KCS 10-16 |        |                     | 17                  | 10,5   | 11,5                | 30                  | 10,56  |                |            |                   |   |

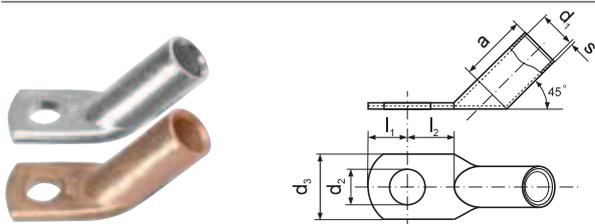
| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | a [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | l [mm] | Weight [g/pce] | Unit [pcs] | Dies discriminant | Crimping tools   |
|----------------------------------|-------------|---------------------|------------|--------|---------------------|---------------------|--------|---------------------|---------------------|--------|----------------|------------|-------------------|--|
| 25                               | 6           | 6,4                 | KCS 6-25   | 1,5    | 7                   | 14                  | 14     | 7,5                 | 8,5                 | 29     | 11,74          | 50         | 10                | PP19<br>+ as below   |
|                                  | 8           | 8,4                 | KCS 8-25   |        |                     | 16                  | 10     | 11                  | 32                  | 13,06  |                |            |                   |  |
|                                  | 10          | 10,5                | KCS 10-25  |        |                     | 18                  | 12     | 12                  | 33                  | 15,56  |                |            |                   |  |
|                                  | 12          | 13                  | KCS 12-25  |        |                     | 19                  | 13     | 14                  | 35                  | 15,32  |                |            |                   |  |
| 35                               | 6           | 6,4                 | KCS 6-35   | 1,75   | 8,5                 | 17                  | 17     | 7,5                 | 9                   | 33     | 18,90          | 20         | 12                | EPZC300,<br>EPZ300, GZ300,<br>HRZ300,<br>PRZ240,<br>GO300, HR300,<br>GU300, GU120,<br>HR100-U,<br>PR240, PR120,<br>PR150, PR50,<br>PP19, A11/6 |
|                                  | 8           | 8,4                 | KCS 8-35   |        |                     | 17                  | 10     | 11                  | 35                  | 20,35  |                |            |                   |  |
|                                  | 10          | 10,5                | KCS 10-35  |        |                     | 19                  | 12     | 13                  | 37                  | 21,80  |                |            |                   |  |
|                                  | 12          | 13                  | KCS 12-35  |        |                     | 21                  | 13     | 14                  | 38                  | 23,15  |                |            |                   |  |
|                                  | 14          | 15                  | KCS 14-35  |        |                     | 21                  | 15,5   | 15,5                | 40                  | 23,80  |                |            |                   |  |
| 50                               | 8           | 8,4                 | KCS 8-50   | 2      | 10                  | 20                  | 19     | 10                  | 10                  | 37     | 32,30          | 20         | 14                | GU300, GU120,<br>HR100-U,<br>PR240, PR120,<br>PR150, PR50,<br>PP19, A11/6  |
|                                  | 10          | 10,5                | KCS 10-50  |        |                     | 20                  | 12     | 12                  | 39                  | 31,25  |                |            |                   |  |
|                                  | 12          | 13                  | KCS 12-50  |        |                     | 23                  | 13     | 13                  | 40                  | 31,4   |                |            |                   |  |
|                                  | 14          | 15                  | KCS 14-50  |        |                     | 23                  | 15,5   | 15,5                | 43                  | 32,70  |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-50  |        |                     | 28                  | 16     | 17                  | 45                  | 35,80  |                |            |                   |  |
| 70                               | 8           | 8,4                 | KCS 8-70   | 2,25   | 12                  | 23                  | 20     | 10                  | 10                  | 42     | 47,55          | 20         | 16                | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,<br>GO300,<br>HR300,<br>GU300,<br>GU120,<br>HR100-U,<br>PR240,<br>PR120,<br>PR150           |
|                                  | 10          | 10,5                | KCS 10-70  |        |                     | 23                  | 13,5   | 13,5                | 47                  | 50,45  |                |            |                   |  |
|                                  | 12          | 13                  | KCS 12-70  |        |                     | 23                  | 13     | 14                  | 46                  | 47,20  |                |            |                   |  |
|                                  | 14          | 15                  | KCS 14-70  |        |                     | 23                  | 15,5   | 15,5                | 48                  | 49,65  |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-70  |        |                     | 28                  | 16     | 17                  | 50                  | 49,70  |                |            |                   |  |
| 95                               | 8           | 8,4                 | KCS 8-95   | 2,25   | 13,5                | 26                  | 23     | 10                  | 11                  | 49     | 55,80          | 10         | 17                | HRZ300,<br>PRZ240,<br>GO300,<br>HR300,<br>GU300,<br>GU120,<br>HR100-U,<br>PR240,<br>PR120,<br>PR150  |
|                                  | 10          | 10,5                | KCS 10-95  |        |                     | 26                  | 12     | 13                  | 48                  | 53,40  |                |            |                   |  |
|                                  | 12          | 13                  | KCS 12-95  |        |                     | 26                  | 13     | 13                  | 48                  | 59,70  |                |            |                   |  |
|                                  | 14          | 15                  | KCS 14-95  |        |                     | 26                  | 15,5   | 15,5                | 53                  | 59,20  |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-95  |        |                     | 28                  | 16     | 17                  | 55                  | 59,80  |                |            |                   |  |
|                                  | 20          | 21                  | KCS 20-95  |        |                     | 34                  | 19     | 20                  | 57                  | 69,80  |                |            |                   |  |
| 120                              | 8           | 8,4                 | KCS 8-120  | 2,25   | 15,5                | 29                  | 26     | 10                  | 11                  | 51     | 64,70          | 10         | 19                | HR100-U,<br>PR240,<br>PR120,<br>PR150  |
|                                  | 10          | 10,5                | KCS 10-120 |        |                     | 29                  | 12     | 13                  | 53                  | 68,40  |                |            |                   |  |
|                                  | 12          | 13                  | KCS 12-120 |        |                     | 29                  | 14,5   | 14,5                | 55                  | 72,80  |                |            |                   |  |
|                                  | 14          | 15                  | KCS 14-120 |        |                     | 29                  | 15,5   | 15,5                | 56                  | 72,80  |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-120 |        |                     | 29                  | 16     | 17                  | 58                  | 72,30  |                |            |                   |  |
|                                  | 20          | 21                  | KCS 20-120 |        |                     | 35                  | 19     | 20                  | 61                  | 78,40  |                |            |                   |  |
| 150                              | 10          | 10,5                | KCS 10-150 | 2,25   | 17                  | 31                  | 30     | 13,5                | 13,5                | 58     | 83,00          | 10         | 20                | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>PRZ240, GO300,<br>HR300, GU300,<br>PR240, PR150  |
|                                  | 12          | 13                  | KCS 12-150 |        |                     | 31                  | 13     | 14                  | 59                  | 81,60  |                |            |                   |  |
|                                  | 14          | 15                  | KCS 14-150 |        |                     | 31                  | 15,5   | 15,5                | 62                  | 76,40  |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-150 |        |                     | 31                  | 16     | 17                  | 62                  | 93,50  |                |            |                   |  |
|                                  | 20          | 21                  | KCS 20-150 |        |                     | 36                  | 19     | 20                  | 66                  | 96,70  |                |            |                   |  |
| 185                              | 10          | 10,5                | KCS 10-185 | 2,5    | 19                  | 35                  | 30     | 12                  | 13                  | 62     | 105,00         | 10         | 23                | PR240, PRZ240<br>+ as below  |
|                                  | 12          | 13                  | KCS 12-185 |        |                     | 35                  | 13     | 14                  | 63                  | 112,00 |                |            |                   |  |
|                                  | 14          | 15                  | KCS 14-185 |        |                     | 35                  | 15,5   | 15,5                | 65                  | 110,80 |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-185 |        |                     | 35                  | 16     | 17                  | 67                  | 112,00 |                |            |                   |  |
|                                  | 20          | 21                  | KCS 20-185 |        |                     | 39                  | 19     | 20                  | 69                  | 118,20 |                |            |                   |  |
| 240                              | 10          | 10,5                | KCS 10-240 | 2,5    | 21,5                | 39                  | 35     | 12                  | 13                  | 66     | 125,00         | 10         | 25                | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>PRZ240, GO300,<br>HR300, GU300   |
|                                  | 12          | 13                  | KCS 12-240 |        |                     | 39                  | 13     | 14                  | 67                  | 130,00 |                |            |                   |  |
|                                  | 14          | 15                  | KCS 14-240 |        |                     | 39                  | 15,5   | 15,5                | 68                  | 123,20 |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-240 |        |                     | 39                  | 16     | 17                  | 70                  | 135,00 |                |            |                   |  |
|                                  | 20          | 21                  | KCS 20-240 |        |                     | 39                  | 19     | 20                  | 73                  | 140,60 |                |            |                   |  |
| 300                              | 12          | 13                  | KCS 12-300 | 3      | 24,5                | 45                  | 45     | 13                  | 14                  | 80     | 195,00         | 1          | 30                | PRZ240, GO300,<br>HR300, GU300   |
|                                  | 14          | 15                  | KCS 14-300 |        |                     | 45                  | 15,5   | 15,5                | 81                  | 211,05 |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-300 |        |                     | 45                  | 16     | 17                  | 83                  | 205,00 |                |            |                   |  |
|                                  | 20          | 21                  | KCS 20-300 |        |                     | 45                  | 19     | 20                  | 86                  | 217,80 |                |            |                   |  |
| 400                              | 12          | 13                  | KCS 12-400 | 3,5    | 27                  | 49                  | 44     | 24                  | 24                  | 92     | 335,00         | 1          | 34                | GU625  |
|                                  | 14          | 15                  | KCS 14-400 |        |                     | 49                  | 24     | 24                  | 92                  | 285,00 |                |            |                   |  |
|                                  | 16          | 17                  | KCS 16-400 |        |                     | 49                  | 24     | 24                  | 92                  | 345,83 |                |            |                   |  |
|                                  | 20          | 21                  | KCS 20-400 |        |                     | 49                  | 24     | 24                  | 92                  | 281,00 |                |            |                   |  |

Production on request. - Terminal with control hole - symbol KCS-K.



# KCS45 Tubular angle terminal

for multi-wire Cu cables



Material: galvanically tinned copper  
Non tinned on request.

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol       | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | a [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | Weight [g/pce] | Unit [pcs] | Dies discriminant | Crimping tools  |      |      |      |        |
|----------------------------------|-------------|---------------------|--------------|--------|---------------------|---------------------|--------|---------------------|---------------------|----------------|------------|-------------------|---|------|------|------|--------|
| 6                                | 5           | 5,3                 | KCS45 5-6    | 1      | 4                   | 9,5                 | 9      | 8                   | 8,5                 | 3,90           | 10         | 6                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, PR33, GO300, HR300, GU300, GU120, HR100-U, PR240, PR50, PP19, A11/6         |      |      |      |        |
|                                  | 6           | 6,4                 | KCS45 6-6    |        |                     |                     |        |                     |                     |                |            |                   |   | 10   | 7,5  | 8,5  | 3,73   |
| 10                               | 5           | 5,3                 | KCS45 5-10   | 1,2    | 4,5                 | 12                  | 10     | 8                   | 8,5                 | 5,93           | 10         | 7                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR50, R50, PP19                 |      |      |      |        |
|                                  | 6           | 6,4                 | KCS45 6-10   |        |                     |                     |        |                     |                     |                |            |                   |   | 12   | 7,5  | 8,5  | 6,14   |
|                                  | 8           | 8,4                 | KCS45 8-10   |        |                     |                     |        |                     |                     |                |            |                   |   | 13   | 10   | 11   | 6,60   |
| 16                               | 6           | 6,4                 | KCS45 6-16   | 1,5    | 5,5                 | 13                  | 13     | 7,5                 | 8,5                 | 10,00          | 10         | 8                 | HR300, GU300, GU120, HR100-U, PR240, PR50, R50, PP19  |      |      |      |        |
|                                  | 8           | 8,4                 | KCS45 8-16   |        |                     |                     |        |                     |                     |                |            |                   |   | 13   | 10   | 11   | 10,50  |
|                                  | 10          | 10,5                | KCS45 10-16  |        |                     |                     |        |                     |                     |                |            |                   |   | 17   | 12   | 13   | 11,80  |
| 25                               | 6           | 6,4                 | KCS45 6-25   | 1,5    | 7                   | 14                  | 15     | 7,5                 | 8,5                 | 14,00          | 10         | 10                | PP19<br>+ as below  |      |      |      |        |
|                                  | 8           | 8,4                 | KCS45 8-25   |        |                     |                     |        |                     |                     |                |            |                   |   | 16   | 10   | 11   | 15,00  |
|                                  | 10          | 10,5                | KCS45 10-25  |        |                     |                     |        |                     |                     |                |            |                   |   | 18   | 12   | 13   | 14,90  |
|                                  | 12          | 13                  | KCS45 12-25  |        |                     |                     |        |                     |                     |                |            |                   |   | 18   | 13   | 14   | 18,10  |
| 35                               | 6           | 6,4                 | KCS45 6-35   | 1,75   | 8,5                 | 17                  | 17     | 7,5                 | 8,5                 | 22,30          | 10         | 12                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR150, PR50, PP19, A11/6 |      |      |      |        |
|                                  | 8           | 8,4                 | KCS45 8-35   |        |                     |                     |        |                     |                     |                |            |                   |   | 17   | 10   | 11   | 24,20  |
|                                  | 10          | 10,5                | KCS45 10-35  |        |                     |                     |        |                     |                     |                |            |                   |   | 19   | 12   | 13   | 25,20  |
|                                  | 12          | 13                  | KCS45 12-35  |        |                     |                     |        |                     |                     |                |            |                   |   | 21   | 13   | 14   | 26,30  |
|                                  | 14          | 15                  | KCS45 14-35  |        |                     |                     |        |                     |                     |                |            |                   |   | 21   | 15,5 | 15,5 | 27,70  |
| 50                               | 8           | 8,4                 | KCS45 8-50   | 2      | 10                  | 20                  | 19     | 10                  | 11                  | 33,20          | 10         | 14                | HR300, GU300, GU120, HR100-U, PR240, PR120, PR150, PR50, PP19, A11/6  |      |      |      |        |
|                                  | 10          | 10,5                | KCS45 10-50  |        |                     |                     |        |                     |                     |                |            |                   |   | 20   | 12   | 13   | 34,60  |
|                                  | 12          | 13                  | KCS45 12-50  |        |                     |                     |        |                     |                     |                |            |                   |   | 23   | 13   | 14   | 33,30  |
|                                  | 14          | 15                  | KCS45 14-50  |        |                     |                     |        |                     |                     |                |            |                   |   | 23   | 15,5 | 15,5 | 39,10  |
|                                  | 16          | 17                  | KCS45 16-50  |        |                     |                     |        |                     |                     |                |            |                   |   | 28   | 16   | 17   | 43,20  |
| 70                               | 8           | 8,4                 | KCS45 8-70   | 2,25   | 12                  | 23,5                | 21     | 10                  | 11                  | 51,20          | 10         | 16                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR150                    |      |      |      |        |
|                                  | 10          | 10,5                | KCS45 10-70  |        |                     |                     |        |                     |                     |                |            |                   |   | 23,5 | 12   | 13   | 50,90  |
|                                  | 12          | 13                  | KCS45 12-70  |        |                     |                     |        |                     |                     |                |            |                   |   | 23,5 | 13   | 14   | 55,10  |
|                                  | 14          | 15                  | KCS45 14-70  |        |                     |                     |        |                     |                     |                |            |                   |   | 23,5 | 15,5 | 15,5 | 55,10  |
|                                  | 16          | 17                  | KCS45 16-70  |        |                     |                     |        |                     |                     |                |            |                   |   | 28   | 16   | 17   | 61,40  |
| 95                               | 10          | 10,5                | KCS45 10-95  | 2,25   | 13,5                | 26                  | 25     | 12                  | 13                  | 58,612         | 1          | 17                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR150                    |      |      |      |        |
|                                  | 12          | 13                  | KCS45 12-95  |        |                     |                     |        |                     |                     |                |            |                   |   | 26   | 13   | 14   | 59,11  |
|                                  | 14          | 15                  | KCS45 14-95  |        |                     |                     |        |                     |                     |                |            |                   |   | 26   | 15,5 | 15,5 | 67,90  |
|                                  | 16          | 17                  | KCS45 16-95  |        |                     |                     |        |                     |                     |                |            |                   |   | 28   | 16   | 17   | 69,00  |
|                                  | 20          | 21                  | KCS45 20-95  |        |                     |                     |        |                     |                     |                |            |                   |   | 34   | 19   | 20   | 74,00  |
| 120                              | 10          | 10,5                | KCS45 10-120 | 2,25   | 15,5                | 29                  | 26     | 12                  | 13                  | 75,17          | 1          | 19                | PR150   |      |      |      |        |
|                                  | 12          | 13                  | KCS45 12-120 |        |                     |                     |        |                     |                     |                |            |                   |   | 29   | 13   | 14   | 76,40  |
|                                  | 14          | 15                  | KCS45 14-120 |        |                     |                     |        |                     |                     |                |            |                   |   | 29   | 15,5 | 15,5 | 87,60  |
|                                  | 16          | 17                  | KCS45 16-120 |        |                     |                     |        |                     |                     |                |            |                   |   | 30   | 16   | 17   | 88,90  |
|                                  | 20          | 21                  | KCS45 20-120 |        |                     |                     |        |                     |                     |                |            |                   |   | 36   | 19   | 20   | 89,56  |
| 150                              | 10          | 10,5                | KCS45 10-150 | 2,25   | 17                  | 31                  | 30     | 12                  | 13                  | 89,46          | 1          | 20                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, PR240, PR150   |      |      |      |        |
|                                  | 12          | 13                  | KCS45 12-150 |        |                     |                     |        |                     |                     |                |            |                   |   | 31   | 13   | 14   | 90,23  |
|                                  | 14          | 15                  | KCS45 14-150 |        |                     |                     |        |                     |                     |                |            |                   |   | 31   | 15,5 | 15,5 | 93,50  |
|                                  | 16          | 17                  | KCS45 16-150 |        |                     |                     |        |                     |                     |                |            |                   |   | 31   | 16   | 17   | 95,60  |
|                                  | 20          | 21                  | KCS45 20-150 |        |                     |                     |        |                     |                     |                |            |                   |   | 36   | 19   | 20   | 97,70  |
| 185                              | 10          | 10,5                | KCS45 10-185 | 2,5    | 19                  | 35                  | 30     | 12                  | 13                  | 115,00         | 1          | 23                | PR240, PRZ240,<br>+ as below  |      |      |      |        |
|                                  | 12          | 13                  | KCS45 12-185 |        |                     |                     |        |                     |                     |                |            |                   |   | 35   | 13   | 14   | 120,00 |
|                                  | 14          | 15                  | KCS45 14-185 |        |                     |                     |        |                     |                     |                |            |                   |   | 35   | 15,5 | 15,5 | 120,30 |
|                                  | 16          | 17                  | KCS45 16-185 |        |                     |                     |        |                     |                     |                |            |                   |   | 35   | 16   | 17   | 117,95 |
|                                  | 20          | 21                  | KCS45 20-185 |        |                     |                     |        |                     |                     |                |            |                   |   | 39   | 19   | 20   | 123,23 |
| 240                              | 12          | 13                  | KCS45 12-240 | 2,5    | 21,5                | 39                  | 35     | 13                  | 14                  | 140,00         | 1          | 25                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300   |      |      |      |        |
|                                  | 14          | 15                  | KCS45 14-240 |        |                     |                     |        |                     |                     |                |            |                   |   | 39   | 15,5 | 15,5 | 145,10 |
|                                  | 16          | 17                  | KCS45 16-240 |        |                     |                     |        |                     |                     |                |            |                   |   | 39   | 16   | 17   | 146,30 |
|                                  | 20          | 21                  | KCS45 20-240 |        |                     |                     |        |                     |                     |                |            |                   |   | 39   | 19   | 20   | 148,60 |
| 300                              | 12          | 13                  | KCS45 12-300 | 3      | 24,5                | 45                  | 44     | 13                  | 14                  | 234,30         | 1          | 30                |   |      |      |      |        |
|                                  | 16          | 17                  | KCS45 16-300 |        |                     |                     |        |                     |                     |                |            |                   |   | 45   | 16   | 17   | 238,90 |
| 400                              | 12          | 13                  | KCS45 12-400 | 3,5    | 27                  | 49                  | 44     | 24                  | 24                  | 338,70         | 1          | 34                | GU625   |      |      |      |        |
|                                  | 20          | 21                  | KCS45 20-400 |        |                     |                     |        |                     |                     |                |            |                   |   | 49   | 24   | 24   | 334,10 |

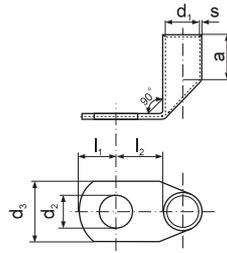
Production on request. - Terminals of dimensions other than in chart.

for multi-wire Cu cables

# KCS90 Tubular angle terminal

Material: galvanically tinned copper

Non tinned on request.



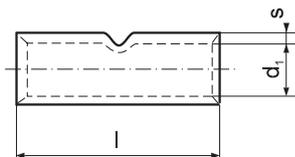
| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol       | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | a [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | Weight [g/pce] | Unit [pcs] | Dies discriminant | Crimping tools  |      |      |    |        |
|----------------------------------|-------------|---------------------|--------------|--------|---------------------|---------------------|--------|---------------------|---------------------|----------------|------------|-------------------|---|------|------|----|--------|
| 6                                | 5           | 5,3                 | KCS90 5-6    | 1      | 4                   | 9,5                 | 9      | 8                   | 8,5                 | 4,00           | 10         | 6                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, PR33, GO300, HR300, GU300, GU120, HR100-U, PR240, PR50, PP19, A11/6         |      |      |    |        |
|                                  | 6           | 6,4                 | KCS90 6-6    |        |                     |                     |        |                     |                     |                |            |                   |   | 10   | 7,5  | 11 | 4,30   |
| 10                               | 5           | 5,3                 | KCS90 5-10   | 1,2    | 4,5                 | 12                  | 10     | 8                   | 8,5                 | 6,10           | 10         | 7                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300,  |      |      |    |        |
|                                  | 6           | 6,4                 | KCS90 6-10   |        |                     |                     |        |                     |                     |                |            |                   |   | 12   | 7,5  | 11 | 6,40   |
|                                  | 8           | 8,4                 | KCS90 8-10   |        |                     |                     |        |                     |                     |                |            |                   |   | 13   | 10   | 13 | 5,90   |
| 16                               | 6           | 6,4                 | KCS90 6-16   | 1,5    | 5,5                 | 13                  | 13     | 7,5                 | 11                  | 10,10          | 10         | 8                 | HR300, GU300, GU120, HR100-U, PR240, PR50, R50, PP19  |      |      |    |        |
|                                  | 8           | 8,4                 | KCS90 8-16   |        |                     |                     |        |                     |                     |                |            |                   |   | 13   | 10   | 13 | 10,50  |
|                                  | 10          | 10,5                | KCS90 10-16  |        |                     |                     |        |                     |                     |                |            |                   |   | 17   | 12   | 15 | 13,50  |
| 25                               | 6           | 6,4                 | KCS90 6-25   | 1,5    | 7                   | 14                  | 15     | 7,5                 | 11                  | 13,80          | 10         | 10                | PP19<br>+ as below  |      |      |    |        |
|                                  | 8           | 8,4                 | KCS90 8-25   |        |                     |                     |        |                     |                     |                |            |                   |   | 16   | 10   | 13 | 14,60  |
|                                  | 10          | 10,5                | KCS90 10-25  |        |                     |                     |        |                     |                     |                |            |                   |   | 18   | 12   | 15 | 16,20  |
|                                  | 12          | 13                  | KCS90 12-25  |        |                     |                     |        |                     |                     |                |            |                   |   | 18   | 13   | 18 | 18,20  |
| 35                               | 6           | 6,4                 | KCS90 6-35   | 1,75   | 8,5                 | 17                  | 17     | 7,5                 | 11                  | 21,00          | 10         | 12                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR150, PR50, PP19, A11/6 |      |      |    |        |
|                                  | 8           | 8,4                 | KCS90 8-35   |        |                     |                     |        |                     |                     |                |            |                   |   | 17   | 10   | 13 | 23,10  |
|                                  | 10          | 10,5                | KCS90 10-35  |        |                     |                     |        |                     |                     |                |            |                   |   | 19   | 12   | 15 | 23,60  |
|                                  | 12          | 13                  | KCS90 12-35  |        |                     |                     |        |                     |                     |                |            |                   |   | 21   | 13   | 18 | 25,70  |
|                                  | 14          | 15                  | KCS90 14-35  |        |                     |                     |        |                     |                     |                |            |                   |   | 21   | 15,5 | 20 | 26,70  |
| 50                               | 8           | 8,4                 | KCS90 8-50   | 2      | 10                  | 20                  | 19     | 10                  | 13                  | 32,60          | 10         | 14                | HR300, GU300, GU120, HR100-U, PR240, PR120, PR150, PR50, PP19, A11/6  |      |      |    |        |
|                                  | 10          | 10,5                | KCS90 10-50  |        |                     |                     |        |                     |                     |                |            |                   |   | 20   | 12   | 15 | 34,20  |
|                                  | 12          | 13                  | KCS90 12-50  |        |                     |                     |        |                     |                     |                |            |                   |   | 23   | 13   | 18 | 40,20  |
|                                  | 14          | 15                  | KCS90 14-50  |        |                     |                     |        |                     |                     |                |            |                   |   | 23   | 15,5 | 20 | 40,20  |
|                                  | 16          | 17                  | KCS90 16-50  |        |                     |                     |        |                     |                     |                |            |                   |   | 28   | 16   | 22 | 46,80  |
| 70                               | 8           | 8,4                 | KCS90 8-70   | 2,25   | 12                  | 23,5                | 21     | 10                  | 13                  | 48,30          | 10         | 16                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR150                    |      |      |    |        |
|                                  | 10          | 10,5                | KCS90 10-70  |        |                     |                     |        |                     |                     |                |            |                   |   | 23,5 | 12   | 15 | 50,80  |
|                                  | 12          | 13                  | KCS90 12-70  |        |                     |                     |        |                     |                     |                |            |                   |   | 23,5 | 13   | 18 | 53,10  |
|                                  | 14          | 15                  | KCS90 14-70  |        |                     |                     |        |                     |                     |                |            |                   |   | 23,5 | 15,5 | 20 | 60,90  |
|                                  | 16          | 17                  | KCS90 16-70  |        |                     |                     |        |                     |                     |                |            |                   |   | 28   | 16   | 22 | 61,00  |
| 95                               | 10          | 10,5                | KCS90 10-95  | 2,25   | 13,5                | 26                  | 25     | 12                  | 18                  | 66,63          | 1          | 17                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120, PR150                    |      |      |    |        |
|                                  | 12          | 13                  | KCS90 12-95  |        |                     |                     |        |                     |                     |                |            |                   |   | 26   | 13   | 18 | 63,53  |
|                                  | 14          | 15                  | KCS90 14-95  |        |                     |                     |        |                     |                     |                |            |                   |   | 26   | 15,5 | 20 | 68,40  |
|                                  | 16          | 17                  | KCS90 16-95  |        |                     |                     |        |                     |                     |                |            |                   |   | 30   | 16   | 22 | 73,59  |
|                                  | 20          | 21                  | KCS90 20-95  |        |                     |                     |        |                     |                     |                |            |                   |   | 35   | 19,5 | 24 | 71,61  |
| 120                              | 10          | 10,5                | KCS90 10-120 | 2,25   | 15,5                | 28                  | 26     | 12                  | 15                  | 72,61          | 1          | 19                | PR150   |      |      |    |        |
|                                  | 12          | 13                  | KCS90 12-120 |        |                     |                     |        |                     |                     |                |            |                   |   | 28   | 13   | 18 | 80,00  |
|                                  | 14          | 15                  | KCS90 14-120 |        |                     |                     |        |                     |                     |                |            |                   |   | 28   | 15,5 | 20 | 87,90  |
|                                  | 16          | 17                  | KCS90 16-120 |        |                     |                     |        |                     |                     |                |            |                   |   | 30   | 16   | 22 | 83,65  |
|                                  | 20          | 21                  | KCS90 20-120 |        |                     |                     |        |                     |                     |                |            |                   |   | 35   | 19   | 24 | 86,52  |
| 150                              | 10          | 10,5                | KCS90 10-150 | 2,25   | 17                  | 31                  | 30     | 12                  | 15                  | 90,00          | 1          | 20                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, PR240, PR150   |      |      |    |        |
|                                  | 12          | 13                  | KCS90 12-150 |        |                     |                     |        |                     |                     |                |            |                   |   | 31   | 13   | 18 | 88,96  |
|                                  | 14          | 15                  | KCS90 14-150 |        |                     |                     |        |                     |                     |                |            |                   |   | 31   | 15,5 | 20 | 93,90  |
|                                  | 16          | 17                  | KCS90 16-150 |        |                     |                     |        |                     |                     |                |            |                   |   | 31   | 16   | 22 | 96,70  |
|                                  | 20          | 21                  | KCS90 20-150 |        |                     |                     |        |                     |                     |                |            |                   |   | 36   | 19   | 24 | 99,80  |
| 185                              | 10          | 10,5                | KCS90 10-185 | 2,5    | 19                  | 35                  | 30     | 12                  | 22                  | 119,50         | 1          | 23                | PR240, PRZ240,<br>+ as below  |      |      |    |        |
|                                  | 12          | 13                  | KCS90 12-185 |        |                     |                     |        |                     |                     |                |            |                   |   | 35   | 13   | 22 | 122,70 |
|                                  | 14          | 15                  | KCS90 14-185 |        |                     |                     |        |                     |                     |                |            |                   |   | 35   | 15,5 | 22 | 124,20 |
|                                  | 16          | 17                  | KCS90 16-185 |        |                     |                     |        |                     |                     |                |            |                   |   | 35   | 16   | 22 | 120,00 |
|                                  | 20          | 21                  | KCS90 20-185 |        |                     |                     |        |                     |                     |                |            |                   |   | 39   | 19   | 24 | 129,90 |
| 240                              | 12          | 13                  | KCS90 12-240 | 2,5    | 21,5                | 39                  | 35     | 13                  | 22                  | 150,00         | 1          | 25                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300   |      |      |    |        |
|                                  | 14          | 15                  | KCS90 14-240 |        |                     |                     |        |                     |                     |                |            |                   |   | 39   | 15,5 | 22 | 146,70 |
|                                  | 16          | 17                  | KCS90 16-240 |        |                     |                     |        |                     |                     |                |            |                   |   | 39   | 16   | 22 | 148,20 |
|                                  | 20          | 21                  | KCS90 20-240 |        |                     |                     |        |                     |                     |                |            |                   |   | 39   | 19   | 24 | 150,30 |
| 300                              | 12          | 13                  | KCS90 12-300 | 3      | 24,5                | 45                  | 44     | 13                  | 22                  | 238,00         | 1          | 30                | HR300, GU300  |      |      |    |        |
|                                  | 16          | 17                  | KCS90 16-300 |        |                     |                     |        |                     |                     |                |            |                   |   | 45   | 16   | 22 | 241,10 |
|                                  | 20          | 21                  | KCS90 20-300 |        |                     |                     |        |                     |                     |                |            |                   |   | 45   | 19   | 24 | 244,80 |
| 400                              | 12          | 13                  | KCS90 12-400 | 3,5    | 27                  | 49                  | 44     | 24                  | 24                  | 343,40         | 1          | 34                | GU625   |      |      |    |        |
|                                  | 14          | 15                  | KCS90 14-400 |        |                     |                     |        |                     |                     |                |            |                   |   | 49   | 24   | 24 | 342,90 |
|                                  | 16          | 17                  | KCS90 16-400 |        |                     |                     |        |                     |                     |                |            |                   |   | 49   | 24   | 24 | 342,40 |
|                                  | 20          | 21                  | KCS90 20-400 |        |                     |                     |        |                     |                     |                |            |                   |   | 49   | 24   | 24 | 341,10 |

Production on request. - Terminals of dimensions other than in chart.



### KLN Connector

for multi-wire Cu cables



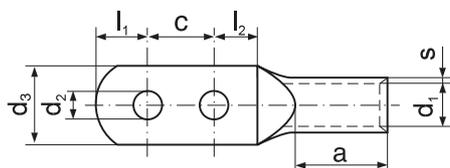
Material: galvanically tinned copper  
 Non tinned on request.  
 According to DIN 46267 part 1

| Cross section [mm <sup>2</sup> ] | Symbol      | s [mm] | d <sub>1</sub> [mm] | l [mm] | Weight KLN [g/pce] | Unit [pcs] | Dies discriminant | Crimping tools  |
|----------------------------------|-------------|--------|---------------------|--------|--------------------|------------|-------------------|---|
| 6                                | KLN 6-30    | 0,85   | 3,8                 | 30     | 3,18               | 50         | –                 | PR33, A11-6, RA16, PR50-D   |
| 10                               | KLN 10-30   | 0,75   | 4,5                 | 30     | 3,24               | 50         | 6                 |   |
| 16                               | KLN 16-50   | 1,5    | 5,5                 | 50     | 14,44              | 50         | 8                 | PP19 + as below   |
| 25                               | KLN 25-50   | 1,5    | 7                   | 50     | 17,90              | 20         | 10                |   |
| 35                               | KLN 35-50   | 2,15   | 8,2                 | 50     | 30,90              | 20         | 12                |   |
| 50                               | KLN 50-56   | 2,25   | 10                  | 56     | 42,60              | 20         | 14                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120-D, PR150-D, PR50-D, PP19, A11/6 |
| 70                               | KLN 70-56   | 2,5    | 11,5                | 56     | 53,78              | 10         | 16                | EPZC300, EPZ300, GZ300, HRZ300,   |
| 95                               | KLN 95-70   | 2,75   | 13,5                | 70     | 87,08              | 10         | 18                | PRZ240, GO300, HR300, GU300,  |
| 120                              | KLN 120-70  | 2,75   | 15,5                | 70     | 96,50              | 10         | 20                | GU120, HR100-U, PR240, PR120-D, PR150-D   |
| 150                              | KLN 150-80  | 3,25   | 17                  | 80     | 147,00             | 1          | 22                | PR240, PRZ240   |
| 185                              | KLN 185-85  | 3,25   | 19                  | 85     | 173,00             | 1          | 25                | + as below  |
| 240                              | KLN 240-90  | 3,75   | 21,5                | 90     | 238,00             | 1          | 28                | EPZC300, EPZ300, GZ300, HRZ300,   |
| 300                              | KLN 300-100 | 3,75   | 24,5                | 100    | 294,00             | 1          | 32                | PRZ240, GO300, HR300, GU300   |
| 400                              | KLN 400-150 | 5,5    | 27,5                | 150    | 747,00             | 1          | 38                |   |
| 500                              | KLN 500-160 | 5,5    | 31                  | 160    | 897,00             | 1          | 42                | GU625   |
| 625                              | KLN 625-160 | 4,75   | 34,5                | 160    | 798,00             | 1          | 44                |   |

Production on request. - Connectors of dimensions other than in chart.

### KCL Tubular terminal

for multi-wire Cu cables



Material: galvanically tinned copper  
 Non tinned on request.  
 Tubular part dimensions according to DIN 46235

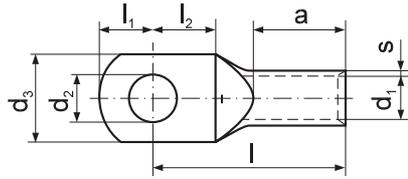
| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | a [mm] | c [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | Weight [g/pce] | Dies discriminant | Crimping tools   |
|----------------------------------|-------------|---------------------|------------|--------|---------------------|---------------------|--------|--------|---------------------|---------------------|----------------|-------------------|--|
| 25                               | 6           | 6,4                 | KCL 6-25   | 1,5    | 7                   | 14                  | 20     | 20     | 7,5                 | 8,5                 | 22,53          | 10                |  |
|                                  | 8           | 8,4                 | KCL 8-25   |        |                     |                     |        |        |                     |                     |                |                   | 16   |
| 35                               | 6           | 6,4                 | KCL 6-35   | 2,15   | 8,2                 | 17                  | 20     | 20     | 7,5                 | 8,5                 | 36,90          | 12                | + as below   |
|                                  | 8           | 8,4                 | KCL 8-35   |        |                     |                     |        |        |                     |                     |                |                   | 17   |
| 50                               | 6           | 6,4                 | KCL 6-50   | 2,25   | 10                  | 20                  | 28     | 20     | 7,5                 | 8,5                 | 53,40          | 14                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120-D, PR150-D, PR50-D |
|                                  | 8           | 8,4                 | KCL 8-50   |        |                     |                     |        |        |                     |                     |                |                   | 20   |
| 70                               | 8           | 8,4                 | KCL 8-70   | 2,5    | 11,5                | 24                  | 28     | 22     | 10                  | 11                  | 76,28          | 16                |  |
|                                  | 10          | 10,5                | KCL 10-70  |        |                     |                     |        |        |                     |                     |                |                   | 24   |
| 95                               | 8           | 8,4                 | KCL 8-95   | 2,75   | 13,5                | 28                  | 35     | 22     | 10                  | 11                  | 108,83         | 18                | PRZ240, GO300, HR300, GU300,   |
|                                  | 10          | 10,5                | KCL 10-95  |        |                     |                     |        |        |                     |                     |                |                   | 28   |
| 120                              | 8           | 8,4                 | KCL 8-120  | 2,75   | 15,5                | 32                  | 35     | 30     | 10                  | 11                  | 132,57         | 20                | PR120-D, PR150-D   |
|                                  | 10          | 10,5                | KCL 10-120 |        |                     |                     |        |        |                     |                     |                |                   | 32   |
| 150                              | 10          | 10,5                | KCL 10-150 | 3,25   | 17                  | 34                  | 35     | 30     | 12                  | 13                  | 177,47         | 22                | PR150-D  |
|                                  | 12          | 13                  | KCL 12-150 |        |                     |                     |        |        |                     |                     |                |                   | 34   |
| 185                              | 10          | 10,5                | KCL 10-185 | 3,25   | 19                  | 37                  | 40     | 30     | 12                  | 13                  | 211,55         | 25                | PR240, PRZ240,   |
|                                  | 12          | 13                  | KCL 12-185 |        |                     |                     |        |        |                     |                     |                |                   | 37   |
| 240                              | 10          | 10,5                | KCL 10-240 | 3,75   | 21,5                | 42                  | 40     | 40     | 12                  | 13                  | 377,20         | 28                | EPZC300, EPZ300, GZ300, HRZ300,  |
|                                  | 12          | 13                  | KCL 12-240 |        |                     |                     |        |        |                     |                     |                |                   | 42   |

Production on request. - Terminals of dimensions other than in chart.

for multi-wire Cu cables

KCR Tubular terminal

Material: galvanically tinned copper  
 Non tinned on request.  
 According to DIN 46235

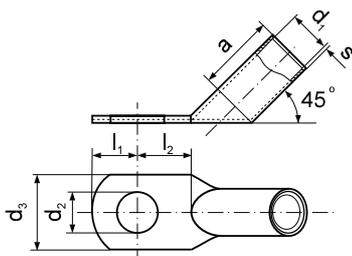


| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol     | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | a [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | l [mm] | Weight [g/pce] | Unit [pcs] | Dies discriminant | Crimping tools   |
|----------------------------------|-------------|---------------------|------------|--------|---------------------|---------------------|--------|---------------------|---------------------|--------|----------------|------------|-------------------|--|
| 10                               | 5           | 5,3                 | KCR 5-10   | 0,75   | 4,5                 | 9                   | 10     | 7,5                 | 8,5                 | 27     | 3,56           | 50         | 6                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, PR33, GO300, HR300, GU300, GU120, HR100-U, PR240, PR50-D, PP19 |
|                                  | 6           | 6,4                 | KCR 6-10   |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 8           | 8,4*                | KCR 8-10   |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 16                               | 6           | 6,4                 | KCR 6-16   | 1,5    | 5,5                 | 13                  | 20     | 7,5                 | 9                   | 36     | 12,08          | 50         | 8                 | HR100-U, PR240, PR50-D, PP19   |
|                                  | 8           | 8,4                 | KCR 8-16   |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 10          | 10,5                | KCR 10-16  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 25                               | 6           | 6,4                 | KCR 6-25   | 1,5    | 7                   | 14                  | 20     | 9                   | 9                   | 38     | 15,92          | 50         | 10                | PR150-D + as above   |
|                                  | 8           | 8,4                 | KCR 8-25   |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 10          | 10,5                | KCR 10-25  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 12          | 13                  | KCR 12-25  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 35                               | 6           | 6,4*                | KCR 6-35   | 2,15   | 8,2                 | 17                  | 20     | 9                   | 9                   | 42     | 30,00          | 20         | 12                | PR50-D, R50, + as above  |
|                                  | 8           | 8,4                 | KCR 8-35   |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 10          | 10,5                | KCR 10-35  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 12          | 13                  | KCR 12-35  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 14          | 15*                 | KCR 14-35  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 50                               | 8           | 8,4                 | KCR 8-50   | 2,25   | 10                  | 20                  | 28     | 10                  | 11                  | 52     | 45,35          | 20         | 14                | PR50-D, R50, + as above  |
|                                  | 10          | 10,5                | KCR 10-50  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 12          | 13                  | KCR 12-50  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 14          | 15*                 | KCR 14-50  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 16          | 17                  | KCR 16-50  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 70                               | 8           | 8,4                 | KCR 8-70   | 2,5    | 11,5                | 24                  | 28     | 11,5                | 11,5                | 55     | 62,80          | 20         | 16                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120-D, PR150-D   |
|                                  | 10          | 10,5                | KCR 10-70  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 12          | 13                  | KCR 12-70  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 14          | 15*                 | KCR 14-70  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 16          | 17                  | KCR 16-70  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 95                               | 8           | 8,4*                | KCR 8-95   | 2,75   | 13,5                | 28                  | 35     | 10                  | 11                  | 65     | 91,00          | 10         | 18                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120-D, PR150-D   |
|                                  | 10          | 10,5                | KCR 10-95  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 12          | 13                  | KCR 12-95  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 14          | 15*                 | KCR 14-95  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 16          | 17                  | KCR 16-95  |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 120                              | 10          | 10,5                | KCR 10-120 | 2,75   | 15,5                | 32                  | 35     | 13,5                | 13,5                | 70     | 110,90         | 10         | 20                | PR150-D  |
|                                  | 12          | 13                  | KCR 12-120 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 14          | 15*                 | KCR 14-120 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 16          | 17                  | KCR 16-120 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 20          | 21                  | KCR 20-120 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 150                              | 10          | 10,5                | KCR 10-150 | 3,25   | 17                  | 34                  | 35     | 13,5                | 13,5                | 78     | 160,70         | 10         | 22                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, PR240, PR150-D                            |
|                                  | 12          | 13                  | KCR 12-150 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 14          | 15*                 | KCR 14-150 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 16          | 17                  | KCR 16-150 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 20          | 21                  | KCR 20-150 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 185                              | 10          | 10,5                | KCR 10-185 | 3,25   | 19                  | 37                  | 40     | 12                  | 17                  | 82     | 185,00         | 10         | 25                | PR240, PRZ240 + as above   |
|                                  | 12          | 13                  | KCR 12-185 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 14          | 15*                 | KCR 14-185 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 16          | 17                  | KCR 16-185 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 20          | 21                  | KCR 20-185 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 240                              | 12          | 13                  | KCR 12-240 | 3,75   | 21,5                | 42                  | 40     | 13                  | 17                  | 92     | 265,00         | 10         | 28                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300  |
|                                  | 14          | 15*                 | KCR 14-240 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 16          | 17                  | KCR 16-240 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 20          | 21                  | KCR 20-240 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 300                              | 14          | 15*                 | KCR 14-300 | 3,75   | 24,5                | 48                  | 50     | 15,5                | 15,5                | 100    | 334,00         | 1          | 32                | GU625  |
|                                  | 16          | 17                  | KCR 16-300 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 20          | 21                  | KCR 20-300 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 400                              | 14          | 15*                 | KCR 14-400 | 5,5    | 27,5                | 55                  | 70     | 24                  | 24                  | 115    | 681,50         | 1          | 38                | GU625  |
|                                  | 16          | 17                  | KCR 16-400 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
|                                  | 20          | 21                  | KCR 20-400 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 500                              | 16          | 17*                 | KCR 16-500 | 5,5    | 31                  | 60                  | 70     | 24                  | 24                  | 125    | 740,00         | 1          | 42                | GU625  |
|                                  | 20          | 21                  | KCR 20-500 |        |                     |                     |        |                     |                     |        |                |            |                   |  |
| 625                              | 16          | 17*                 | KCR 16-625 | 4,75   | 34,5                | 63*                 | 80     | 24                  | 24                  | 135    | 840,00         | 1          | 44                | GU625  |
|                                  | 20          | 21                  | KCR 20-625 |        |                     |                     |        |                     |                     |        |                |            |                   |  |

\* – parameter outside standard.

# KC45 Tubular angle terminal

for multi-wire Cu cables



Material: galvanically tinned copper

Non tinned on request.

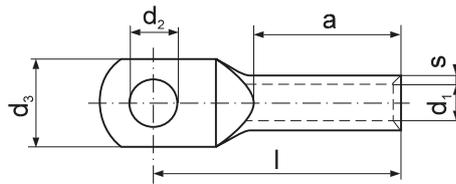
Tubular part dimensions according to DIN 46235

| Cross section [mm <sup>2</sup> ] | For screw M | d <sub>2</sub> [mm] | Symbol      | s [mm] | d <sub>1</sub> [mm] | d <sub>3</sub> [mm] | a [mm] | l <sub>1</sub> [mm] | l <sub>2</sub> [mm] | Weight [g/pce] | Unit [pcs] | Dies discriminant | Crimping tools   |     |      |      |        |
|----------------------------------|-------------|---------------------|-------------|--------|---------------------|---------------------|--------|---------------------|---------------------|----------------|------------|-------------------|--|-----|------|------|--------|
| 6                                | 5           | 5,3                 | KC45 5-6    | 0,85   | 3,8                 | 8,5                 | 10     | 8                   | 8,5                 | 2,70           | 10         |                   | PR33, A11-6, RA16, PR50-D, PP19  |     |      |      |        |
|                                  | 6           | 6,4                 | KC45 6-6    |        |                     |                     |        |                     |                     |                |            |                   |  | 8,5 | 7,5  | 8,5  | 2,90   |
| 10                               | 5           | 5,3                 | KC45 5-10   | 0,75   | 4,5                 | 10                  | 10     | 8                   | 8,5                 | 4,40           | 10         | 6                 | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, PR33, GO300, HR300, GU300, GU120, HR100-U, PR240, PR50-D, PP19 |     |      |      |        |
|                                  | 6           | 6,4                 | KC45 6-10   |        |                     |                     |        |                     |                     |                |            |                   |  | 10  | 7,5  | 8,5  | 3,60   |
|                                  | 8           | 8,4                 | KC45 8-10   |        |                     |                     |        |                     |                     |                |            |                   |  | 12  | 10   | 11   | 4,00   |
| 16                               | 6           | 6,4                 | KC45 6-16   | 1,5    | 5,5                 | 13                  | 20     | 7,5                 | 8,5                 | 11,90          | 10         | 8                 | HR100-U, PR240, PR50-D, PP19   |     |      |      |        |
|                                  | 8           | 8,4                 | KC45 8-16   |        |                     |                     |        |                     |                     |                |            |                   |  | 13  | 10   | 11   | 12,70  |
|                                  | 10          | 10,5                | KC45 10-16  |        |                     |                     |        |                     |                     |                |            |                   |  | 17  | 12   | 13   | 13,40  |
| 25                               | 6           | 6,4                 | KC45 6-25   | 1,5    | 7                   | 14                  | 20     | 7,5                 | 8,5                 | 16,50          | 10         | 10                |  |     |      |      |        |
|                                  | 8           | 8,4                 | KC45 8-25   |        |                     |                     |        |                     |                     |                |            |                   |  | 16  | 10   | 11   | 17,00  |
|                                  | 10          | 10,5                | KC45 10-25  |        |                     |                     |        |                     |                     |                |            |                   |  | 17  | 12   | 13   | 17,60  |
|                                  | 12          | 13                  | KC45 12-25  |        |                     |                     |        |                     |                     |                |            |                   |  | 19  | 13   | 14   | 17,60  |
| 35                               | 6           | 6,4                 | KC45 6-35   | 2,15   | 8,2                 | 17                  | 20     | 7,5                 | 8,5                 | 29,40          | 10         | 12                |  |     |      |      |        |
|                                  | 8           | 8,4                 | KC45 8-35   |        |                     |                     |        |                     |                     |                |            |                   |  | 17  | 10   | 11   | 32,00  |
|                                  | 10          | 10,5                | KC45 10-35  |        |                     |                     |        |                     |                     |                |            |                   |  | 19  | 12   | 13   | 31,60  |
|                                  | 12          | 13                  | KC45 12-35  |        |                     |                     |        |                     |                     |                |            |                   |  | 21  | 13   | 14   | 32,10  |
|                                  | 14          | 15                  | KC45 14-35  |        |                     |                     |        |                     |                     |                |            |                   |  | 21  | 15,5 | 15,5 | 35,60  |
| 50                               | 8           | 8,4                 | KC45 8-50   | 2,25   | 10                  | 20                  | 28     | 10                  | 11                  | 44,10          | 10         | 14                | R50, PR50-D, + as below  |     |      |      |        |
|                                  | 10          | 10,5                | KC45 10-50  |        |                     |                     |        |                     |                     |                |            |                   |  | 20  | 12   | 13   | 46,30  |
|                                  | 12          | 13                  | KC45 12-50  |        |                     |                     |        |                     |                     |                |            |                   |  | 24  | 13   | 14   | 49,10  |
|                                  | 14          | 15                  | KC45 14-50  |        |                     |                     |        |                     |                     |                |            |                   |  | 24  | 15,5 | 15,5 | 54,60  |
|                                  | 16          | 17                  | KC45 16-50  |        |                     |                     |        |                     |                     |                |            |                   |  | 28  | 16   | 17   | 57,90  |
| 70                               | 8           | 8,4                 | KC45 8-70   | 2,5    | 11,5                | 24                  | 28     | 10                  | 11                  | 59,60          | 10         | 16                |  |     |      |      |        |
|                                  | 10          | 10,5                | KC45 10-70  |        |                     |                     |        |                     |                     |                |            |                   |  | 24  | 12   | 13   | 61,90  |
|                                  | 12          | 13                  | KC45 12-70  |        |                     |                     |        |                     |                     |                |            |                   |  | 24  | 13   | 14   | 60,00  |
|                                  | 14          | 15                  | KC45 14-70  |        |                     |                     |        |                     |                     |                |            |                   |  | 24  | 15,5 | 15,5 | 68,10  |
|                                  | 16          | 17                  | KC45 16-70  |        |                     |                     |        |                     |                     |                |            |                   |  | 30  | 16   | 17   | 71,90  |
| 95                               | 10          | 10,5                | KC45 10-95  | 2,75   | 13,5                | 27                  | 35     | 12                  | 13                  | 92,08          | 1          | 18                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300, GU120, HR100-U, PR240, PR120-D, PR150-D   |     |      |      |        |
|                                  | 12          | 13                  | KC45 12-95  |        |                     |                     |        |                     |                     |                |            |                   |  | 27  | 13   | 14   | 93,31  |
|                                  | 14          | 15                  | KC45 14-95  |        |                     |                     |        |                     |                     |                |            |                   |  | 27  | 15,5 | 15,5 | 97,30  |
|                                  | 16          | 17                  | KC45 16-95  |        |                     |                     |        |                     |                     |                |            |                   |  | 29  | 16   | 17   | 96,32  |
| 120                              | 10          | 10,5                | KC45 10-120 | 2,75   | 15,5                | 30                  | 35     | 12                  | 13                  | 106,96         | 1          | 20                |  |     |      |      |        |
|                                  | 12          | 13                  | KC45 12-120 |        |                     |                     |        |                     |                     |                |            |                   |  | 30  | 13   | 14   | 109,30 |
|                                  | 14          | 15                  | KC45 14-120 |        |                     |                     |        |                     |                     |                |            |                   |  | 30  | 15,5 | 15,5 | 113,10 |
|                                  | 16          | 17                  | KC45 16-120 |        |                     |                     |        |                     |                     |                |            |                   |  | 30  | 16   | 17   | 110,04 |
|                                  | 20          | 21                  | KC45 20-120 |        |                     |                     |        |                     |                     |                |            |                   |  | 38  | 19   | 20   | 117,80 |
| 150                              | 10          | 10,5                | KC45 10-150 | 3,25   | 17                  | 34                  | 35     | 12                  | 13                  | 150,00         | 1          | 22                | PR150-D + as below   |     |      |      |        |
|                                  | 12          | 13                  | KC45 12-150 |        |                     |                     |        |                     |                     |                |            |                   |  | 34  | 13   | 14   | 147,57 |
|                                  | 14          | 15                  | KC45 14-150 |        |                     |                     |        |                     |                     |                |            |                   |  | 34  | 15,5 | 15,5 | 156,90 |
|                                  | 16          | 17                  | KC45 16-150 |        |                     |                     |        |                     |                     |                |            |                   |  | 34  | 16   | 17   | 158,70 |
|                                  | 20          | 21                  | KC45 20-150 |        |                     |                     |        |                     |                     |                |            |                   |  | 40  | 19   | 20   | 160,10 |
| 185                              | 10          | 10,5                | KC45 10-185 | 3,25   | 19                  | 36                  | 40     | 12                  | 13                  | 170,00         | 1          | 25                | PR240, PRZ240, + as below  |     |      |      |        |
|                                  | 12          | 13                  | KC45 12-185 |        |                     |                     |        |                     |                     |                |            |                   |  | 36  | 13   | 14   | 168,00 |
|                                  | 14          | 15                  | KC45 14-185 |        |                     |                     |        |                     |                     |                |            |                   |  | 36  | 15,5 | 15,5 | 185,80 |
|                                  | 16          | 17                  | KC45 16-185 |        |                     |                     |        |                     |                     |                |            |                   |  | 36  | 16   | 17   | 187,60 |
|                                  | 20          | 21                  | KC45 20-185 |        |                     |                     |        |                     |                     |                |            |                   |  | 40  | 19   | 20   | 189,30 |
| 240                              | 12          | 13                  | KC45 12-240 | 3,75   | 21,5                | 42                  | 40     | 13                  | 14                  | 230,00         | 1          | 28                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, HR300, GU300  |     |      |      |        |
|                                  | 14          | 15                  | KC45 14-240 |        |                     |                     |        |                     |                     |                |            |                   |  | 42  | 15,5 | 15,5 | 242,20 |
|                                  | 16          | 17                  | KC45 16-240 |        |                     |                     |        |                     |                     |                |            |                   |  | 42  | 16   | 17   | 245,10 |
|                                  | 20          | 21                  | KC45 20-240 |        |                     |                     |        |                     |                     |                |            |                   |  | 43  | 19   | 20   | 248,70 |



AR Tubular terminal

for single- and multi-wire Al cables



Material: aluminum

Non tinned on request.

Tubular part dimensions according to DIN 46267 part 2

| Cross section [mm <sup>2</sup> ]<br>se | For screw<br>rm/sm | M  | d <sub>2</sub><br>[mm] | Symbol     | s<br>[mm] | d <sub>1</sub><br>[mm] | d <sub>3</sub><br>[mm] | l<br>[mm] | a<br>[mm] | Weight<br>[g/pce] | Unit<br>[pcs] | Dies<br>discriminant | Crimping tools  |
|--|--------------------|----|------------------------|------------|-----------|------------------------|------------------------|-----------|-----------|-------------------|---------------|----------------------|---|
| 25                                     | 16                 | 8  | 8,4                    | AR 8-16 *  | 3,2       | 5,6                    | 18                     | 52        | 26        | 13,55             | 20            | 12                   | R50<br>+ as below   |
|  |                    | 10 | 10,5                   | AR 10-16*  |           |                        |                        |           |           | 13,45             |               |                      |   |
| 35                                     | 25                 | 8  | 8,4                    | AR 8-25    | 2,6       | 6,8                    | 18                     | 60        | 34        | 14,00             | 10            | 12                   | EPZC300,<br>EPZ300, GZ300,<br>HRZ300, PRZ240,<br>G0300, GU300,<br>HR300, GU120,<br>HR100-U,<br>PR240, PR95A |
|  |                    | 10 | 10,5                   | AR 10-25   |           |                        |                        |           |           | 13,40             |               |                      |   |
| 50                                     | 35                 | 10 | 10,5                   | AR 10-35   | 3         | 8                      | 21                     | 67        | 40        | 20,63             | 10            | 14                   | G0300, GU300,<br>HR300, GU120,<br>HR100-U,<br>PR240, PR95A  |
|  |                    | 12 | 13                     | AR 12-35   |           |                        |                        |           |           | 20,70             |               |                      |   |
| 70                                     | 50                 | 10 | 10,5                   | AR 10-50   | 3,1       | 9,8                    | 25                     | 72        | 42        | 26,00             | 10            | 16                   | HR300, GU120,<br>HR100-U,<br>PR240, PR95A   |
|  |                    | 12 | 13                     | AR 12-50   |           |                        |                        |           |           | 26,50             |               |                      |   |
| 95                                     | 70                 | 10 | 10,5                   | AR 10-70   | 3,65      | 11,2                   | 28                     | 86        | 50        | 41,70             | 10            | 18                   | PR240, PR95A  |
|  |                    | 12 | 13                     | AR 12-70   |           |                        |                        |           |           | 40,30             |               |                      |   |
| 120                                    | 95                 | 10 | 10,5                   | AR 10-95   | 4,4       | 13,2                   | 30                     | 90        | 55        | 66,00             | 10            | 22                   | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,<br>G0300,<br>GU300,<br>HR300,<br>PR240                  |
|  |                    | 12 | 13                     | AR 12-95   |           |                        |                        |           |           | 62,40             |               |                      |   |
|  |                    | 16 | 17                     | AR 16-95   |           |                        |                        |           |           | 63,20             |               |                      |   |
| 150                                    | 120                | 10 | 10,5                   | AR 10-120  | 4,15      | 14,7                   | 32                     | 91        | 60        | 66,00             | 10            | 22                   | EPZC300,<br>EPZ300,<br>GZ300,<br>HRZ300,<br>PRZ240,<br>G0300,<br>GU300,<br>HR300,<br>PR240                  |
|  |                    | 12 | 13                     | AR 12-120  |           |                        |                        |           |           | 63,30             |               |                      |   |
|  |                    | 16 | 17                     | AR 16-120  |           |                        |                        |           |           | 68,60             |               |                      |   |
| 185                                    | 150                | 10 | 10,5                   | AR 10-150  | 4,35      | 16,3                   | 34                     | 103       | 64        | 88,00             | 10            | 25                   | G0300,<br>GU300,<br>HR300,<br>PR240   |
|  |                    | 12 | 13                     | AR 12-150  |           |                        |                        |           |           | 83,00             |               |                      |   |
|  |                    | 16 | 17                     | AR 16-150  |           |                        |                        |           |           | 86,20             |               |                      |   |
|  |                    | 20 | 21                     | AR 20-150  |           |                        |                        |           |           | 89,10             |               |                      |   |
| 240                                    | 185                | 12 | 13                     | AR 12-185  | 5,1       | 18,3                   | 39                     | 106       | 66        | 115,00            | 10            | 28                   | PR240   |
|  |                    | 16 | 17                     | AR 16-185  |           |                        |                        |           |           | 122,00            |               |                      |   |
|  |                    | 20 | 21                     | AR 20-185  |           |                        |                        |           |           | 119,60            |               |                      |   |
| 300                                    | 240                | 12 | 13                     | AR 12-240  | 5,5       | 21                     | 45                     | 116       | 70        | 150,00            | 10            | 32                   | EPZC300,<br>EPZ300, GZ300,<br>HRZ300, G0300,<br>GU300, HR300  |
|  |                    | 16 | 17                     | AR 16-240  |           |                        |                        |           |           | 155,00            |               |                      |   |
|  |                    | 20 | 21                     | AR 20-240  |           |                        |                        |           |           | 180,70            |               |                      |   |
| 300                                    | 300                | 16 | 17                     | AR 16-300  | 5,35      | 23,3                   | 49                     | 124       | 76        | 180,00            | 1             | 34                   | GU300, HR300  |
|  |                    | 20 | 21                     | AR 20-300  |           |                        |                        |           |           | 185,00            |               |                      |   |
| 400                                    | 400                | 16 | 17                     | AR 16-400  | 6,25      | 26                     | 54                     | 139       | 82        | 310,80            | 1             | 38                   | GU625   |
|  |                    | 20 | 21                     | AR 20-400  |           |                        |                        |           |           | 308,40            |               |                      |   |
| 500                                    | 500                | 16 | 17                     | AR 16-500  | 7,5       | 29                     | 59                     | 148       | 88        | 448,60            | 1             | 44                   | GU625   |
|  |                    | 20 | 21                     | AR 20-500  |           |                        |                        |           |           | 446,10            |               |                      |   |
| 625                                    | 625                | 16 | 17                     | AR 16-625* | 8,5       | 35                     | 71                     | 152       | 95        | 540,00            | 1             | 52                   | GU625   |
|  |                    | 20 | 21                     | AR 20-625* |           |                        |                        |           |           | 585,90            |               |                      |   |

\* – outside DIN standard.

se- single-strand sector wire

rm – multi-strand round wire

sm – multi-strand sector wire

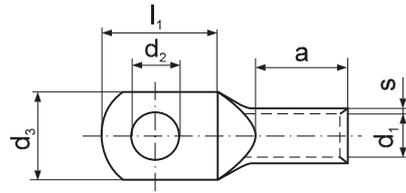
Production on request. - Terminals of dimensions other than in chart.

Terminals with securing paste on request – symbol e.g. AR 8-16-P.

for single- and multi-wire Al cables

ARC Tubular terminal

Material: aluminum



| Cross section<br>rm/sm [mm <sup>2</sup> ] | For screw<br>M | d <sub>2</sub><br>[mm] | Symbol  | s<br>[mm] | d <sub>1</sub><br>[mm] | d <sub>3</sub><br>[mm] | l <sub>1</sub><br>[mm] | a<br>[mm] | Weight<br>[g/pce] | Unit<br>[pcs] | Dies<br>discriminant | Crimping tools   |
|---|----------------|------------------------|---------|-----------|------------------------|------------------------|------------------------|-----------|-------------------|---------------|----------------------|--|
| 16  | 6              | 6,4                    | ARC 16  | 2         | 5,2                    | 16                     | 18                     | 23        | 5,27              | 20            | 9                    | R50, PR95A<br>(Doesn't apply to 16mm <sup>2</sup> ),<br>+ as below       |
| 25  | 8              | 8,4                    | ARC 25  | 2         | 6,4                    | 20                     | 23                     | 26        | 7,60              | 20            | 10                   |  |
| 35  | 8              | 8,4                    | ARC 35  | 2,2       | 7,6                    | 20                     | 23                     | 28        | 10,14             | 10            | 12                   |  |
| 50  | 10             | 10,5                   | ARC 50  | 2,4       | 9,2                    | 24                     | 27                     | 34        | 15,40             | 10            | 14                   |  |
| 70  | 10             | 10,5                   | ARC 70  | 2,5       | 10,6                   | 26                     | 27                     | 40        | 19,70             | 10            | 16                   |  |
| 95  | 10             | 10,5                   | ARC 95  | 2,6       | 12,8                   | 26                     | 27                     | 43        | 26,60             | 10            | 18                   |  |
| 120                                       | 12             | 13                     | ARC 120 | 2,7       | 14,3                   | 28                     | 30                     | 52        | 35,40             | 10            | 20                   | EPZC300, EPZ300, GZ300,<br>HRZ300, PRZ240, GO300,<br>GU300, HR300, PR240 |
| 150                                       | 16             | 17                     | ARC 150 | 2,9       | 16,2                   | 34                     | 33                     | 55        | 45,28             | 1             | 22                   | EPZC300, EPZ300,   |
| 185                                       | 16             | 17                     | ARC 185 | 3,1       | 17,8                   | 38                     | 37                     | 60        | 59,10             | 1             | 23                   | GZ300, HRZ300,   |
| 240                                       | 16             | 17                     | ARC 240 | 4         | 20,2                   | 40                     | 40                     | 64        | 95,00             | 1             | 28                   | GO300, GU300, HR300  |

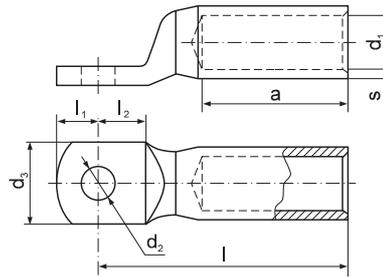
Production on request. - Terminals of dimensions other than in chart.

for single- and multi-wire Al cables

AS Tight terminal

Material: aluminum

According to DIN 46329



| Cross section<br>[mm <sup>2</sup> ] | For<br>screw<br>M | d <sub>2</sub><br>[mm] | Symbol        | s<br>[mm] | d <sub>1</sub><br>[mm] | d <sub>3</sub><br>[mm] | l <sub>1</sub><br>[mm] | l <sub>2</sub><br>[mm] | l<br>[mm] | a<br>[mm] | Dies<br>discriminant | Crimping tools   |
|-------------------------------------|-------------------|------------------------|---------------|-----------|------------------------|------------------------|------------------------|------------------------|-----------|-----------|----------------------|--|
| se<br>rm/sm                         |                   |                        |               |           |                        |                        |                        |                        |           |           |                      |  |
| 25                                  | 16                | 8                      | 8,4 AS 8-16*  | 3,2       | 5,6                    | 25                     | 10                     | 15,5                   | 50        | 30        | 12                   | R50 + as below   |
| 35                                  | 25                | 8                      | 8,4 AS 8-25   | 2,6       | 6,8                    | 25                     | 10                     | 15,5                   | 50        | 30        | 12                   |  |
| 50                                  | 35                | 8                      | 8,4 AS 8-35   | 3         | 8                      | 25                     | 10                     | 15,5                   | 62        | 42        | 14                   |  |
| 70                                  | 50                | 10                     | 10,5 AS 10-50 | 3,1       | 9,8                    | 25                     | 12                     | 15,5                   | 62        | 42        | 16                   |  |
| 95                                  | 70                | 10                     | 10,5 AS 10-70 | 3,65      | 11,2                   | 25                     | 12                     | 15,5                   | 72        | 52        | 18                   | EPZC300, EPZ300, GZ300,<br>HRZ300, PRZ240, GO300,<br>GU300, HR300, GU120,<br>HR100-U, PR240, PR95A |
| 120                                 | 95                | 10                     | 10,5 AS 10-95 | 4,4       | 13,2                   | 25                     | 12                     | 15,5                   | 80        | 56        | 22                   |  |
| 150                                 | 120               | 12                     | 13 AS 12-120  | 4,15      | 14,7                   | 30                     | 13                     | 20                     | 80        | 56        | 22                   | PR240 + as below   |
| 185                                 | 150               | 12                     | 13 AS 12-150  | 4,35      | 16,3                   | 30                     | 13                     | 20                     | 90        | 60        | 25                   |  |
| 240                                 | 185               | 12                     | 13 AS 12-185  | 5,1       | 18,3                   | 30                     | 13                     | 20                     | 91        | 60        | 28                   |  |
| 300                                 | 240               | 12                     | 13 AS 12-240  | 5,5       | 21                     | 38                     | 13                     | 24                     | 103       | 70        | 32                   | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>GO300, GU300, HR300  |
|                                     | 300               | 16                     | 17 AS 16-300  | 5,35      | 23,3                   | 38                     | 16                     | 24                     | 103       | 70        | 34                   |  |
|                                     | 400               | 16                     | 17 AS 16-400  | 6,25      | 26                     | 38                     | 24                     | 24                     | 116       | 73        | 39                   | GU625  |
|                                     | 500               | 20                     | 21 AS 20-500  | 7,5       | 29                     | 44                     | 24                     | 24                     | 122       | 79        | 44                   |  |
|                                     | 625               | 20                     | 21 AS 20-625* | 8,5       | 33                     | 52                     | 24                     | 24                     | 130       | 85        | 52                   |  |

\* outside DIN standard

se- single-strand sector wire

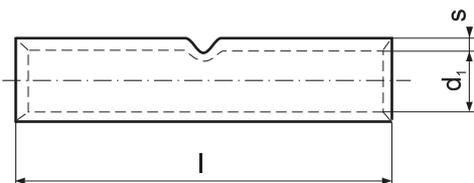
rm – multi-strand round wire

sm – multi-strand sector wire

Production on request. - Terminals of dimensions other than in chart.

### ALD Tubular connector

for single- and multi-wire Al cables



Material: aluminum  
According to DIN 46267 part 2

| Cross section<br>se | rm/sm | Symbol    | s<br>[mm] | d <sub>1</sub><br>[mm] | l<br>[mm] | Weight<br>[g/szt] | Unit<br>[pcs] | Dies discriminant | Crimping tools  |
|---------------------|-------|-----------|-----------|------------------------|-----------|-------------------|---------------|-------------------|---|
| 25                  | 16    | ALD 16 *  | 3,2       | 5,6                    | 55        | 13,50             | 10            | 12                | R50 + as below  |
| 35                  | 25    | ALD 25    | 2,6       | 6,8                    | 70        | 14,10             | 10            | 12                |   |
| 50                  | 35    | ALD 35    | 3         | 8                      | 85        | 23,60             | 10            | 14                |   |
| 70                  | 50    | ALD 50    | 3,1       | 9,8                    | 85        | 28,70             | 10            | 16                |   |
| 95                  | 70    | ALD 70    | 3,65      | 11,2                   | 105       | 50,70             | 10            | 18                |   |
| 120                 | 95    | ALD 95    | 4,4       | 13,2                   | 105       | 70,00             | 10            | 22                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, GU300, HR300, GU120, HR100-U, PR240, PR95A |
| 150                 | 120   | ALD 120   | 4,15      | 14,7                   | 105       | 66,50             | 10            | 22                | PR240 + as below  |
| 185                 | 150   | ALD 150   | 4,35      | 16,3                   | 125       | 95,00             | 1             | 25                |   |
| 240                 | 185   | ALD 185   | 5,1       | 18,3                   | 125       | 125,00            | 1             | 28                |   |
| 300                 | 240   | ALD 240   | 5,5       | 21                     | 145       | 182,82            | 1             | 32                | EPZC300, EPZ300, GZ300, HRZ300, GO300, GU300, HR300                                       |
|                     | 300   | ALD 300   | 5,35      | 23,3                   | 145       | 188,88            | 1             | 34                |   |
|                     | 400   | ALD 400   | 6,25      | 26                     | 210       | 360,00            | 1             | 38                |   |
|                     | 500   | ALD 500   | 7,5       | 29                     | 210       | 490,00            | 1             | 44                | GU625   |
|                     | 625   | ALD 625 * | 8,5       | 35                     | 210       | 660,00            | 1             | 52                |   |

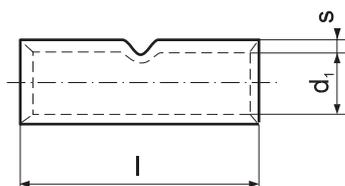
\* outside DIN standard.

se- single-strand sector wire  
rm – multi-strand round wire  
sm – multi-strand sector wire

Production on request. - Connectors of dimensions other than in chart.  
Connectors with securing paste on request – symbol e.g. ALD 16-P.

### ALC Tubular connector

(thin-walled) for single- and multi-wire Al cables



Material: aluminum

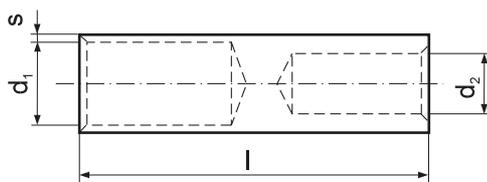
| Cross section<br>rm/sm [mm <sup>2</sup> ] | Symbol  | s<br>[mm] | d <sub>1</sub><br>[mm] | l<br>[mm] | Weight<br>[g/pce] | Unit<br>[pcs] | Dies discriminant | Crimping tools  |
|---|---------|-----------|------------------------|-----------|-------------------|---------------|-------------------|---|
| 16  | ALC 16  | 2         | 5,2                    | 50        | 5,95              | 20            | 9                 | R50 + as below  |
| 25  | ALC 25  | 2         | 6,4                    | 58        | 8,15              | 20            | 10                |   |
| 35  | ALC 35  | 2,2       | 7,6                    | 63        | 11,50             | 10            | 12                |   |
| 50  | ALC 50  | 2,4       | 9,2                    | 76        | 17,50             | 10            | 14                |   |
| 70  | ALC 70  | 2,5       | 10,6                   | 84        | 22,50             | 10            | 16                |   |
| 95  | ALC 95  | 2,6       | 12,8                   | 96        | 32,30             | 10            | 18                | EPZC300, EPZ300, GZ300, HRZ300, PRZ240, GO300, GU300, HR300, GU120, HR100-U, PR240, PR95A |
| 120                                       | ALC 120 | 2,7       | 14,3                   | 105       | 40,60             | 10            | 20                | EPZC300, EPZ300, GZ300, HRZ300, GO300, GU300, HR300                                       |
| 150                                       | ALC 150 | 2,9       | 16,2                   | 120       | 55,53             | 1             | 22                | PR240   |
| 185                                       | ALC 185 | 3,1       | 17,8                   | 125       | 68,20             | 1             | 24                | + as below  |
| 240                                       | ALC 240 | 4         | 20,2                   | 136       | 109,45            | 1             | 28                | HR300, HRZ300, GU300, GO300, GZ300, EPZ300  |

Production on request. - Connectors of dimensions other than in chart.

for multi-wire Al cables

### ALS Tight reducing connector

Material: aluminum



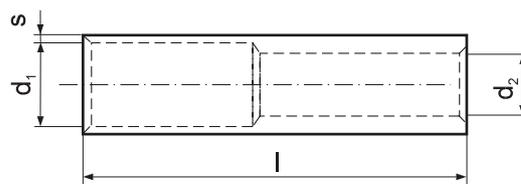
| Cross section |                          | Symbol      | s<br>[mm] | d <sub>1</sub><br>[mm] | d <sub>2</sub><br>[mm] | l<br>[mm] | Dies<br>discriminant | Crimping tools   |
|---------------|--------------------------|-------------|-----------|------------------------|------------------------|-----------|----------------------|--|
| rm/sm<br>z    | [mm <sup>2</sup> ]<br>na |             |           |                        |                        |           |                      |  |
| 35            | 25                       | ALS 35-25   | 3         | 8                      | 6,8                    | 95        | 14                   |  |
|               | 35                       | ALS 35-35   |           |                        | 8                      |           |                      |  |
| 50            | 25                       | ALS 50-25   | 3,1       | 9,8                    | 6,8                    | 95        | 16                   | R50 + as below   |
|               | 35                       | ALS 50-35   |           |                        | 8                      |           |                      |  |
|               | 50                       | ALS 50-50   |           |                        | 9,8                    |           |                      |  |
| 70            | 25                       | ALS 70-25   | 3,65      | 11,2                   | 6,8                    | 100       | 18                   |  |
|               | 35                       | ALS 70-35   |           |                        | 8                      |           |                      |  |
|               | 50                       | ALS 70-50   |           |                        | 9,8                    |           |                      |  |
|               | 70                       | ALS 70-70   |           |                        | 11,2                   |           |                      |  |
| 95            | 25                       | ALS 95-25   | 4,4       | 13,2                   | 6,8                    | 105       | 22                   | EPZC300, EPZ300, GZ300,<br>HRZ300, PRZ240, G0300,<br>GU300, HR300, GU120,<br>HR100-U, PR240, PR95A |
|               | 35                       | ALS 95-35   |           |                        | 8                      |           |                      |  |
|               | 50                       | ALS 95-50   |           |                        | 9,8                    |           |                      |  |
|               | 70                       | ALS 95-70   |           |                        | 11,2                   |           |                      |  |
|               | 95                       | ALS 95-95   |           |                        | 13,2                   |           |                      |  |
| 120           | 35                       | ALS 120-35  | 4,15      | 14,7                   | 8                      | 110       | 22                   | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>PRZ240, G0300,<br>GU300, HR300,<br>PR240                     |
|               | 50                       | ALS 120-50  |           |                        | 9,8                    |           |                      |  |
|               | 70                       | ALS 120-70  |           |                        | 11,2                   |           |                      |  |
|               | 95                       | ALS 120-95  |           |                        | 13,2                   |           |                      |  |
|               | 120                      | ALS 120-120 |           |                        | 14,7                   |           |                      |  |
| 150           | 50                       | ALS 150-50  | 4,35      | 16,3                   | 9,8                    | 110       | 25                   | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>PRZ240, G0300,<br>GU300, HR300,<br>PR240                     |
|               | 70                       | ALS 150-70  |           |                        | 11,2                   |           |                      |  |
|               | 95                       | ALS 150-95  |           |                        | 13,2                   |           |                      |  |
|               | 120                      | ALS 150-120 |           |                        | 14,7                   |           |                      |  |
|               | 150                      | ALS 150-150 |           |                        | 16,3                   |           |                      |  |
| 185           | 70                       | ALS 185-70  | 5,1       | 18,3                   | 11,2                   | 130       | 28                   |  |
|               | 95                       | ALS 185-95  |           |                        | 13,2                   |           |                      |  |
|               | 120                      | ALS 185-120 |           |                        | 14,7                   |           |                      |  |
|               | 150                      | ALS 185-150 |           |                        | 16,3                   |           |                      |  |
|               | 185                      | ALS 185-185 |           |                        | 18,3                   |           |                      |  |
| 240           | 95                       | ALS 240-95  | 5,5       | 21                     | 13,2                   | 130       | 32                   | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>G0300, GU300, HR300  |
|               | 120                      | ALS 240-120 |           |                        | 14,7                   |           |                      |  |
|               | 150                      | ALS 240-150 |           |                        | 16,3                   |           |                      |  |
|               | 185                      | ALS 240-185 |           |                        | 18,3                   |           |                      |  |
|               | 240                      | ALS 240-240 |           |                        | 21                     |           |                      |  |
| 300           | 150                      | ALS 300-150 | 5,35      | 23,3                   | 16,3                   | 135       | 34                   |  |
|               | 185                      | ALS 300-185 |           |                        | 18,3                   |           |                      |  |
|               | 240                      | ALS 300-240 |           |                        | 21                     |           |                      |  |
|               | 300                      | ALS 300-300 |           |                        | 23,3                   |           |                      |  |
|               | 400                      | ALS 300-400 |           |                        | 26                     |           |                      |  |
| 400           | 185                      | ALS 400-185 | 6,25      | 26                     | 18,3                   | 165       | 38                   |  |
|               | 240                      | ALS 400-240 |           |                        | 21                     |           |                      |  |
|               | 300                      | ALS 400-300 |           |                        | 23,3                   |           |                      |  |
|               | 400                      | ALS 400-400 |           |                        | 26                     |           |                      |  |
|               | 500                      | ALS 400-500 |           |                        | 29                     |           |                      |  |
| 500           | 240                      | ALS 500-240 | 7,5       | 29                     | 21                     | 180       | 44                   | GU625  |
|               | 300                      | ALS 500-300 |           |                        | 23,3                   |           |                      |  |
|               | 400                      | ALS 500-400 |           |                        | 26                     |           |                      |  |
|               | 500                      | ALS 500-500 |           |                        | 29                     |           |                      |  |
|               | 625                      | ALS 500-625 |           |                        | 33                     |           |                      |  |
| 625           | 300                      | ALS 625-300 | 8,5       | 33                     | 23,3                   | 200       | 52                   |  |
|               | 400                      | ALS 625-400 |           |                        | 26                     |           |                      |  |
|               | 500                      | ALS 625-500 |           |                        | 29                     |           |                      |  |
|               | 625                      | ALS 625-625 |           |                        | 33                     |           |                      |  |

Production on request. - Connectors of dimensions other than in chart.

# ALR Reducing connector

for single- and multi-wire Al cables

Material: aluminum



| Cross section<br>mm <sup>2</sup> / sm [mm <sup>2</sup> ] |     | Symbol      | s<br>[mm] | d <sub>1</sub><br>[mm] | d <sub>2</sub><br>[mm] | l<br>[mm] | Dies<br>discriminant | Crimping tools   |
|--|-----|-------------|-----------|------------------------|------------------------|-----------|----------------------|--|
| z  | na  |             |           |                        |                        |           |                      |  |
| 25   | 16  | ALR 25-16   | 2,6       | 6,8                    | 5,5                    | 75        | 12                   |  |
| 35   | 16  | ALR 35-16   | 3         | 8                      | 5,5                    | 90        | 14                   |  |
|  | 25  | ALR 35-25   |           |                        | 6,8                    |           |                      | R50 + as below   |
| 50   | 25  | ALR 50-25   | 3,1       | 9,8                    | 6,8                    | 90        | 16                   |  |
|  | 35  | ALR 50-35   |           |                        | 8                      |           |                      |  |
| 70   | 25  | ALR 70-25   | 3,65      | 11,2                   | 6,8                    | 110       | 18                   |  |
|  | 35  | ALR 70-35   |           |                        | 8                      |           |                      |  |
|  | 50  | ALR 70-50   |           |                        | 9,8                    |           |                      | EPZC300, EPZ300, GZ300,<br>HRZ300, PRZ240, GO300,<br>GU300, HR300, GU120,<br>HR100-U, PR240, PR95A |
| 95   | 25  | ALR 95-25   | 4,4       | 13,2                   | 6,8                    | 110       | 22                   |  |
|  | 35  | ALR 95-35   |           |                        | 8                      |           |                      |  |
|  | 50  | ALR 95-50   |           |                        | 9,8                    |           |                      |  |
|  | 70  | ALR 95-70   |           |                        | 11,2                   |           |                      |  |
| 120  | 35  | ALR 120-35  | 4,15      | 14,7                   | 8                      | 110       | 22                   |  |
|  | 50  | ALR 120-50  |           |                        | 9,8                    |           |                      |  |
|  | 70  | ALR 120-70  |           |                        | 11,2                   |           |                      | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>PRZ240, GO300,<br>GU300, HR300,<br>PR240                     |
|  | 95  | ALR 120-95  |           |                        | 13,2                   |           |                      |  |
| 150  | 50  | ALR 150-50  | 4,35      | 16,3                   | 9,8                    | 130       | 25                   |  |
|  | 70  | ALR 150-70  |           |                        | 11,2                   |           |                      |  |
|  | 95  | ALR 150-95  |           |                        | 13,2                   |           |                      |  |
|  | 120 | ALR 150-120 |           |                        | 14,7                   |           |                      |  |
| 185  | 70  | ALR 185-70  | 5,1       | 18,3                   | 11,2                   | 130       | 28                   |  |
|  | 95  | ALR 185-95  |           |                        | 13,2                   |           |                      |  |
|  | 120 | ALR 185-120 |           |                        | 14,7                   |           |                      |  |
|  | 150 | ALR 185-150 |           |                        | 16,3                   |           |                      |  |
| 240  | 95  | ALR 240-95  | 5,5       | 21                     | 13,2                   | 150       | 32                   |  |
|  | 120 | ALR 240-120 |           |                        | 14,7                   |           |                      | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>GO300, GU300, HR300  |
|  | 150 | ALR 240-150 |           |                        | 16,3                   |           |                      |  |
|  | 185 | ALR 240-185 |           |                        | 18,3                   |           |                      |  |
| 300  | 150 | ALR 300-150 | 5,35      | 23,3                   | 16,3                   | 160       | 34                   |  |
|  | 185 | ALR 300-185 |           |                        | 18,3                   |           |                      |  |
|  | 240 | ALR 300-240 |           |                        | 21                     |           |                      |  |
| 400  | 185 | ALR 400-185 | 6,25      | 26                     | 18,3                   | 170       | 38                   |  |
|  | 240 | ALR 400-240 |           |                        | 21                     |           |                      |  |
|  | 300 | ALR 400-300 |           |                        | 23,3                   |           |                      |  |
| 500  | 240 | ALR 500-240 | 7,5       | 29                     | 21                     | 180       | 44                   |  |
|  | 300 | ALR 500-300 |           |                        | 23,3                   |           |                      | GU625  |
|  | 400 | ALR 500-400 |           |                        | 26                     |           |                      |  |
| 625  | 300 | ALR 625-300 | 8,5       | 33                     | 23,3                   | 190       | 52                   |  |
|  | 400 | ALR 625-400 |           |                        | 26                     |           |                      |  |
|  | 500 | ALR 625-500 |           |                        | 29                     |           |                      |  |

Production on request. - Connectors of dimensions other than in chart.

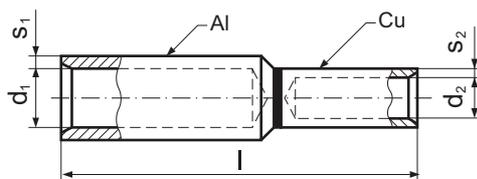
for single- and multi-wire Al and Cu cables

## ACL Bi-metallic connector

Material: copper, aluminum

Tubular part according to DIN 46267

Thermal resistance 350°C



| Cross section [mm <sup>2</sup> ] | Symbol |             | s <sub>1</sub> [mm] | d <sub>1</sub> [mm] | s <sub>2</sub> [mm] | d <sub>2</sub> [mm] | l [mm] | Dies discriminant | Crimping tools   |             |
|----------------------------------|--------|-------------|---------------------|---------------------|---------------------|---------------------|--------|-------------------|--|-------------|
|                                  | se     | Al<br>rm/sm |                     |                     |                     |                     |        |                   |  | Cu<br>rm/sm |
| 25                               | 16     | 10          | 3,2                 | 5,6                 | 0,75                | 4,5                 | 55     | 12/6              | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>PRZ240, GO300,<br>GU300, HR300,<br>GU120, HR100-U,<br>PR240, PR120-D,<br>PR150-D, PR95A,<br>PR50-D |             |
|                                  |        | 16          |                     |                     |                     |                     |        |                   |  | 12/8        |
|                                  |        | 25          |                     |                     |                     |                     |        |                   |  | 12/10       |
| 35                               | 25     | 10          | 2,6                 | 6,8                 | 0,75                | 4,5                 | 55     | 12/6              |  |             |
|                                  |        | 16          |                     |                     |                     |                     |        |                   |  | 12/8        |
|                                  |        | 25          |                     |                     |                     |                     |        |                   |  | 12/10       |
|                                  |        | 35          |                     |                     |                     |                     |        |                   |  | 12/12       |
| 50                               | 35     | 16          | 3                   | 8                   | 1,5                 | 5,5                 | 71     | 14/8              |  |             |
|                                  |        | 25          |                     |                     |                     |                     |        |                   |  | 14/10       |
|                                  |        | 35          |                     |                     |                     |                     |        |                   |  | 14/12       |
|                                  |        | 50          |                     |                     |                     |                     |        |                   | 14/14  |             |
| 70                               | 50     | 16          | 3,1                 | 9,8                 | 1,5                 | 5,5                 | 71,5   | 16/8              |  |             |
|                                  |        | 25          |                     |                     |                     |                     |        |                   | 16/10  |             |
|                                  |        | 35          |                     |                     |                     |                     |        |                   | 16/12  |             |
|                                  |        | 50          |                     |                     |                     |                     |        |                   | 16/14  |             |
|                                  |        | 70          |                     |                     |                     |                     |        |                   | 16/16  |             |
| 95                               | 70     | 16          | 3,65                | 11,2                | 1,5                 | 5,5                 | 79     | 18/8              |  |             |
|                                  |        | 25          |                     |                     |                     |                     |        |                   | 18/10  |             |
|                                  |        | 35          |                     |                     |                     |                     |        |                   | 18/12  |             |
|                                  |        | 50          |                     |                     |                     |                     |        |                   | 18/14  |             |
|                                  |        | 70          |                     |                     |                     |                     |        |                   | 18/16  |             |
|                                  |        | 95          |                     |                     |                     |                     |        |                   | 18/18  |             |
| 120                              | 95     | 16          | 4,4                 | 13,2                | 1,5                 | 5,5                 | 79     | 22/8              |  |             |
|                                  |        | 25          |                     |                     |                     |                     |        |                   | 22/10  |             |
|                                  |        | 35          |                     |                     |                     |                     |        |                   | 22/12  |             |
|                                  |        | 50          |                     |                     |                     |                     |        |                   | 22/14  |             |
|                                  |        | 70          |                     |                     |                     |                     |        |                   | 22/16  |             |
|                                  |        | 95          |                     |                     |                     |                     |        |                   | 22/18  |             |
|                                  |        | 120         |                     |                     |                     |                     |        |                   | 22/20  |             |
| 150                              | 120    | 16          | 4,15                | 14,7                | 1,5                 | 5,5                 | 87     | 22/8              |  |             |
|                                  |        | 25          |                     |                     |                     |                     |        |                   | 22/10  |             |
|                                  |        | 35          |                     |                     |                     |                     |        |                   | 22/12  |             |
|                                  |        | 50          |                     |                     |                     |                     |        |                   | 22/14  |             |
|                                  |        | 70          |                     |                     |                     |                     |        |                   | 22/16  |             |
|                                  |        | 95          |                     |                     |                     |                     |        |                   | 22/18  |             |
|                                  |        | 120         |                     |                     |                     |                     |        |                   | 22/20  |             |
| 185                              | 150    | 16          | 4,35                | 16,3                | 1,5                 | 5,5                 | 93     | 25/8              |  |             |
|                                  |        | 25          |                     |                     |                     |                     |        |                   | 25/10  |             |
|                                  |        | 35          |                     |                     |                     |                     |        |                   | 25/12  |             |
|                                  |        | 50          |                     |                     |                     |                     |        |                   | 25/14  |             |
|                                  |        | 70          |                     |                     |                     |                     |        |                   | 25/16  |             |
|                                  |        | 95          |                     |                     |                     |                     |        |                   | 25/18  |             |
|                                  |        | 120         |                     |                     |                     |                     |        |                   | 25/20  |             |
|                                  |        | 150         |                     |                     |                     |                     |        |                   | 25/22  |             |

se- single-strand sector wire

rm – multi-strand round wire

sm – multi-strand sector wire

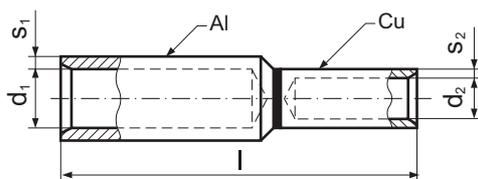
Designed to connect aluminum to copper cables. Eliminates formation of cells at Al-Cu contact.

Production on request. - Connectors of dimensions other than in chart.

Connectors with securing paste in Al part on request – symbol e.g. ACL 16-10-P.

### ACL Bi-metallic connector

for single- and multi-wire Al and Cu cables



Material: copper, aluminum  
Tubular part according to DIN 46267  
Thermal resistance 350°C

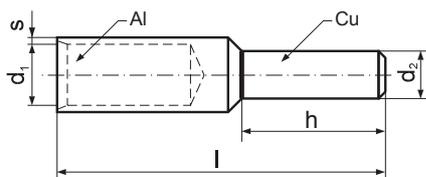
| Cross section<br>se | Cross section [mm <sup>2</sup> ] |             | Symbol      | s <sub>1</sub><br>[mm] | d <sub>1</sub><br>[mm] | s <sub>2</sub><br>[mm] | d <sub>2</sub><br>[mm] | l<br>[mm] | Dies<br>discriminant | Crimping tools   |
|---------------------|----------------------------------|-------------|-------------|------------------------|------------------------|------------------------|------------------------|-----------|----------------------|--|
|                     | Al<br>rm/sm                      | Cu<br>rm/sm |             |                        |                        |                        |                        |           |                      |  |
| 240                 | 185                              | 50          | ACL 185-50  | 5,1                    | 18,3                   | 2,25                   | 10                     | 108       | 28/14                |  |
|                     |                                  | 70          | ACL 185-70  |                        |                        | 2,5                    | 11,5                   |           |                      |  |
|                     | 95                               | ACL 185-95  | 2,75        |                        |                        | 13,5                   |                        |           |                      |  |
|                     | 120                              | ACL 185-120 | 2,75        |                        |                        | 15,5                   |                        |           |                      |  |
|                     | 150                              | ACL 185-150 | 3,25        |                        |                        | 17                     |                        |           |                      |  |
|                     | 185                              | ACL 185-185 | 3,25        |                        |                        | 19                     |                        |           |                      |  |
| 300                 | 240                              | 50          | ACL 240-50  | 5,5                    | 21                     | 2,25                   | 10                     | 116       | 32/14                | EPZC300, EPZ300,<br>GZ300, HRZ300,<br>PRZ240, GO300,<br>GU300, HR300,<br>GU120, HR100-U,<br>PR240, PR120-D,<br>PR150-D, PR50-D |
|                     |                                  | 70          | ACL 240-70  |                        |                        | 2,5                    | 11,5                   |           |                      |  |
|                     |                                  | 95          | ACL 240-95  |                        |                        | 2,75                   | 13,5                   |           |                      |  |
|                     |                                  | 120         | ACL 240-120 |                        |                        | 2,75                   | 15,5                   |           |                      |  |
|                     |                                  | 150         | ACL 240-150 |                        |                        | 3,25                   | 17                     |           |                      |  |
|                     |                                  | 185         | ACL 240-185 |                        |                        | 3,25                   | 19                     |           |                      |  |
|                     |                                  | 240         | ACL 240-240 |                        |                        | 3,75                   | 21,5                   |           |                      |  |
|                     |                                  | 130         | 32/25       |                        |                        |                        |                        |           |                      |  |
| 300                 | 300                              | 120         | ACL 300-120 | 5,35                   | 23,3                   | 2,75                   | 15,5                   | 127       | 34/20                | EPZC300, EPZ300, GZ300,<br>HRZ300, PRZ240, GO300,<br>GU300, HR300, GU120,<br>HR100-U, PR240,<br>R120-D, PR150-D                |
|                     |                                  | 150         | ACL 300-150 |                        |                        | 3,25                   | 17                     |           |                      |  |
|                     |                                  | 185         | ACL 300-185 |                        |                        | 3,25                   | 19                     |           |                      |  |
|                     |                                  | 240         | ACL 300-240 |                        |                        | 3,75                   | 21,5                   |           |                      |  |
|                     |                                  | 134         | 34/25       |                        |                        |                        |                        |           |                      |  |
|                     |                                  | 134         | 34/28       |                        |                        |                        |                        |           |                      |  |

se - single-strand sector wire  
rm - multi-strand round wire  
sm - multi-strand sector wire

Designed to connect aluminum to copper cables. Eliminates formation of cells at Al-Cu contact.  
Production on request. - Connectors of dimensions other than in chart, up to 625mm<sup>2</sup>.  
Connectors with securing paste in Al part on request - symbol e.g. ACL 185-50-P.

### ACB Bi-metallic terminal with pin

for single- and multi-wire Al cables



Material: copper, aluminum  
Tubular Al part according to DIN 46267 part 2  
Thermal resistance 350°C

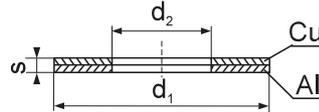
| Cross section<br>se | Cross section [mm <sup>2</sup> ] |             | Symbol  | s<br>[mm] | d <sub>1</sub><br>[mm] | d <sub>2</sub><br>[mm] | h<br>[mm] | l<br>[mm] | Dies<br>discriminant | Crimping tools   |
|---------------------|----------------------------------|-------------|---------|-----------|------------------------|------------------------|-----------|-----------|----------------------|--|
|                     | Al<br>rm/sm                      | Cu<br>rm/sm |         |           |                        |                        |           |           |                      |  |
| 25                  | 16                               |             | ACB 16  | 3,2       | 5,6                    | 5                      | 18        | 58        | 12                   | EPZC300, EPZ300, GZ300,                                |
| 35                  | 25                               |             | ACB 25  | 2,6       | 6,8                    | 6                      | 20        | 58        | 12                   | HRZ300, PRZ240, GO300,                                 |
| 50                  | 35                               |             | ACB 35  | 3         | 8                      | 7                      | 22        | 71        | 14                   | GU300, HR300, GU120,                                   |
| 70                  | 50                               |             | ACB 50  | 3,1       | 9,8                    | 8                      | 25        | 74        | 16                   | HR100-U, PR240, R50, PR95A                             |
| 95                  | 70                               |             | ACB 70  | 3,65      | 11,2                   | 10                     | 30        | 87        | 18                   | PR95A, HR100-U, GU120,                                 |
| 120                 | 95                               |             | ACB 95  | 4,4       | 13,2                   | 12                     | 33        | 91        | 22                   | + as below   |
| 150                 | 120                              |             | ACB 120 | 4,15      | 14,7                   | 12                     | 38        | 97        | 22                   |  |
| 185                 | 150                              |             | ACB 150 | 4,35      | 16,3                   | 12                     | 38        | 108       | 25                   | PRZ240, PR240 + as below                               |
| 240                 | 185                              |             | ACB 185 | 5,1       | 18,3                   | 14                     | 44        | 116       | 28                   |  |
| 300                 | 240                              |             | ACB 240 | 5,5       | 21                     | 16                     | 44        | 128       | 32                   | EPZC300, EPZ300, GZ300,<br>HRZ300, GO300, GU300, HR300 |
|                     | 300                              |             | ACB 300 |           |                        |                        |           |           |                      |  |

se - single-strand sector wire  
rm - multi-strand round wire  
sm - multi-strand sector wire

Designed to connect aluminum cables to copper elements. Eliminates formation of cells at Al-Cu contact.  
Production on request. - Terminals of dimensions other than in chart, up to 625mm<sup>2</sup>.  
Terminals with securing paste in Al part on request - symbol e.g. ACB 16-P.

### ACP Bi-metallic washer

Material: E-Cu copper, aluminum



| For screw<br>M | d <sub>2</sub><br>[mm] | Symbol   | d <sub>1</sub><br>[mm] | s<br>[mm] | Weight<br>[g/pce] | Standard Unit<br>[pcs] |
|----------------|------------------------|----------|------------------------|-----------|-------------------|------------------------|
| 3              | 3,2                    | ACP 3-1  | 7                      | 1         | 0,18              | 50                     |
| 5              | 5,2                    | ACP 5-1  | 11                     | 1         | 0,44              | 50                     |
|                |                        | ACP 5-2  |                        | 2         | 0,92              |                        |
| 6              | 6,5                    | ACP 6-1  | 13                     | 1         | 1,00              | 50                     |
|                |                        | ACP 6-2  |                        | 2         | 1,20              |                        |
| 8              | 8,5                    | ACP 8-1  | 17                     | 1         | 1,00              | 50                     |
|                |                        | ACP 8-2  |                        | 2         | 2,00              |                        |
| 10             | 11                     | ACP 10-1 | 21                     | 1         | 1,44              | 50                     |
|                |                        | ACP 10-2 |                        | 2         | 2,70              |                        |
| 12             | 13                     | ACP 12-1 | 28                     | 1         | 2,76              | 50                     |
|                |                        | ACP 12-2 |                        | 2         | 5,50              |                        |
| 14             | 15                     | ACP 14-1 | 32                     | 1         | 3,10              | 50                     |
|                |                        | ACP 14-2 |                        | 2         | 7,10              |                        |
| 16             | 17                     | ACP 16-1 | 35                     | 1         | 4,00              | 50                     |
|                |                        | ACP 16-2 |                        | 2         | 8,20              |                        |
| 20             | 21                     | ACP 20-1 | 40                     | 1         | 5,14              | 50                     |
|                |                        | ACP 20-2 |                        | 2         | 10,52             |                        |

Designed to connect elements made of copper and aluminum. Eliminates formation of cells at Al-Cu contact. Other sizes and forms on request.

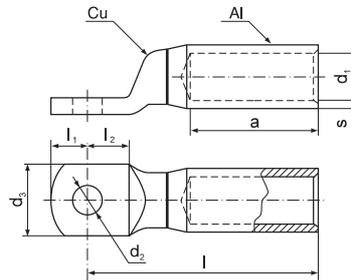
for single- and multi-wire Al cables

### ACK Tight bi-metallic terminal

Material: copper, aluminum

Tubular Al part according to DIN 46329

Thermal resistance 350°C



| Cross section<br>[mm <sup>2</sup> ]<br>se | For screw<br>M | d <sub>2</sub><br>[mm] | Symbol     | s<br>[mm] | d <sub>1</sub><br>[mm] | d <sub>3</sub><br>[mm] | l <sub>1</sub><br>[mm] | l <sub>2</sub><br>[mm] | l<br>[mm] | a<br>[mm] | Dies<br>discriminant | Crimping tools                                    |
|---|----------------|------------------------|------------|-----------|------------------------|------------------------|------------------------|------------------------|-----------|-----------|----------------------|---|
| 25  | 16             | 8                      | ACK 8-16   | 3,2       | 5,6                    | 25                     | 10                     | 15,5                   | 61        | 30        | 12                   |   |
| 35  | 25             | 10                     | ACK 10-25  | 2,6       | 6,8                    | 25                     | 12                     | 15,5                   | 61        | 30        | 12                   |   |
| 50  | 35             | 12                     | ACK 12-25  | 3         | 8                      | 25                     | 10                     | 15,5                   | 75        | 42        | 14                   | R50 + as below                                    |
|   |                | 10                     | ACK 10-35  |           |                        |                        |                        |                        |           |           |                      |   |
| 70  | 50             | 8                      | ACK 8-50   | 3,1       | 9,8                    | 25                     | 10                     | 15,5                   | 75        | 42        | 16                   |   |
|   |                | 10                     | ACK 10-50  |           |                        |                        |                        |                        |           |           |                      |   |
| 95  | 70             | 10                     | ACK 10-70  | 3,65      | 11,2                   | 25                     | 12                     | 15,5                   | 85        | 52        | 18                   | EPZC300, EPZ300, GZ300,<br>HRZ300, PRZ240, GO300, |
|   |                | 12                     | ACK 12-70  |           |                        |                        |                        |                        |           |           |                      |   |
| 120                                       | 95             | 10                     | ACK 10-95  | 4,4       | 13,2                   | 25                     | 12                     | 15,5                   | 92        | 56        | 22                   | GU300, HR300, GU120,<br>HR100-U, PR240, PR95A     |
| 150                                       | 120            | 12                     | ACK 12-120 | 4,15      | 14,7                   | 30                     | 13                     | 15,5                   | 94        | 56        | 22                   | PR240 + as below                                  |
| 185                                       | 150            | 16                     | ACK 16-150 | 4,35      | 16,3                   | 30                     | 16                     | 20                     | 104       | 60        | 25                   |   |
| 240                                       | 185            | 12                     | ACK 12-185 | 5,1       | 18,3                   | 36                     | 13                     | 20                     | 105       | 60        | 28                   |   |
| 300                                       | 240            | 12                     | ACK 12-240 | 5,5       | 21                     | 36                     | 13                     | 20                     | 118       | 70        | 32                   |   |
| 400                                       | 300            | 16                     | ACK 16-300 | 5,35      | 23,3                   | 38                     | 16                     | 24                     | 124       | 70        | 34                   | EPZC300, EPZ300, GZ300,<br>HRZ300, GO300, GU300,  |
|   |                | 17                     | ACK 16-400 |           |                        |                        |                        |                        |           |           |                      |   |
| 500                                       | 16             | 17                     | ACK 16-500 | 7,5       | 29                     | 47                     | 24                     | 24                     | 156       | 79        | 44                   | HR300, GU625                                      |
| 625                                       | 16             | 17                     | ACK 16-625 | 8,5       | 33                     | 52                     | 24                     | 24                     | 164       | 85        | 52                   |   |

se- single-strand sector wire  
rm – multi-strand round wire  
sm – multi-strand sector wire

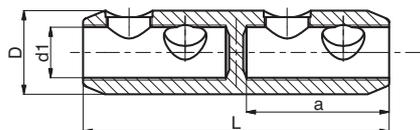
Designed to connect aluminum cables to copper elements. Eliminates formation of cells at Al-Cu contact.

Production on request. - Terminals of dimensions other than in chart. Terminals with securing paste in Al part on request – symbol e.g. ACK 8-16-P.

Shear off screw terminals and connectors are an alternative for crimping technology. The principle of technology are shear off head screws enabling universal and fast application. The special feature is possibility of applying one connector for wires of different structure and wide cross section range.

## SZS Shear off screw connector

up to 36 kV

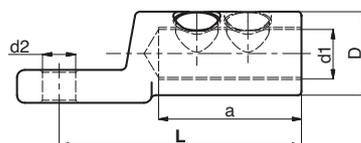


Material: aluminum  
Standard: tinned

| Symbol     | Al conductor cross section [mm <sup>2</sup> ] |         |         |         |         | Cu [mm <sup>2</sup> ] |         |         | d <sub>1</sub> [mm] | D [mm] | L [mm] | a [mm] | Allen wrench / Ring spanner | Number of screws |
|------------|---|---------|---------|---------|---------|-----------------------|---------|---------|---------------------|--------|--------|--------|-----------------------------|------------------|
|            | rm  | re      | sm      | se      | rmv     | rm                    | sm      | rmv     |                     |        |        |        |                             |                  |
| SZS 1695   | 16-70   | 16-95   | 25-70   | 16-95   | 16-95   | 16-70                 | 25-70   | 16-95   | 13                  | 25,5   | 70     | 32     | 6 / -                       | 2                |
| SZS 50150  | 50-120  | 50-150  | 50-120  | 50-150  | 50-150  | 50-120                | 50-120  | 50-150  | 15,5                | 30     | 85     | 35     | 6 / -                       | 2                |
| SZS 95240  | 95-185  | 95-240  | 95-185  | 95-240  | 95-240  | 95-185                | 95-185  | 95-240  | 20                  | 33     | 120    | 56     | 6 / -                       | 4                |
| SZS 120300 | 120-300                                       | 120-300 | 120-240 | 120-300 | 120-300 | 120-300               | 120-240 | 120-300 | 25                  | 38     | 142    | 67     | 8 / -                       | 4                |

## SKS Shear off screw terminal

up to 36 kV



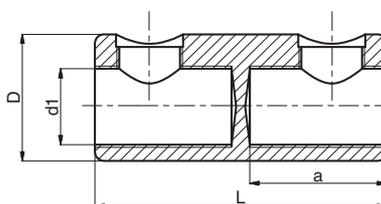
Material: aluminum  
Standard: tinned

| Symbol        | Al conductor cross section [mm <sup>2</sup> ] |         |         |         |         | Cu [mm <sup>2</sup> ] |         |         | d <sub>2</sub> [mm] | d <sub>1</sub> [mm] | D [mm] | L [mm] | a [mm] | Allen wrench / Ring spanner | Number of screws |
|---------------|---|---------|---------|---------|---------|-----------------------|---------|---------|---------------------|---------------------|--------|--------|--------|-----------------------------|------------------|
|               | rm  | re      | sm      | se      | rmv     | rm                    | sm      | rmv     |                     |                     |        |        |        |                             |                  |
| SKS 12-1695   | 16-70   | 16-95   | 25-70   | 16-95   | 16-95   | 16-70                 | 25-70   | 16-95   | 13                  | 12,5                | 24     | 60     | 32     | 6 / -                       | 1                |
| SKS 12-50150  | 50-120  | 50-150  | 50-120  | 50-150  | 50-150  | 50-120                | 50-120  | 50-150  | 13                  | 15,5                | 30     | 79     | 35     | 6 / -                       | 1                |
| SKS 16-50150  | 50-120  | 50-150  | 50-120  | 50-150  | 50-150  | 50-120                | 50-120  | 50-150  | 17                  | 15,5                | 30     | 79     | 35     | 6 / -                       | 1                |
| SKS 12-95240  | 95-185  | 95-240  | 95-185  | 95-240  | 95-240  | 95-185                | 95-185  | 95-240  | 13                  | 20                  | 33     | 95     | 56     | 6 / -                       | 2                |
| SKS 16-95240  | 95-185  | 95-240  | 95-185  | 95-240  | 95-240  | 95-185                | 95-185  | 95-240  | 17                  | 20                  | 33     | 95     | 56     | 6 / -                       | 2                |
| SKS 12-120300 | 120-300                                       | 120-300 | 120-240 | 120-300 | 120-300 | 120-300               | 120-240 | 120-300 | 13                  | 25                  | 38     | 100    | 67     | 8 / -                       | 2                |
| SKS 16-120300 | 120-300                                       | 120-300 | 120-240 | 120-300 | 120-300 | 120-300               | 120-240 | 120-300 | 17                  | 25                  | 38     | 100    | 67     | 8 / -                       | 2                |

Production on request. - Terminals of hole diameter for screw other than in chart.

## SZN Shear off screw connector

up to 1 kV



Material: aluminum  
Standard: non tinned  
Available tinned

| Symbol       | Al conductor cross section [mm <sup>2</sup> ] |         |         |         | Cu [mm <sup>2</sup> ] |         |        | d <sub>1</sub> [mm] | D [mm] | L [mm] | a [mm] | Allen wrench / Ring spanner | Number of screws |
|--------------|---|---------|---------|---------|-----------------------|---------|--------|---------------------|--------|--------|--------|-----------------------------|------------------|
|              | rm  | sm      | re      | se      | rm                    | sm      | re     |                     |        |        |        |                             |                  |
| SZN 1625-N   | 16-35   | 16-25   | 16-35   | 16-35   | 10-25                 | 10-25   | 10-25  | 9                   | 18     | 40     | 18     | _ / 10                      | 2                |
| SZN 1650-N   | 16-50   | 16-50   | 16-50   | 16-50   | 16-50                 | 16-50   | 16-50  | 11                  | 21     | 55     | 25     | 6 / -                       | 2                |
| SZN 2595-N   | 25-95   | 25-95   | 25-95   | 25-95   | 25-95                 | 25-95   | 25-95  | 14                  | 25     | 55     | 25     | 6 / -                       | 2                |
| SZN 25150-N  | 25-150  | 25-120  | 25-150  | 25-150  | 25-150                | 25-120  | 25-150 | 17,5                | 28     | 70     | 32,5   | 6 / -                       | 2                |
| SZN 25185-N  | 35-185  | 25-185  | 35-185  | 25-185  | 25-185                | 25-185  | 25-185 | 21                  | 35     | 80     | 37,5   | 6 / -                       | 2                |
| SZN 120240-N | 120-240                                       | 120-185 | 120-240 | 120-240 | 120-240               | 120-240 | -      | 23                  | 38     | 128    | 60     | 8 / -                       | 4                |

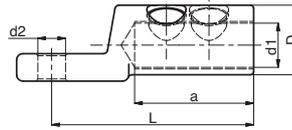
Production on request. - Tinned connectors – symbol e.g. SZN 1625

up to 6 kV

### SKN Shear off screw terminal

Material: aluminum

Standard: tinned



| Symbol        | Al conductor cross section [mm <sup>2</sup> ] |         |         |         | Cu [mm <sup>2</sup> ] |         |        | d <sub>2</sub> [mm] | d <sub>1</sub> [mm] | D [mm] | L [mm] | a [mm] | Allen wrench/<br>Ring spanner | Number of screws |
|---------------|---|---------|---------|---------|-----------------------|---------|--------|---------------------|---------------------|--------|--------|--------|-------------------------------|------------------|
|               | rm  | sm      | re      | se      | rm                    | sm      | re     |                     |                     |        |        |        |                               |                  |
| SKN 8-1625    | 16-35   | 16-25   | 16-35   | 16-35   | 10-25                 | 10-25   | 10-25  | 8,4                 | 9                   | 18     | 40     | 18     | _ / 10                        | 1                |
| SKN 10-1625   | 16-35   | 16-25   | 16-35   | 16-35   | 10-25                 | 10-25   | 10-25  | 10,5                | 9                   | 18     | 40     | 18     | _ / 10                        | 1                |
| SKN 12-1625   | 16-35   | 16-25   | 16-35   | 16-35   | 10-25                 | 10-25   | 10-25  | 13                  | 9                   | 18     | 40     | 18     | _ / 10                        | 1                |
| SKN 8-2595    | 25-95   | 25-95   | 25-95   | 25-95   | 25-95                 | 25-95   | 25-95  | 8,4                 | 14                  | 25     | 60     | 32,5   | 6 / -                         | 1                |
| SKN 10-2595   | 25-95   | 25-95   | 25-95   | 25-95   | 25-95                 | 25-95   | 25-95  | 10,5                | 14                  | 25     | 60     | 32,5   | 6 / -                         | 1                |
| SKN 12-2595   | 25-95   | 25-95   | 25-95   | 25-95   | 25-95                 | 25-95   | 25-95  | 13                  | 14                  | 25     | 60     | 32,5   | 6 / -                         | 1                |
| SKN 8-25185   | 35-185  | 25-185  | 35-185  | 25-185  | 25-185                | 25-185  | 25-185 | 8,4                 | 21                  | 33     | 95     | 56     | 6 / -                         | 2                |
| SKN 10-25185  | 35-185  | 25-185  | 35-185  | 25-185  | 25-185                | 25-185  | 25-185 | 10,5                | 21                  | 33     | 95     | 56     | 6 / -                         | 2                |
| SKN 12-25185  | 35-185  | 25-185  | 35-185  | 25-185  | 25-185                | 25-185  | 25-185 | 13                  | 21                  | 33     | 95     | 56     | 6 / -                         | 2                |
| SKN 8-120240  | 120-240                                       | 120-185 | 120-240 | 120-240 | 120-240               | 120-240 | -      | 8,4                 | 23                  | 38     | 100    | 63     | 8 / -                         | 2                |
| SKN 10-120240 | 120-240                                       | 120-185 | 120-240 | 120-240 | 120-240               | 120-240 | -      | 10,5                | 23                  | 38     | 100    | 63     | 8 / -                         | 2                |
| SKN 12-120240 | 120-240                                       | 120-185 | 120-240 | 120-240 | 120-240               | 120-240 | -      | 13                  | 23                  | 38     | 100    | 63     | 8 / -                         | 2                |
| SKN 16-120240 | 120-240                                       | 120-185 | 120-240 | 120-240 | 120-240               | 120-240 | -      | 17                  | 23                  | 38     | 100    | 63     | 8 / -                         | 2                |

Production on request. - Non tinned terminals on request (up to 1kV) – symbol e.g. SKN 8-1625-N.

Terminals of hole diameter for screw other than in chart.

### Tools for mounting shear off screw terminals and connectors

#### POK ZS Ratchet handle

Handle for tightening shear off screws in terminals and connectors.

Equipment:

- NAS J6 wrench socket 6
- NAS J8 wrench socket 8
- NAS S10 socket S10

Length: 260 mm; Weight: 0,65 kg



NAS J6

NAS J8

NAS S10



#### UZS 1 Holder for shear off screw terminals and connectors

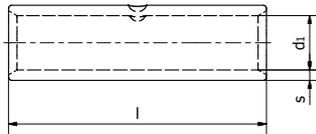
Tool for holding terminals and connectors during mounting (tightening the screws).

Length: 265 mm; Weight: 0,65 kg



## Cu Connector up to 10kV

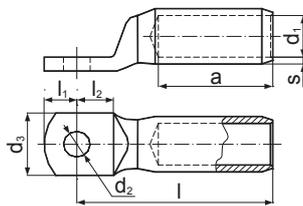
### KLN-S Tubular Cu connector up to 10kV



Diameter of tubular part as for KLN  
Range 16 ÷ 625 mm<sup>2</sup>

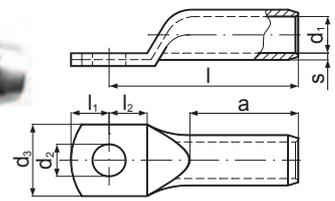
## Cu terminals and connectors up to 36 kV

### KCM-F Tight Cu terminal up to 36kV



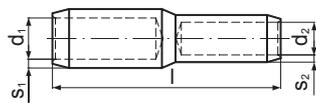
Dimensions as for KCM  
Range 25 ÷ 625 mm<sup>2</sup>

### KCR-F Tubular Cu terminal up to 36kV



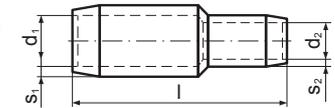
Dimensions as for KCR  
Range 25 ÷ 625 mm<sup>2</sup>

### KLS-F Tubular Cu connectors up to 36kV



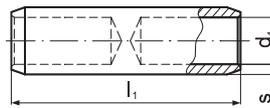
Tubular part dimensions as for KLS  
Range 25 ÷ 300mm<sup>2</sup>

### KLR-F Tubular Cu connectors up to 36kV



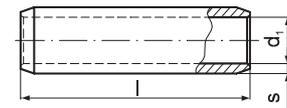
Tubular part dimensions as for KLR  
Range 25 ÷ 300mm<sup>2</sup>

### KLP-F Tight Cu connectors up to 36kV



Tubular part dimensions as for KLP  
Range 25 ÷ 625 mm<sup>2</sup>

### KLN-F Tubular Cu connectors up to 36kV



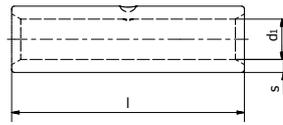
Tubular part dimensions as for KLN  
Range 16 ÷ 625 mm<sup>2</sup>

| Symbol    | l<br>[mm] | s<br>[mm] | d <sub>1</sub><br>[mm] |
|-----------|-----------|-----------|------------------------|
| KLN-F_16  | 60        | 1,5       | 5,5                    |
| KLN-F_25  | 60        | 1,5       | 7                      |
| KLN-F_35  | 60        | 2,15      | 8,2                    |
| KLN-F_50  | 65        | 2,25      | 10                     |
| KLN-F_70  | 65        | 2,5       | 11,5                   |
| KLN-F_95  | 90        | 2,75      | 13,5                   |
| KLN-F_120 | 90        | 2,75      | 15,5                   |
| KLN-F_150 | 105       | 3,25      | 17                     |
| KLN-F_185 | 105       | 3,25      | 19                     |
| KLN-F_240 | 125       | 3,75      | 21,5                   |
| KLN-F_300 | 125       | 3,75      | 24,5                   |
| KLN-F_400 | 160       | 5,5       | 27,5                   |
| KLN-F_500 | 175       | 5,5       | 31                     |
| KLN-F_625 | 190       | 8,5       | 35                     |

## Al Connector up to 10kV

| Symbol    | l [mm] | s [mm] | d <sub>1</sub> [mm] |
|-----------|--------|--------|---------------------|
| ALD-S_16  | 55     | 3,2    | 5,6                 |
| ALD-S_25  | 70     | 2,6    | 6,8                 |
| ALD-S_35  | 85     | 3      | 8                   |
| ALD-S_50  | 85     | 3,1    | 9,8                 |
| ALD-S_70  | 105    | 3,65   | 11,2                |
| ALD-S_95  | 105    | 4,4    | 13,2                |
| ALD-S_120 | 105    | 4,15   | 14,7                |
| ALD-S_150 | 125    | 4,35   | 16,3                |
| ALD-S_185 | 125    | 5,1    | 18,3                |
| ALD-S_240 | 145    | 5,5    | 21                  |
| ALD-S_300 | 145    | 5,35   | 23,3                |
| ALD-S_400 | 210    | 6,25   | 26                  |
| ALD-S_500 | 210    | 7,5    | 29                  |
| ALD-S_625 | 330    | 8,5    | 35                  |

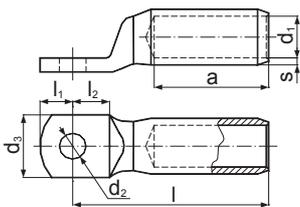
**ALD-S Al connector** for single- and multi-wire Al cables up to 10kV



Material: aluminum  
Range 16 ÷ 625 mm<sup>2</sup>

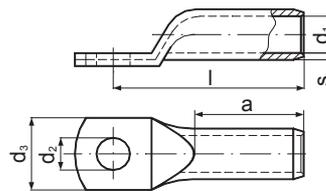
## Al, Al-Cu terminals and connectors up to 36 kV

**AS-F Tight Al terminal** up to 36kV



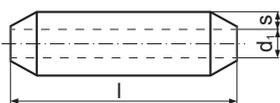
According to DIN 46329 as for AS terminals  
Range 25 ÷ 625 mm<sup>2</sup>

**AR-F Tubular Al terminal** up to 36kV



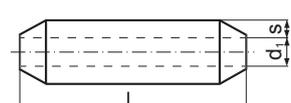
According to DIN 46267 part 2 as for AR terminals  
Range 25 ÷ 625 mm<sup>2</sup>

**ALG-F Al connector** (thick walled) for Al cables up to 36kV



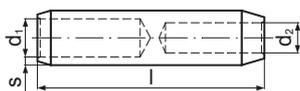
Material: Al aluminum  
Range 25 ÷ 240 mm<sup>2</sup>

**ALD-F Al connector** for single- and multi-wire Al cables up to 36kV



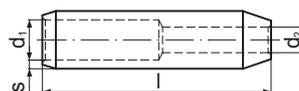
Material: Al aluminum  
Range 25 ÷ 625 mm<sup>2</sup>

**ALS-F Tubular Al connector** up to 36kV



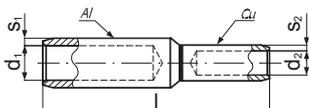
Tubular part dimensions as for ALS  
Range 25 ÷ 625 mm<sup>2</sup>

**ALR-F Reducing Al connector** up to 36kV



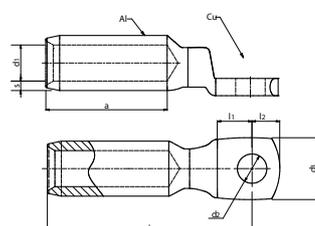
Tubular part dimensions as for ALR  
Range 25 ÷ 625 mm<sup>2</sup>

**ACL-F Al-Cu connector** up to 36kV

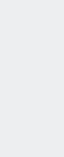


Tubular part diameters according to DIN46267  
(Cu-part 1, Al- part2) as for ACL  
Range 25 ÷ 625 mm<sup>2</sup>

**ACK-F Al-Cu terminal** up to 36kV

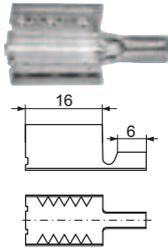


Al tubular part diameters according to DIN46329 as for ACK  
Range 25 ÷ 625 mm<sup>2</sup>



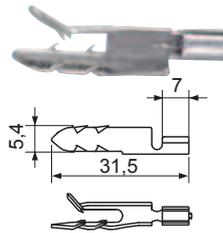
## Telecommunication cable shielding terminals

TEL 2,5 Terminal  
(for O shielding connectors)



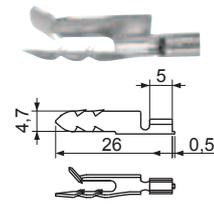
For multi-pair cables at 2,5 mm<sup>2</sup> cable section.

EL 2,5 Terminal  
(for N shielding connectors)



For low-pair cables at 2,5 mm<sup>2</sup> cable section.

EL 1,5 Terminal  
(for A shielding connectors)



For low-pair cables at 1,5 mm<sup>2</sup> cable section.

Crimping tool: PP8 or PP19 (pages 21-22).

## Shielding connectors

Shielding connectors for telecommunication cables connecting (e.g. for straight-through joints and branching boxes).  
For cables of any cross section range. Made of material not reacting with shield material.

For multi-pair cables:

SC-O Connector



SC-O-O Connector



SC-O-H Connector



SC-O-N Connector



SC-O.. Connectors for multi-pair cables connecting.  
Connecting wires cross section: 2,5 mm<sup>2</sup>  
Usage requires armoring splitting during mounting.

For low-pair cables:

SC-N Connector



SC-N-N Connector



SC-N-N Connector



SC-A-A Connector



SC-N.. and SC-A.. Connectors for low-pair cables connecting.  
Connecting wires cross section range:  
• 1,5 mm<sup>2</sup> SC-A.. Connectors  
• 2,5 mm<sup>2</sup> SC-N.. Connectors  
Do not require armoring splitting during mounting.

## LK Shielding connectors

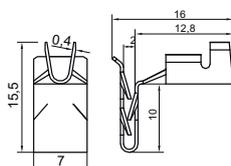


LK-LK.. Connector

LK-KOA.. Connector

Shielding connector with KET-2 shield clip at one end of wire and any ERKO terminal at the other.

## KET-2 Shield Clip



Clip for connecting grounding conductor to unpainted edge of device case or component which must be grounded.

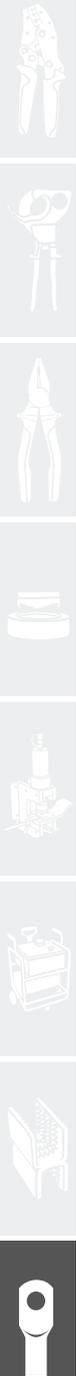
# Special terminals and connectors



## Special terminals and connectors

More than 30 years of ERKO experience in the electrical industry as well as design and technical facilities, allow to meet expectations of the most demanding customers. In addition to standard products, we offer design and production of special connectors and terminals:

- of copper and brass strip
- of copper and aluminum tube
- of copper and aluminum rod
- aluminum-copper
- with and without insulation
- forged and die cast



# Cooperative processes and service range



## General company characteristics

ERKO is a company with Polish capital, founded over 30 years ago, currently employing 180 people in two locations (Jonkowo and Czełusznica). We are one of leading Polish producers of various types of cable terminals and connectors, tools for electrical works and aviation parts. In 1994 ERKO first in Poland gained ISO 9001 certificate according to polish standard. Due to modern machinery there are 2500 articles in constant production. ERKO also offers full range of services like design, production and repairs. Service specialization - design and production of precise tooling and machinery parts. Quality systems: ISO 9001, ISO 14001, AS 9100.

Our main technological processes are: turning, milling, grinding, punching, stamping, electro drilling, welding, bonding, injection moulding, tin plating, oxidizing, heat treatment.

## Main activity areas

- Cable connectors production for all industries
- Mechanical and hydraulic tools production
- Design and production of:
  - multi-stage dies, stamping dies
  - parts and tooling for electrotechnical, automotive and aviation industries
  - automated production cells and complete production lines
- Automation of production processes

## ERKO service activities

- Design (CAD-CAM, Inventor, Unigraphics, EdgeCam), technological documentation preparation for parts and assemblies, devices and complete automated lines and production cells
- Construction and production of connectors, tools and equipment for assembly of any electrical connection (within cross-section 0,1-625 mm<sup>2</sup>)
- Machining (CNC and manual)
- Plastics processing
- Stamping and punching
- Electroplating services - oxidation, tin
- Geometry measurement in the range of 1000x700x700; uncertainty 1,4 μm

## Machinery

- CNC turning lathes
- CNC milling machines
- Universal milling machines
- CNC wire erosion machines
- CNC electroerosion machines
- Grinding machines for surface
- Grinding machines for rollers and holes
- Universal lathes
- Vertical universal lathes
- Electroerosion drills
- Jig drill
- Automatic injection moulding machines
- Friction welding machines
- Hardening furnace
- Hydraulic presses
- Eccentric presses
- Sandblasting machine for small parts
- Line for hot and cold oxidation
- Galvanic tinning line for details



# Aviation parts and tooling



**ERKO**<sup>®</sup>  
AERO

Member of

**AVIATION VALLEY** 

## Mission

ERKO is a producer i.a. parts for tube assemblies in turbofan engines, CNC machined processed aviation parts used in aircraft and helicopters as well as technological equipment used to support production, assembly and measurement.

We are a member of Aviation Valley Association.

Our main customers are i.a.: WSK PZL Rzeszów, Pratt&Whitney, Augusta Westland, Hamilton Sundstrand.

We gained TUV NORD certificate: AS/EN 9100:2009 and EN/ISO 9001:2008.

ERKO has modern and flexible machinery, special measuring chamber and qualified staff.

We assure the best quality at all stages: design, technological supervision, production, quality control and sales, while maintaining aviation standards.

## Certificates



Certificate covers design and development, production and sales of cable terminals and connectors, special tools and devices for electrical industry. Production and sales of metal parts, tools and devices for aviation industry.

## Main customers

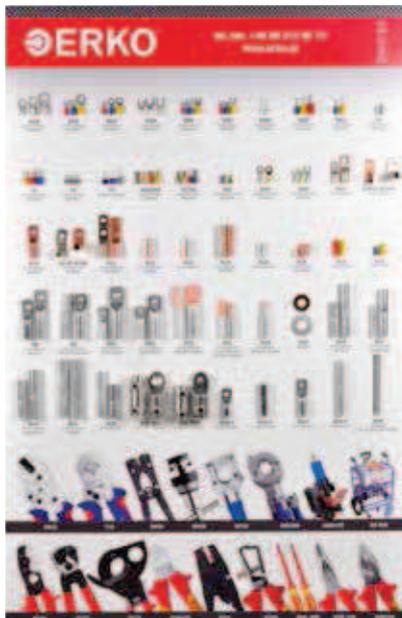


TUV: AS/EN 9001

## Production of aviation parts and tooling



# Advertising materials



**Board** – dimensions: 65 x 100 cm



**Flag** – dimensions: 140 x 250 cm



**Banner** – dimensions: 180 x 100 cm



**Display stand**



**Display stand**  
dimensions: 183 x 70 x 40 cm



**Display glass-cabinet**  
dimensions: 202 x 46 x 50 cm



**Display glass-cabinet**  
dimensions: 202 x 46 x 90 cm

ERKO

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