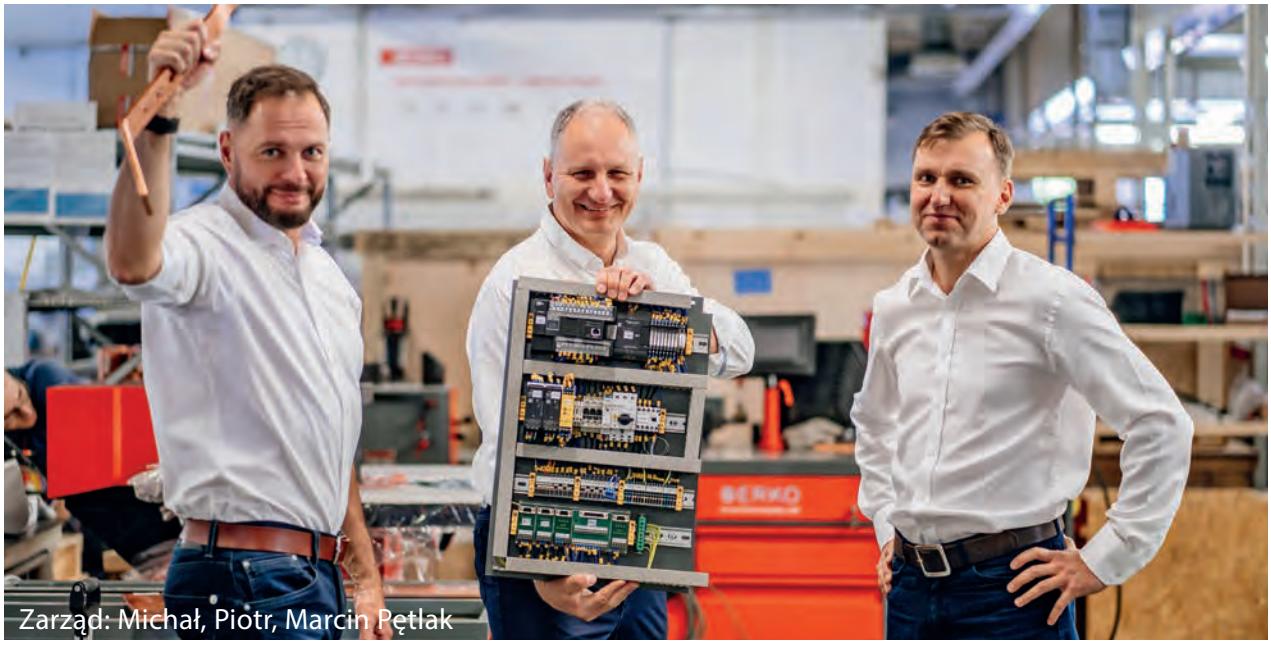
ERKO®

THINK FUTURE



40 LAT MINĘŁO JAK JEDEN DZIEŃ

"Like an Italian family, we love each other, we argue, but we are always ready to support each other and to stand up for each other."


Zarząd: Michał, Piotr, Marcin Pętlak

These words of Piotr Pętlak, President of the Management Board, inaugurated the celebration of the 40th anniversary of ERKO. The company was founded by one man out of passion, courage, and diligence and today it employs three hundred employees in two manufacturing plants located in Czeluśnica and Jonkowo.

The 40th anniversary celebration reflected on a difficult period of succession when Piotr Pętlak took the helm of the company overnight in 2001. His brother, Michał, joined him a year later. However, it all began in 1938 when Piotr Pętlak, the father of the founder of ERKO and the grandfather of the company's current owners, opened a forge. One of his sons, Roman, followed in his footsteps and started his own business in 1981. He established a craft workshop in Jonkowo near Olsztyn, specialising in the production of agricultural tools.


Założyciele: Roman, Józef, Jan Pętlak

The company underwent a reorganisation in 1986 with the start of production of cable terminals for the shipbuilding industry. As a result of dynamic development, the brothers (Roman, Jan, and Józef) decided to open a branch in their home village of Czeluśnica. Through intensive efforts, technological advancements, innovative products, the company has achieved high manufacturing standards. This was officially recognised when ERKO became the first Polish company to receive the PN-ISO 9001 certificate awarded in Poland by the Polish Register of Shipping.





CABLE CONNECTORS AND TOOLS

ERKO ELECTRO

Our largest product division contains a wide range of electrotechnical equipment as well as a number of innovative solutions, tools and devices. ERKO ELECTRO are products dedicated for electrical installers, power plants and industrial companies. We are a leading brand in Poland in the range of offered electrotechnical equipment, our products are available in the majority of electrotechnical wholesalers networks on the domestic market. We are also successfully competing on foreign markets, our products are appreciated by customers in Europe, Asia, Africa, South America and Australia.

PARTS FOR AVIATION INDUSTRY

ERKO AERO

ERKO AERO stands for technologically advanced tailor-made products. We manufacture parts from hard-to-machine metal alloys. Our plant in Czeluśnica manufactures components used in the aviation industry, such as parts for tubular assemblies of turbofan engines as well as machined and cold-formed components. Our products are used by major manufacturers from the AEROSPACE industry.

PRODUCTION AUTOMATION SOLUTIONS

ERKO ROBOTICS

We implement demanding and engineering and technological wise complex solutions and projects. We analyze our customers needs. We design, manufacture, run and service our customers automated production lines, maximizing process efficiency and increasing safety and work ergonomics. We implemented our solutions for customers from the electrotechnical, automotive, aviation, production of tin elements, and for the natural gas distribution industries

TODAY

We are one of the electrotechnical industry key suppliers. We stand out with care for the highest quality of products and customer service. Thanks to the development of competences and a modern machinery park, there are thousands of products in continuous production. Our own, innovative, engineering and technological solutions allow us to ensure the competitiveness of our products as well as quick reaction to market needs. Due to the dynamics of development and market segmentation, we created product divisions: ELECTRO, AERO, ROBOTICS.

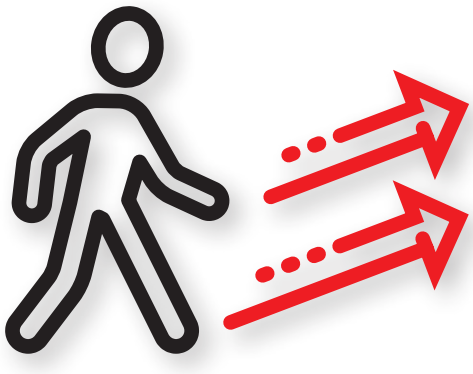
THE OWNER FAMILY DECLARATION

We have been and will be a family company. We actively participate in its management and strategic development.

Thinking about the future, we are preparing successive generations to work with respect for values which are important to our family and business.



From left: Piotr, Maciej, Michał, Marcin Pętlak



Mission

We provide customers with high quality dedicated products and solutions that increase efficiency and safety in the industry.

Vision

Be among the strategic suppliers of technologically advanced products and solutions for the industry.





Values

INVOLVEMENT
COOPERATION
CREATIVITY
PROFESSIONALISM
RESPONSIBILITY
HONESTY

We are among companies that care about the environment. We strive to build mutual trust and transparency both in relation with the external environment and the internal environment of the Company.



We have been engaging in CSR activities since the beginning of our company, primarily through social engagement projects. We support initiatives and projects related to education, culture, and sport.



Educational activities are one of our strategic programmes. We participate in open days organised by secondary and higher education institutions, giving young people the opportunity to learn about the working environment and gain knowledge about various professions. We share our experience and popularise technical knowledge.



We have been cooperating with the research club "ROTOR" at the State Higher Vocational School in Krosno for several years. We support students building the racing car participating in the international Shell Eco-marathon championship.



All activities that strengthen family relationships are important to us. Caring for our employees, we organise picnics, educational trips for the youngest, and excursions for whole families.



We promote an active and healthy lifestyle among young people and employees. We support, among others, young sportspeople from Nauticus Yacht Club Olsztyn, for whom sailing is a passion and a great adventure.



Modern manufacturing plant with a friendly design

The opening of the modern, automated factory, along with a Research and Development Centre, marked an important moment in the forty-year history of ERKO.

It is dedicated to modern industry from all over Poland and focuses on analysing the possibilities for robotisation and automation of production processes, as well as logistics within a company. Our idea is to create a place as an open innovation zone, accessible for employees, customers, students and pupils.





Caring for the well-being of our employees, we have created a facility that supports creative thinking, brings employees closer together and provides the space to unwind. The division of that space into three zones – for body relaxation, mind relaxation, and inspiration – enables the full restoration of the harmony. They encourage you to stop, to take a deep breath, and give your mind a moment of respite. Modern and functional equipment of the space allows you to forget about the daily stress, relax, and come back to performing your duties with new energy. This space also offers the possibility of independent work, the chance to enjoy solitude far from the hustle and bustle of the workplace, allowing you to focus on your own comfort.

Ambient space

Colourful wall graphics with botanical motifs and light design inspired by Scandinavian style have been used in the staff canteen to create restaurant-like ambience. Every day, fresh catering is delivered, and it is co-financed from the Company's social fund. Sharing meals together is becoming a tradition of all employees, regardless of the department. This is one of those moments during the day when we gather around the table and can ask each other how we are doing. On beautiful sunny days, we go out for a coffee under a pergola, enjoying the peace, space, and nature surrounding the factory. Thanks to this, we can maintain a homely atmosphere — being close to each other, knowing each other by name, and forging family-like bonds by choice.





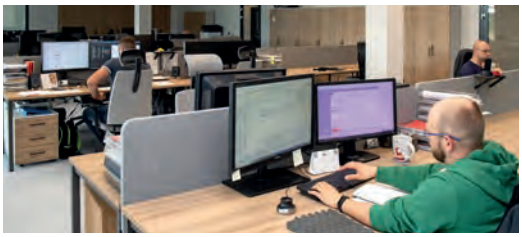
Research and Development Centre – aiming to inspire

It is innovation which makes the Research and Development Centre opened in September 2022 a place where bold visions become reality, for ERKO and for the industry. The centre focuses on analysing the possibilities for robotisation and automation of production processes.

Open to cooperation

Our innovation zone is available not only for employees and customers, but also for students and pupils who acquire theoretical knowledge at school or university and practical skills at ERKO 4. We aim to share our knowledge, experience, and the solutions we have already introduced in ERKO with entrepreneurs considering automation and robotisation of their production processes.





Teamcenter – because the time matters

As one the first in Poland, we are implementing the Teamcenter solutions, which enable us to make quick and consistent decisions at every stage of the life cycle of the product.

Symbol	page
ACB	130
ACK	131
ACK-F	140
ACL	129
ACL	130
ACL-F	140
ACP	131
AH 100	86
AH 200RT	98
AH 300R	98
AH 300R3	98
AH 300RM	98
AH 400RD	98
AH 500	86
AH 500L	86
AH 550	86
AI_GR 1	94
AI_GRD 1	94
AI_GRM 1	94
AI-R 1	NEW 93
AI-R 1S	NEW 93
AI-R 2	NEW 93
AI-RD 1	NEW 93
AI-RD 2	NEW 93
AI-RK 1	NEW 93
AI-RM 1	NEW 93
AI-RM 2	NEW 93
AI-RT 1	NEW 93
AI-RT 2	NEW 93
AI-SRD 1	NEW 93
AI-SRD 2	NEW 93
ALC	128
ALD	128
ALD-F	140
ALD-S	139
ALR-F	140
ALS-F	140
AR	126
AR-F	140
ARC	127
AS	127
AS-F	140
BPS 1200	NEW 76
BPS 1203	NEW 77
BPS 1204	NEW 77
BPS-B	NEW 80
BPS-P	NEW 78
BPS-P 103	NEW 79
BPS-P 104	NEW 79
CE 1100	56
D 11-6	14
DE 750	55
DK	53
EF 767	36
EF 777	36
EGC 45	27
EGPP	97
EGRM	95
EGRT	95
EKM L09	36
EKM L20	36
EL 1,5	141
EL 2,5	141
EPPD	96
EPPD 3	96
EPPL 2,5	96
EPZ 300N	19
EPZC 300	19
EPZC 300N	NEW 20
ERE	57
EWHE 80	65
EWHE 80N	NEW 65
EWPB	97
GC 100	27
GC 100-H800-E	28
GC 50	27
GC 50-H800-E	28
GCO 100	27
GLR 6	84
GRT 1	94
GU 300	18
GU 625	18
GW	64
GW 2	64
GZ 300	18
H 800	86
H 800A	86
H 800AM	86
H 800M	86
HC 125	69
HG 200	73
HG 201	73
HGD 103	68
HGD 104	68
HGD 121	68
HGD 121S	68
HGD 125	68
HGP 5010	69
HRZ 300	18
HSE 100	83
HSE 103	83
HSk 5010	69
HZP	57
IZW	52
KC45	124
KC90	125
KCL	122
KCM-F	138
KCR	123
KCR-F	138
KCS	116
KCS45	118
KCS90	119
KCZ	120
KE	56
KET-2	141
KFM_P	NEW 58
KFM_Z	NEW 58
KFT_P	NEW 58
KFT_Z	NEW 58
KKG	54
KLA	115
KLB	115
KLD	116
KLE	114
KLK	114
KLN	121
KLN-F	139
KLN-S	138
KLP-F	138
KLR-F	138
KLS-F	138
KNA	104
KNE	105
KNP	114
KNV	105
KOA	100
KOE	102
KOP	113
KOV	104
KSNP	NEW 133
KSSP	NEW 135
KU	51
KWA	106
KWE	106
KWV	107
LK	141
LT 100 W	36
LT 75	36
M KE	55
M KW	55
M830B	39
M830BUZ	39
M890C	39
M890F	39
M890G	40
MPT	51
MS	113
MSE	112
MSEPA	112
NCK	54
NI 28	34
NM 30	34
NMZS 50	34
NOPK 4,8	44
NSD	34
NSE	34
NTJ2009-12	NEW 22
NW	82
NWO	82
OPK	44
PAL	50
PE	56
PK 95	17
POK ZS	137
PR 120	16
PR 120D	16
PR 150	16
PR 150D	16
PR 33	12
PR 33-Z3	13
PR 33-Z5	13
PR 50	16
PR 50D	16
PR 95A	17
PR_33-A6	12
PR_33-AE	12
PR_33-E6	12
PR_33-S6	12
PR_33-T16	12
PR_33-T16V	12
PR_33-T35	12
PR_33-T50	12
PR_33-T6	12
PRF 2,5-6	NEW 15
PRF 2,5-6-P	NEW 15
PRPD	96
PRPL	96
PRZ 240	17
R 01	92
R 1	92
R 1S	92
R 2	92
RC 13	24
RC 15	24
RC 15S	24
RC 20	25
RC 27	25
RC 38	26
RC 5	24
RC 54	26
RC 54S	26
RCO 32	25
RD 1	92
RD 2	92
RDO 1	92
RDO 1	93
RK 1	92
RM 1	92
RM 2	92
RNT	47
RT 1	92
RT 2	92
RTC	45
RTCK	46
RTG	49
RTGK	49
RTP	48
RTPK	48
S 44-2	14
SC	141
SH 300	70
SH 303	70
SH 304	70
SH 400	71
SH 403	71
SH 404	71
SH 900PLC	72
SI 10	32
SI 10S	30
SI 10W	32
SI 11	33
SI 28S	33
SI 40	33
SI 6	32
SIO 13	33
SIPD	96
SIPL	96
SK	17
SKN	133
SKS	134
SKSW	134
STL 200	31
STS 160	30
STSI 160	31
STW 160	31
SUN 160	30
SUN 180	30
SW 500	66
SW 503	66
SW 504	66
SZN	132
SZS	135
SZSR	136
SZSW	137
T 10N	NEW 13
T 16	14
T 16S	13
TA	108
TC 6	14
TE	110
TEL 2,5	141
TP	111
TPVC	52
TS	113
TSE	112
TV	111
UDF	21
UK	21
UR	21
US1	16
US1-D	16
US2	16
US2-D	16
US3	16
US3-D	16
US4	17
USD	21
UT105	40
UT106	40
UT107	40
UT12A	37
UT139A	40
UT139B	40
UT15C	37
UT201	41
UT202+	41
UT202A	41
UT203	41
UT204+	41
UT205	41
UT33A+	37
UT33B+	37
UT33C+	37
UT33D+	37
UT502	42
UT52	38
UT53	38
UT55	38
UT58C	38
UT595	42
UT601	41
UT60A	38
UT61E	38
UT70A	39
UT71A	39
UT71D	39
UT71E	39
UX	21
UZS 1	137
WH 100	64
WHE 80	64
WHP 1	63
WIK	35
WIP	35
WIPK	35
WIPPH_K	35
WIPPZ_K	35
WK	63
WO	60
WO H	61
WO K	61
WO R	61
WON	62
WP	63
ZA	20
ZE	20
ZF	20
ZS	20
ZSC	20
ZSNP	NEW 132
ZSSP	NEW 136
ZT	20


Crimping tools pages 11 - 22


Cutting tools pages 23 - 28


Electricians tools pages 29 - 42


Wiring accessories
and electricians equipment pages 43 - 58


Hole punching tools pages 59 - 66


Busbar and mounting rail processing pages 67 - 84


Hydraulic drives pages 85 - 86


SHARK® technology pages 87 - 98


Cable terminals and connectors pages 99 - 142



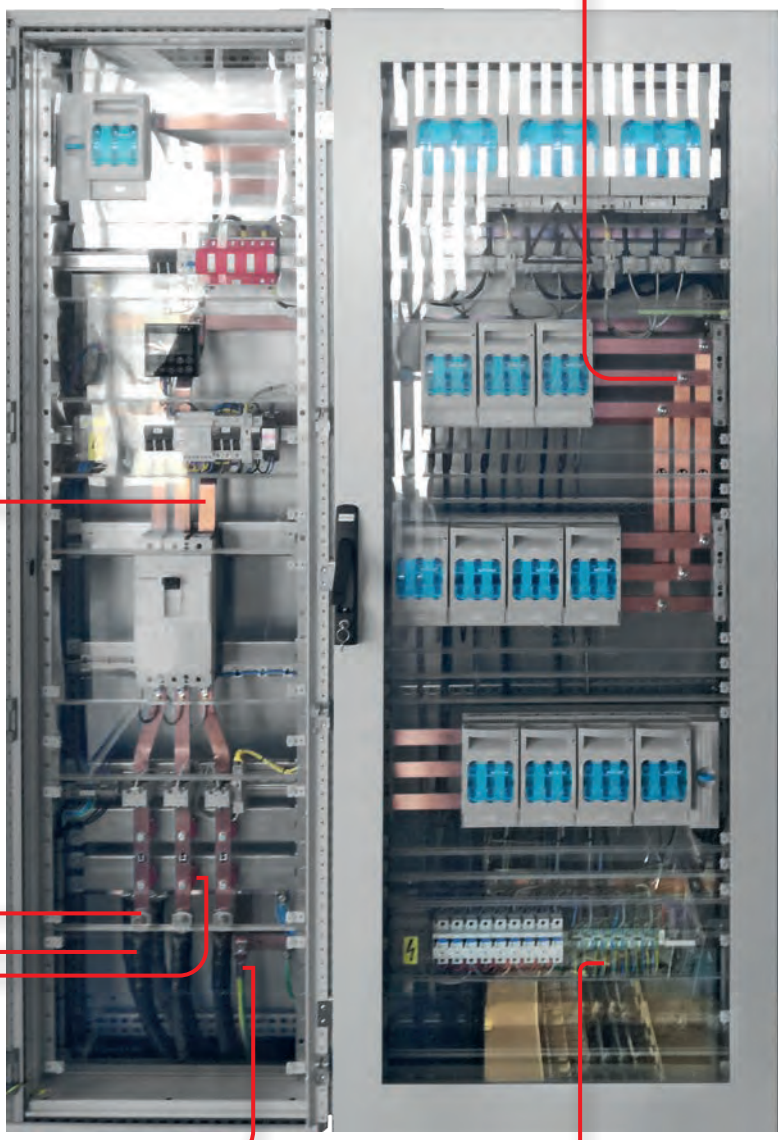
68-82



82



100-140





45-51



52



12-21



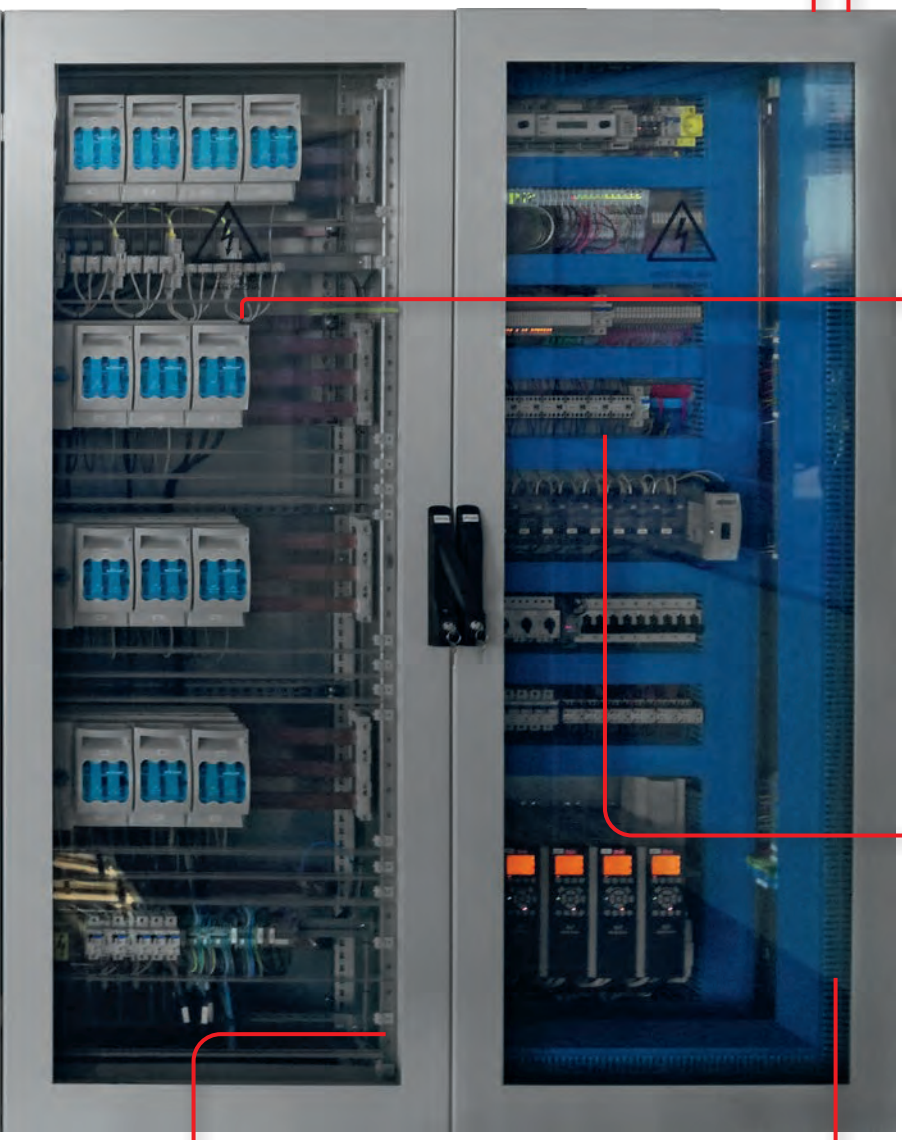
24-28



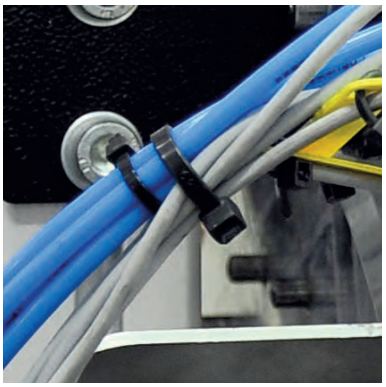
53

60-66





44



30-34



84



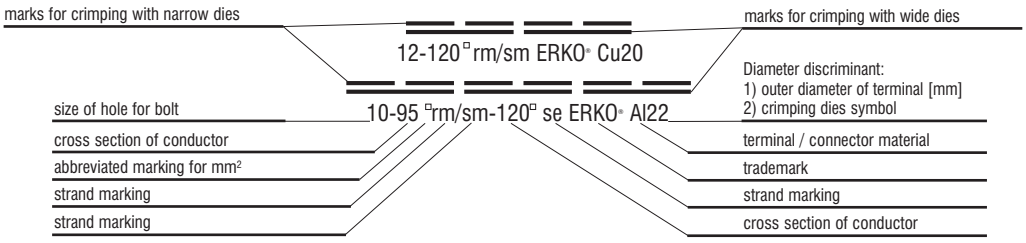
54



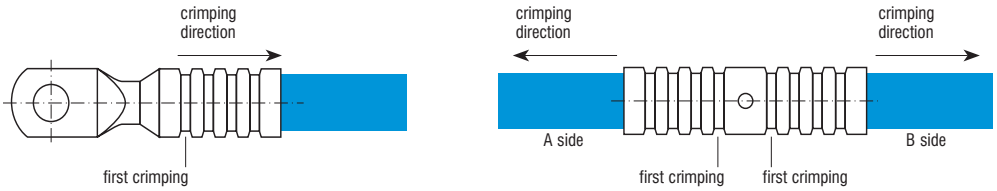
	Single indent for copper terminals without insulation made according to DIN 46234 and pin terminals made according to DIN 46230 for wire of cross section of 0,5 ÷ 120 mm², and for copper tubular terminals for wire of cross section of 0,5 ÷ 6mm² (e.g. KOA, KWA, KLA).
	Oval for copper ring terminals with 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 ÷ 120 mm² (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 ÷ 185 mm² (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 ÷ 10 mm² (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 ÷ 6 mm² (e.g. MS, TS, KOP, KNP).
	Round forming of aluminum sector conductors of cross section of 25 ÷ 300 re, 16 ÷ 240 rm for aluminum terminals. re – singlestrand wire cross section in mm², rm – multistrand wire cross section in mm²
	Hexagonal for copper and aluminum terminals and connectors for wire of cross section of 6 ÷ 625 mm² (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 lenght 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.):





CRIMPING TOOLS

PR 33 Universal hand press



Universal press for terminals:
- with and without insulation (KOA, KNA, KWA, KOE, KNE, KNV) 0.5 ÷ 6 mm²
- cable end sleeves (TA, TE) 0.5 ÷ 35 mm²

Features:
- easily replaceable dies (1) (table below)
- high repeatability and precision of the pressed connection
- Two-component handle preventing hands from slipping (2)
- atchet mechanism for easy pressing with minimal force (3)
- eccentric for adjusting the clamping force (4)
- sets of dies customised to individual customer needs

Dies ordered separately.
Length: 220 mm; Weight (without dies): 500 g





Dies for the universal hand press PR 33

Type of die	Terminal type	Description	Cross section [mm²]	Form of crimping
 PR_33-AE		For ring terminals with and without insulation	0,1÷0,5	
		For spade terminals with and without insulation		
 PR_33-A6		For all types of terminals and connectors without insulation (except for cable end sleeves and pin terminals)	0,5÷6	
 PR_33-E6		For all types of terminals and connectors with insulation (except for 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-T16V		For double cable end sleeves with insulation (TV)	10÷16	
 PR_33-T35		For cable end sleeves with and without insulation	25÷35	
 PR_33-T50		For cable end sleeves with and without insulation	50	
 PR_33-S6		For pin terminals without insulation	0,5÷6	

PR 33-Z5 set

NEW

Set PR 33-Z3 (consists of a press PR 33 and 3 sets of dies):
PR 33-E6, PR 33-T6, PR 33-S6
IMPORTANT: dies: PR_ 33-T35, PR_33-AE, PR_33-T16V, PR_33-T50 , PR33-A6, P33-T16 are ordered separately


PR 33-S6


PR 33-E6


PR 33-T6



PR 33-Z5 set

Set PR 33-Z5 (consists of a press PR 33 and 5 sets of dies):
PR 33-A6, PR 33-E6, PR 33-T6, PR 33-T16, PR 33-S6
IMPORTANT: dies: PR_ 33-T35, PR_33-AE, PR_33-T16V, PR_33-T50
are ordered separately


PR 33-A6


PR 33-T6


PR 33-S6


PR 33-T16


PR 33-E6



T 16S Hand press

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

Wire cross section of 0,08 ÷ 16 mm².
Features:
- hexagonal form of crimping
- movable centering insert for a precise location of small cross sections
- two-component grips prevents hand slipping
- ratcheting mechanism enables easy crimping using minimum force

Length: 215 mm; Weight: 550 g




Form of crimping on wire.



Hand press T 10N

NEW

Press for terminals:
- cable end-sleeves without insulation (TA)
- cable end-sleeves with insulation (TE, TV)

Conductor range: 0.14 ÷ 10 mm².
Features:
- Two-component handle preventing hands from slipping
- ratchet mechanism for easy pressing with minimal force
- eccentric to adjust the clamping force

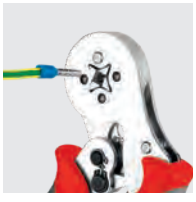
Length: 180 mm; Weight: 420 g

Wide range, high repeatability, and precision of the pressed connection




Form of crimping on wire.





TC 6 Front pliers





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

Wire cross section of 0,5 ÷ 6 mm².
- single-component PCV insulation on grips
- drop forged

Length: 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)

Wire cross section of 0,25 ÷ 16 mm².
- single-component PCV insulation on grips
- drop forged

Length: 180 mm; Weight: 250 g



Form of crimping on wire.

S 44-2 Hand press



Press for:
- claw terminals (KOP, KNP)

Wire cross section of 0,5 ÷ 2,5 mm².

Features:
- ratcheting mechanism enables easy crimping using minimum force
- an eccentric for adjusting clamping force

NOTE: use only for terminals made according to DIN 46225

Crimping dies included.

Length: 210 mm; Weight: 550 g

Socet no.	Cross section [mm²]	Form of crimping
1	0,5 ÷ 1,0	
2	1,5÷2,5	



Form of crimping on wire.

D 11-6 Hand press



Press for:
- tubular connectors without insulation (KLD)

Wire cross section of 1,5 ÷ 6 mm².

Features:
- ratcheting mechanism enables easy crimping using minimum force
- an eccentric for adjusting clamping force

Crimping dies included.

Length: 210 mm; Weight: 550 g

Socet no.	Cross section [mm²]	Form of crimping
1	1,5 ÷ 2,5	
2	4	
3	6	



Form of crimping on wire.

PRF 2.5-6 hand press for photovoltaics without a positioner

Press for cable connectors (male, female) in MC4 connectors
Conductor range 2.5 ÷ 6 mm²
Features:
- marked slots of the pressing dies
- possibility to mount a positioner
- ratchet mechanism for easy pressing with minimal force
- eccentric for adjusting the clamping force

Crimping dies as standard.
Length: 210 mm; Weight: 550 g

NEW



high repeatability and precision of the pressed connection



Socet no.	Cross section [mm²]	Form of crimping
1	1,5 ÷ 2,5	
2	4	
3	6	



Form of crimping on wire.



KFM_P



KFT_P

PRF 2.5-6-P Hand press for photovoltaics with a positioner

Press for cable connectors (male, female) in MC4 connectors
Conductor range 2.5 ÷ 6 mm²
Features:
- positioner can be easily mounted or dismounted with two M8 screws
- unique profiled plates of the positioner facilitate easy handling of the connector
- Laser-marked slots for easy choice of the right dimension slot
- high repeatability and precision of the pressed connection
- ratchet mechanism for easy pressing with minimal force
- eccentric for adjusting the clamping force

Pressing dies and positioner as standard.
Length: 210 mm; Weight: 550 g

NEW



Positioner ensures the correct hold of the connector lug.



Positioner

Socet no.	Cross section [mm²]	Form of crimping
1	1,5 ÷ 2,5	
2	4	
3	6	



Form of crimping on wire.



KFM_P



KFT_P



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)

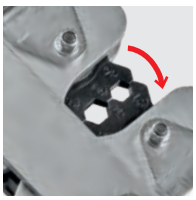
Wire cross section of 6 ÷ 50 mm².
- equipped with rotatable dies US1 or US1-D

Crimping dies included.
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÷50 mm². 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÷50 mm². 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 ÷ 150 mm².
- equipped with rotatable dies US2, US2-D, US3 or US3-D

Crimping dies included.
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 ÷ 150 mm². 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 ÷ 150 mm². 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 ÷ 120 mm². 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 ÷ 120 mm². Discriminants on dies indicate approximate outer diameter of terminal in mm.	

PR 95A Hand press

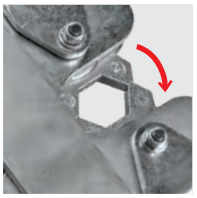
Press for terminals and connectors:
- Al tubular made outside DIN standard (ARC, ALC)
- Al tubular made according to DIN standard (AR)

Wire cross section of 16 ÷ 95 mm².
- equipped with rotatable dies US4

Crimping dies included.
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 ÷ 95 mm². Discriminants on dies indicate approximate outer diameter of terminal in mm.	



Discriminant	Terminals - cross-section [mm²]		
	DIN Al tubular	ARC, ALC Thin-walled Al tubular	ARG, ALG Thick-walled Al tubular
10	–	25	–
12	16; 25	35	16
14	35	50	25
16	50	70	35
18	70	95	50
22	95	–	–

PK 95 Crimper

Crimper for AL and AFL overahead line connectors (SK dies).
Cross section of 16 ÷ 95 mm².
- crimping dies (need to be ordered separately)

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.

PRZ 240 Hand press

Press for:
- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm²
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm²
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm²
- Cu tubular terminals and connectors on cable conductors (ZS dies) of 6 ÷ 185 mm²
- Al tubular terminals and connectors on cable conductors (ZS dies) of 16 ÷ 240 mm²

Designed for electrical works of low and average intensity.
Crimping dies (need to be ordered separately) – see chart on page 24.
Length: 751 mm; Weight (without dies): 5,2 kg







HRZ 300 Hydraulic hand press



Hydraulic hand press for:
- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm²
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm²
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm²
- Cu tubular terminals and connectors on cable conductors (ZS dies) of 6 ÷ 300 mm²
- Al tubular terminals and connectors on cable conductors (ZS dies) of 16 ÷ 240 mm²
- round forming Al sector conductors (ZF dies) of 16 ÷ 240 mm²
- flip top, rotatable by 180° head

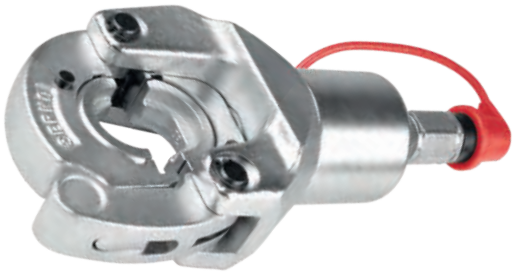
Designed for electrical works of average intensity.
Crimping dies (need to be ordered separately) – see chart on page 20.
Weight (without dies): 4,5 kg; Force: 66,6 kN







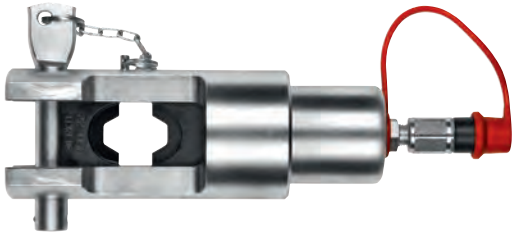
GZ 300 Hydraulic head



Hydraulic head for:
- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm²
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm²
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm²
- Cu tubular terminals and connectors on cable conductors (ZS dies) of 6 ÷ 300 mm²
- Al tubular terminals and connectors on cable conductors (ZS dies) of 16 ÷ 240 mm²
- round forming Al sector conductors (ZF dies) of 16 ÷ 240 mm²

Designed for electrical works of high intensity.
Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Crimping dies (need to be ordered separately) – see chart on page 20.
Weight (without dies): 2,6 kg; Force: 79,2 kN;
Pressure: 630 bar

GU 300 Hydraulic head





Hydraulic head for:
- Cu tubular terminals and connectors on cable conductors (USD dies) of 6÷300 mm²
- Al tubular terminals and connectors on cable conductors (USD dies) of 16÷300 mm²
- round forming Al sector conductors (UDF dies) of 16 ÷ 240 mm²
- flat forming Al sector conductors (UR dies) of 25 ÷ 120 mm²
- hole punching in banding steel (UK dies)

Designed for electrical works of high intensity.
Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Crimping dies (need to be ordered separately) – see chart on page 21.
Length: 280 mm; Weight (without dies): 3,9 kg; Force: 112 kN
Working pressure: 630 bar

GU 625 Hydraulic head



Hydraulic head for:
- Cu and Al tubular terminals and connectors on cable conductors (UX dies) of 300 ÷ 625 mm²

Designed for electrical works of high intensity.
Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Maximum outer diameter of terminal (connector): Ø 52 mm.
Crimping dies (need to be ordered separately) – see chart on page 21.
Length: 340 mm; Weight (without dies): 9,5 kg; Force: 190 kN
Working pressure: 630 bar

Electropress EPZC 300N

NEW



Electro-hydraulic press with a snap-on head for terminals and connectors:
- ring terminals without insulation (ZA dies) 10 ÷ 120 mm²
- ring terminals with insulation (ZE dies) 10 ÷ 120 mm²
- cable end-sleeve with and without insulation (ZT dies) 25 ÷ 185 mm²
- Cu tubular on wires of cables and conductors (ZSC dies) 6 ÷ 300 mm²
- Al tubular on wires of cables and conductors (ZSC dies) 16 ÷ 240 mm²
- round forming of sector Al conductors (ZF dies) 16 ÷ 240 mm²

Distinctive features:
- automatic circuit-breaker ending the work cycle after completed pressing
- signalling the device status with an RGB LED
- powerful Li-Ion battery
- automatic pressure control
- high efficiency BLDC motor
- snap-on 330° rotating head
- automatic circuit-breaker ending the work cycle after completed pressing
- ergonomic design of the handle
- dedicated mobile application
- two batteries included

Thanks to dedicated mobile application, the user receives information about:
- number of cycles performed
- correctness of pressing
- failed calibration
- battery charge status
- remaining cycles until service inspection
- upcoming service inspection

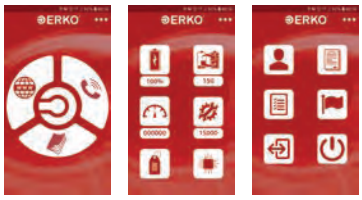
The application enables additional operations:
- quick contact with the manufacturer
- access to pdf catalogue
- access to manufacturer's website






Power supply: 18 V Li-Ion battery 2.0 Ah MAKITA
Pressing dies (to separate order) - the table on page 20
IMPORTANT: Use ZSC pressing dies for copper terminals above 120 mm²
Weight: 4.3 kg (without the battery); Pressure: 50 kN

Works with a dedicated mobile application



Mobile application menu

EPZC 300 Battery powered hydraulic press

Battery powered hydraulic press with flip top head for:
- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm²
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm²
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm²
- Cu tubular terminals and connectors on cable conductors (ZSC dies) of 6 ÷ 300 mm²
- Al tubular terminals and connectors on cable conductors (ZSC dies) of 16 ÷ 240 mm²
- round forming Al sector conductors (ZF dies) of 16 ÷ 240 mm²

Special features:
- automatic off switch ending operation cycle after crimping
- improper crimping signalling
- efficient lithium-ion battery
- automatic pressure control
- flip top, rotatable by 330° head
- casing providing insulation against electric shock is made entirely of glass-fiber reinforced polyamide
- piston rod return is controlled by a control valve
- the device is controlled by microcontroller
- 2 batteries provided with set

Crimping dies (need to be ordered separately) - see chart on page 20
NOTE: for copper terminals over 120 mm² use ZSC crimping dies
Weight: 3,8 kg (with battery); Force: 50 kN





EPZ 300N Battery powered hydraulic press



Battery powered hydraulic press for:
- ring terminals without insulation (ZA dies) of 10 ÷ 120 mm²
- ring terminals with insulation (ZE dies) of 10 ÷ 120 mm²
- cable end-sleeves with and without insulation (ZT dies) of 25 ÷ 185 mm²
- Cu tubular terminals and connectors on cable conductors (ZS dies) of 6 ÷ 300 mm²
- Al tubular terminals and connectors on cable conductors (ZS dies) of 16 ÷ 240 mm²
- round forming Al sector conductors (ZF dies) of 16 ÷ 240 mm²

Special features:
- efficient lithium-ion battery
- crimping cycle of 3-6 seconds
- automatic retraction after crimping is complete
- flip top, rotatable by 360° head
- battery level indicator
- 2 batteries provided with set

Crimping dies (need to be ordered separately) – see chart on page 20
Weight: 4,2 kg (with battery); Force: 67kN





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

Type of die	Terminals and Conectors	Description	Form of crimping
ZA		For Cu ring terminals without insulation of 10 ÷ 120 mm².	
ZE		For Cu terminals and connectors with insulation of 10 ÷ 120 mm².	
ZT		For Cu cable end-sleeves with and without insulation of 25 ÷ 185 mm².	
ZF		Round forming Al sector conductors of 16 ÷ 240 mm².	
ZS		For Cu tubular terminals and connectors of 6 ÷ 300 mm². For Al tubular terminals and connectors of 16 ÷ 240 mm².	

Type of die	Discriminant	Terminals – cross section [mm²]				
		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	16
	14	50	50	35	50	25
	16	70	70	50	70	35
	18	95	95	70	95	50
	19		120			
	20	120	150		120	70
	22	150		95;120	150	95
	23		185		185	
	25	185	240	150		120
	28	240		185	240	150
	30		300			185
	32	300		240		

Crimping width of the ZS die for copper and aluminum 7 mm.
- Basic set ZS_K8 for the terminals according to DIN - 12 sizes
- Full set ZS_K-K7 - 17 sizes

ZSC only for EPZC		For Cu tubular terminals and connectors of 6 ÷ 300 mm².	
		For Al tubular terminals and connectors of 16 ÷ 240 mm².	

ZSC dies only for battery powered hydraulic press EPZC, for copper tubular terminals and connectors ≥ 120mm².

Type of die	Discriminant	Discriminant from 6 to 19 as in the chart above, from discriminant 20 the chart below				
		DIN Cu tubular	Others Cu tubular	DIN Al tubular	ARC, ALC Thin-walled Al tubular	ARG, ALG, AFG Thick-walled Al tubular
ZSC only for EPZC	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		

- Crimping width of the ZSC die for copper 5 mm
- Basic set ZSC_K7 for the terminals according to DIN - 17 sizes
- Full set ZSC_K-K14 - 24 sizes

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 mm².	
UR		For end forming Al sector conductors without use of terminals. Flat forms conductors of 25÷120 mm². 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. • cross section of reformed Al conductors: 25 ÷ 120 mm² • max. dimensions of banding steel: 5x30 mm • standard dies: UK 8,5 – Ø 8,5 mm UK 10,5 – Ø 10,5 mm UK 12,5 – Ø 12,5 mm 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 mm². For Al tubular terminals and connectors of 16 ÷ 300 mm².	

Type of die	Discriminant	Terminals – cross section [mm²] 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

Crimping dies for GU 625 head

Type of die	Terminals and Connectors	Description	Form of crimping
UX		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



Terminals pressing station NTJ2009-12

NEW



Terminals pressing station records the pressing cycle data:
- operation number
- operation reporting number
- operator code, pressing force
- pressing status
- the code of the person approving incorrect pressing

Data is made available in the form of csv file via the web server of a PLC controller.

Distinctive features:
- conductor range 50÷70 mm²
- pressing adapter with replaceable, snap-fitted dedicated pressing dies for each type of terminals
- pressing head (adapted to application requirements)
- protective shutter with a pneumatic actuator
- touch screen control panel which provides basic information about the status of the device and its operation and makes it possible to enter the operating parameters for the device
- logging in by scanning the QR code from the operator's card
- pneumatic supply and control system, the task of which is to protect the operator from entering the hazardous zone, i.e., the place where the connector is pressed. Pressing the connector is possible only when the safety system receives confirmation of reaching safe position of the pneumatic actuator to which a mechanical cover is attached.
- rotating extended arm
- signalling column informing about the progress of the pressing process and the status of the device:
  1. GREEN LED - correct pressing
  2. YELLOW LED - error or incorrect pressing
  3. BUZZER - error or incorrect pressing
- Swivel castor with brakes

Industrial use, information record, data available in the form of csv files.



Zaprasowywanie końcówek



Zaprasowywanie końcówek



Panel sterowania



Sygnalizator świetlny



Skaner kodów



Skanowanie kodów

TECHNICAL DATA	MODEL NTJ2009-12
Dimensions (L x W x H)	525 x 410 x 1950 mm
Weight	150 kg
Nominal capacity	1,33 dm³/min.
Hydraulic fluid tank capacity	5 dm³
Net volume	2 dm³
Operating pressure	300 bar
Hydraulic hose	3 m (standard)
Air quality requirements	w/g ISO 8573-1:2010
Pressure	4 – 6 bar
Air demand	0,75 cm³/cycle
Supply voltage	3x400/230 V AC, 50 Hz
Control voltage	24 V DC
Electric motor power	1 kW
Power plug	16A 400V 3P N+E IP44 (PCE 015-6v)
IP protection class	40
Power cable length	4 m
Control cable length	4 m
Working temperature	-25÷40°C



CUTTING TOOLS

Cable cutters RC 5

1000 V





Shears for cutting:
- Al and Cu single- and multi-wire cables, outer diameter up to 5 mm
- steel cable - up to 2 mm

Distinctive features:
- precisely finished, profiled blades for easy cutting
- smooth cut without crushing or deformation
- lever optimising the force needed for cutting
- VDE certified two-component insulated grips with elastomer inserts prevent the tool from slipping and sparks from jumping from the tool to the user's hand

IMPORTANT: possibility to work under voltage up to 1000 V
Length: 200 mm; Weight: 290 g

Cable cutters RC 13

1000 V





Shears for cutting:
- Al and Cu single- and multi-wire cables
- outer diameter up to 13 mm
- cross-section up to 60 mm^2

Distinctive features:
- The blades, made of a special hardened steel, guarantee the durability of the tool
- easy cutting requiring minimal force
- Two-component handles with a VDE certificate provide users with additional protection against electric shock during work.

IMPORTANT: possibility to work under voltage up to 1000 V
Length: 240 mm; Weight: 500 g

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^2

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^2

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 mm²

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







Cable cutters RC 27

Shears for cutting and stripping:
- Al and Cu single- and multi-wire cables
- outer diameter up to 27 mm
- cross-section up to 150 mm2

Distinctive features:
- shears equipped with blades that minimise the force needed to cut a cable
- smooth cut without cable deformation
- arms are made of a special aluminium tube
- multi-component handle grip covers

IMPORTANT: do not use for cutting steel wires or cables reinforced with steel a wire or tape.
Length: 500 mm; Weight: 1.1 kg







RCO 32 Cable shears

Shears for cutting:
- Al and Cu single- and multistrand cables
- outer diameter up to 32 mm
- cross section up to 300 mm²

Features:
- ratcheting mechanism enables cutting wires with different diameter, minimizes force needed to cut the cable

NOTE: do not use for steel cable
Length: 260 mm; Weight: 600 g





RC 38 Cable shears







Shears for cutting:
- Al and Cu single- and multistrand cables
- outer diameter of 28 ÷ 38 mm
- cross section up to 280 mm²

Features:
- adjustable angle of the arm enables optimal width handle adjustment, especially perfect to work in tight spaces
- optimised blades geometry ensures high quality cutting
- telescopic aluminum handles of lenght 550 ÷ 700 mm
- ratcheting mechanism

NOTE: do not use for steel wires
Weight: 1,98 kg

RC 54 Cable shears





Shears for cutting:
- Al and Cu single- and multistrand cables
- outer diameters up to 54 mm
- cross section of 480 mm²

Features:
- ratcheting mechanism enables cutting wires with different diameter, minimizes force needed to cut the cable

NOTE: do not use for cutting steel cables
Length: 310 mm; Weight: 800 g

RC 54S Cable shears





Shears for cutting:
- AL reinforced steel cables, outer diameter up to 25 mm
- Al and Cu single- and multistrand cables, outer diameters up to 32 mm
- cross section of 477 mm²

Features:
- ratcheting mechanism enables cutting wires with different diameters, minimizes force needed to cut the cable
- replaceable blades made of special hardened tool steel with high strength

NOTE: can be used for cutting steel cables of diameter up to 9,5 mm
Length: 350 mm; Weight: 1,2 kg

EGC 45 Battery powered shears

Battery powered hydraulic shears for cutting wires:
- AL and CU cables
- outer diameter up to 45 mm
- reinforced wires (included AFL) or steel tape, max diameter up to 30 mm

Special features:
- automatic off switch ending operation cycle after proper cutting
- improper cutting signalling
- efficient lithium-ion battery
- automatic pressure control
- rotatable by 330° head

Weight: 5 kg; Force: 50 kN











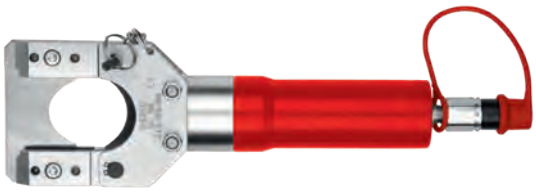
GC 50 Hydraulic head

Hydraulic cutting head for:
- Al and Cu cables
- outer diameter up to 50 mm
- in case of steel reinforced wires (including AFL) or steel tape, maximum diameter is 30 mm

Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Length: 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 100, AH 500, AH 550, AH 500L hydraulic units.
Length: 455 mm; Weight: 7,0 kg; Force: 80 kN



Example of a cut.



GCO 100 open hydraulic head

Hydraulic cutting head for:
- Al and Cu cables
- outer diameter up to 100 mm

NOTE: do not use for steel reinforced wires (including AFL) or steel tape and other materials not intended for use.
Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Length: 603 mm; Weight: 10 kg





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



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.

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.





ELECTRICIANS TOOLS

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^2

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

NOTE: ability to work under voltage up to 1000V.
Length: 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

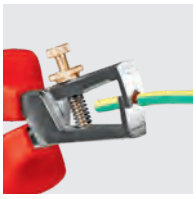
Special features:
- blade hardness ca. 60 HRc
- material: chromium-vanadium steel
- long term use even for intensive work
- non-sparking, anti-slip, two-component insulated grips with elastomer insert

NOTE: ability to work under voltage up to 1000V.
Length: 180 mm; Weight: 265 g

SI 10S Pliers

≙1000 V







Pliers for stripping and cutting live wires.
- stripping wires up to 10 mm^2

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

NOTE: ability to work under voltage up to 1000V.
Length: 160 mm; Weight: 165 g

STS 160 Pliers

≙1000 V



Pliers for soft, medium hard and hard wires.
- soft wire diameter up to 4 mm
- medium hard wire diameter up to 2,8 mm
- hard wire diameter up to 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

NOTE: ability to work under voltage up to 1000V.
Length: 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.

NOTE: ability to work under voltage up to 1000V.
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

NOTE: ability to work under voltage up to 1000V.
Length: 200 mm; Weight: 190 g

1000 V



STW 160 Angled pliers

Multifunctional long pliers for electric works.
- 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

NOTE: ability to work under voltage up to 1000V.
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 ÷ 6 mm^2
- stripping lenght adjusted between 5 ÷ 12 mm
- automatic blade force adjustment
- Cu and Al cable cutter up to 2 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 ÷ 10 mm^2
- for flat, one-layer wires with diameter up to 10 mm
- stripping lenght adjusted between 3 ÷ 18 mm
- Cu and Al cable cutter up to 10 mm^2 (singlestrand wires – up to 6 mm^2)

Special features:
- automatic blade force adjustment
- 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 10W Insulation stripper



Insulation stripper selfsetting for cutting and stripping:
- single-, multi-, and thinstrand wires
- with plastic or rubber insulation
- cross section of 0,02 mm ÷ 16 mm^2
  (standard with insert for cable of cross section 0,02 ÷ 10 mm^2, insert for cable of cross section 4 ÷ 16 mm^2 can be ordered separately)
- precision of inserts allows for stripping all kinds of insulation from PVC to PTFE
- ergonomic two-component handles

Length: 191 mm; Weight: 136 g









SI 11 Insulation stripper

Stripper for stripping telephone, audiovisual and fibre-optic cables
- outer diameter 11 mm

Special features:
- has 9 positions of blade settings, which allows for precision stripping without damage
- easy to use, lightweight and durable

Length: 90,5 mm; Weight: 28 g







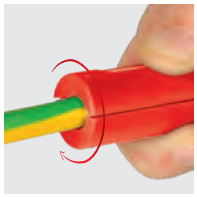
SIO 13 Insulation stripper

Stripper for stripping outer insulation:
- cross section of 8 ÷ 13 mm^2

Special features:
- two-piece body made of fibreglass reinforced plastic
- opening spring and lock











SI 28 Multi Insulation stripper

Stripper for stripping all common round wires:
- cross section of 4 ÷ 28 mm^2

Special features:
- removable, adjustable inner blades
- body made of impact-resistant plastic

Length: 145 mm; Weight: 50 g









SI 40 Insulation stripper

Stripper for stripping cables with different types of insulation:
- standard with a removable arms for stripping wires (diameter of 4,5 mm ÷ 25 mm and of 25 mm ÷ 40 mm)

Special features:
- equiped with a knife set in three positions
- allows for circular, spiral and longitudinal stripping

Length: 167 mm; Weight: 116 g





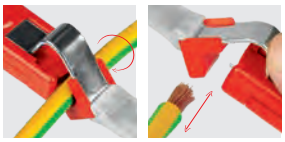






NI 28 Cable stripping knife





Knife for stripping all common round wires:
- cross section of 4 ÷ 28 mm²

Special features:
- body made of impact-resistant plastic
- spare blade inside handle

Length: 170 mm; Weight: 80 g

NM 30 Wire stripper knife

1000 V





Fitter knife for stripping insulation with insulated handle

Special features:
- ergonomic two-component handles
- fully insulated blade
- protective cap on blade
- high quality blade made of stainless steel
- length of the blade: 30 mm
- length of the knife: 180 mm

NOTE: ability to work under voltage up to 1000V.

Weight: 100 g

NMZS 50 Wire stripper knife

1000 V





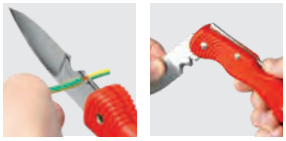
Fitter knife with sickle style blade for wire stripping with ergonomic and two-component handle
- ergonomic two-component handles
- unprotected sickle style blade made of stainless steel facilitates stripping wire
- additional blade on the front part of the knife allows cutting wires in two directions
- protective cap on blade
- length of the blade: 50 mm
- length of the knife: 200 mm

NOTE: ability to work under voltage up to 1000V.

Weight: 100 g

NSE Electrician pocket knife





Knife for stripping and cutting wires

Special features:
- blade made of hardened stainless steel
- It includes two seats for cutting and stripping in the form of a triangle, semicircles
- lock-blade prevents accidental knife folding
- one-component handle fastened by rivets

Length: 195 mm; Weight: 50 g

NSD wooden knife





Folding knife for cutting and stripping wires.

Special features:
- three-component knife (main blade, stripping blade, drilling pin)
- blades made of stainless steel
- wooden handle

Length: 172 mm; Weight: 92 g

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
NOTE: ability to work under voltage up to 1000V



Symbol	Blade tip Thicknes [mm]	Blade tip Width [mm]	Shank lenght [mm]	Handle lenght [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



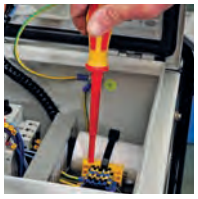
WIK Insulated cross tip screwdriver

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
NOTE: ability to work under voltage up to 1000V



Symbol	Blade tip [mm]	Shank lenght [mm]	Handle lenght [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





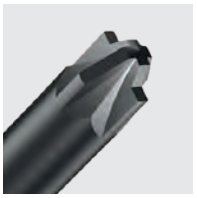
WIPK Insulated slotted-cross tip screwdriver

1000 V

Insulated slotted-cross tip screwdriver for slotted-cross head screws.
Shank: black, insulated, handle: two-component.
NOTE: ability to work under voltage up to 1000V



Symbol	Blade tip [mm]	Shank lenght [mm]	Handle lenght [mm]
WIPK 80	PZ / FL	80	110
WIPK 100	PZ / FL	100	114



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

WIPPZ_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



LT 75, LT 100W Transformer soldering iron



Transformer soldering iron to connect metal parts with durable tip.
- doesn't cause hand fatigue due to the appropriate location of the center of gravity
- rated voltage: 230V ~ 50Hz
- power: 75W, 100W
- tip temperature: 400°
- copper wire tip Ø 1,5 mm
- tip lighting: lamp 12V / 2W
- Weight: 700 g

type of iron soldering	rated voltage	power	tip temperature	coper wire tip Ø	light	weight [kg]
LT 75	230V ~ 50Hz	75 W	400°C	1,5	12V / 2W	0,7
LT 100	230V ~ 50Hz	100W	400°C	1,8	12V / 2W	0,72

EF 767, EF 777 Unipolar multi-function electrical tester



EF 767 EF 777





EF767 Unipolar multi-function electrical testers intended for perfoming basic test of 230V/380V electric installations, car installations and checking operations of electrical devices.

EF 767
- detection of phase/zero of alternating voltage max 500V
- testing the continuity of conduction approx 1M
- detection of direct voltage max 60V

Application:
- 230V/380V installation:
- detection of direct voltage max 60V
- breaks/ shortings detection, testing of fuses and light bulbs
- verification of earthing
- detection of wires in a group of conductors
- allows to repair christmas lights without removing light bulbs

DC installation:
- detection of DC voltage, breaks and shortings
- pole identification +/-
- testing of plug supply
- telephone tests

Electronics:
- detection of 0/1 in electronic systems
- basic test of electronic elements: diode, transistors, resistors, condensers (apart from electrolyte)

Cars:
- detection of +12V/ground
- testing of fuses, light bulbs
- battery ignition setting
- detection of high voltage

EF 777
- detection of live conductors (touchless) from 0,3 cm to 50 cm
- detection of wires inside walls at a deepth of up to 10 cm
- detection of phase/ alternate zero max 500V
- testing of conduction continuity 1MΩ
- detection of direct voltage max 60V
- adjustment of detection sensitivity

EKM L09, EKM L20 Test lead



EKM L20 test lead
- length 1000 mm
- temperature: from -15°C to +40°C



EKM L20 Test lead:
- length 900 mm
- probe and body length 101 mm
- PVC material

Digital Meters







Type / Characteristics	UT12A	UT15C	UT33A+	UT33B+	UT33C+	UT33D+
DC voltage		0~690 V	0~500 V	0~500 V	0~500 V	0~500 V
AC voltage		0~690 V	0~500 V	0~500 V	0~500 V	0~500 V
DC current			0~10 A	0~10 A	0~10 A	0~10 A
AC current			0~10 A			
Temperature					-40°C ~1000°C	
Resistance			0~40 MΩ	0~20 MΩ	0~20 MΩ	0~200 MΩ
Capacitance						
Frequency		50~60 Hz				
Live conductors detection	90~1000 V AC					
Frequency detection	50/60 Hz					
Features						
Auto/manual range		Auto	Auto			
Diode test			●	●	●	●
Transistors testing			●			
Continuity buzzer		●	●		●	●
Square wave output						●
Polarity detection		+ / -				
Phase rotation test		●				
Data hold				●	●	●
Normal mode	●					
Silent mode	●					
Battery test (1,5V; 9V; 12V)				●		
Sleep mode						
Low battery indication		●	●	●	●	●
General characteristics						
Power	2 x 1.5V (AAA)	2 x 1.5V (AAA)	1.5V (2x AAA)	9V (6F22)	9V (6F22)	9V (6F22)
LCD size		23x12 mm	48x16mm	48x16 mm	48x16 mm	48x16 mm
Weight	49 g	210 g	156 g	156 g	156 g	156 g
Product size	150x109 mm	275x51x30 mm	130x73,5x35 mm	130x73,5x35 mm	130x73,5x35 mm	130x73,5x35 mm
Standard accessories	batteries, manual	batteries, manual	test lead, battery, manual, holster	test lead, battery, manual, holster	test lead, battery, manual, point contact temperature probe, holster	test lead, battery, manual, holster

Digital Meters








Type / Characteristics	UT52	UT53	UT55	UT58C	UT60A	UT61E
DC voltage	0~1000 V	0~1000 V	0~1000 V	0~1000 V	0~1000 V	0~1000 V
AC voltage	0~750 V	0~750 V	0~750 V	0~750 V	0~750 V	0~750 V
DC current	0~20 A	0~20 A	0~20 A	0~20 A	0~10 A	0~10 A
AC current	0~20 A	0~20 A	0~20 A	0~20 A	0~10 A	0~10 A
Temperature		-20°C ~1000°C	-20°C ~1000°C			
Resistance	0~200 MΩ	0~200 MΩ	0~200 MΩ	0~20 MΩ	0~40 MΩ	0~220 MΩ
Capacitance	0~20 μF	0~20 μF	0~20 μF	0~100 μF	0~100 μF	0~220 mF
Frequency			0~20 kHz		0~10 MHz	0~220 MHz
Inductance				0~20 H		
Duty cycle					0.1~99.9%	0.1~99.9%
Features						
Fused 10 A					●	
Auto/manual range					Auto	Auto / manual
Diode test	●	●	●	●	●	●
Transistors testing	●	●	●	●		
Continuity buzzer	●	●	●	●	●	●
Relative mode					●	
Data hold				●	●	●
RS232C					●	●
Sleep mode		●	●	●		●
Low battery indication	●	●	●	●	●	●
General characteristics						
Power	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)
LCD size	33x65 mm	33x65 mm	33x65 mm	60x54 mm	63x31 mm	65x43 mm
Weight	560 g	560 g	560 g	350 g	340 g	370 g
Product size	190x88x34 mm	190x88x34 mm	190x88x34 mm	179x88x39 mm	177x85x40 mm	180x87x47 mm
Standard accessories	test lead, battery, manual, holster	test lead, battery, manual, point contact temperature probe, holster	test lead, battery, manual, point contact temperature probe, holster	test lead, battery, manual, multi-purpose socket, holster, clip	test lead, battery, manual, RS232C cable, clip, software	test lead, battery, manual, multi-purpose socket RS232C cable, software

Digital Meters



Type / Characteristics	UT70A	UT71A	UT71D	UT71E	M830B	M830BUZ	M890C	M890F
DC voltage	0~1000 V	0~1000 V	0~1000 V	0~1000 V	0~1000 V	0~1000 V	0~1000 V	0~1000 V
AC voltage	0~750 V	0~1000 V	0~1000 V	0~1000 V	0~750 V	0~750 V	0~750 V	0~750 V
Bandwidth AC		100 kHz	100 kHz	100 kHz				
DC current	0~10 A	0~10 A	0~10 A	0~10 A	0~10 A	0~10 A	0~20 A	0~20 A
AC current	0~10 A	0~10 A	0~10 A	0~10 A			0~20 A	0~20 A
Temperature	-40°C ~1000°C		-40°C ~1000°C	-40°C ~1000°C			-40°C ~1000°C	
Resistance	0~2000 MΩ	0~20 MΩ	0~40 MΩ	0~40 MΩ	0~2 MΩ	0~2 MΩ	0~200 MΩ	0~200 MΩ
Capacitance	0~100 μF	0~20 mF	0~40 mF	0~40 mF			0~20 μF	0~20 μF
Frequency	0~10 MHz	0~200 MHz	0~400 MHz	0~400 MHz				
Inductance	0~20 H							
TTL	TTL (High > 2.0 V, Low < 0.8 V)							
Duty cycle		10~90%	10~90%	10~90%				
4~20 mA LOOP		0~100%	0~100%	0~100%				
Features								
Fused 10 A	●	●	●	●				
Auto/manual range		Auto	Auto	Auto				
Diode test	●	●	●	●	●	●	●	●
Transistors testing	●				●	●	●	●
Continuity buzzer	●	●	●	●		●	●	●
True RMS		●	●	●				
Data hold	●	●	●	●				
Data storage			●	●				
Data read			●	●				
Peak Hold		●	●	●				
Max/Min mode		●	●	●				
Relative value		●	●	●				
Analogue Bar-Graph		●	●	●				
USB		●	●	●				
Sleep mode	●	●	●	●				
Low battery indication	●	●	●	●				
General characteristics								
Power	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)
LCD size	62x53 mm	73x50 mm	73x50 mm	73x50 mm	15x46 mm	15x46 mm	26x61 mm	26x61 mm
Weight	620 g	384 g	384 g	384 g	150 g	150 g	330 g	330 g
Product size	195x90x40 mm	200x93x40 mm	200x93x40 mm	200x93x40 mm	162x86x33 mm	162x86x33 mm	175x88x40 mm	175x88x40 mm
Standard accessories	test lead, battery, point contact temperature probe, multi-purpose socket, holster, clip	test lead, battery, alligator clip, USB cable, case, clip, software	test lead, battery, point contact temperature probe, alligator clip, USB cable, case, clip, software	test lead, battery, point contact temperature probe, alligator clip, USB cable, case, clip, power adaptor, software				

Digital Meters








Typ / Charakterystyka miernika	M890G	UT105	UT106	UT107	UT139A	UT139B
Napięcie DC	0~1000 V	0~1000 V	0~1000 V	0~1000 V	0~600 V	0~600 V
Napięcie AC	0~750 V	0~750 V	0~750 V	0~750 V	0~600 V	0~600 V
Pasmo AC					0~400 Hz	0~400 Hz
Prąd DC	0~20 A	0~10 A	0~10 A	0~10 A	0~10 A	0~10 A
Prąd AC	0~20 A				0~10 A	0~10 A
Temperatura	-40°C ~1000°C		-40°C ~1000°C	-40°C ~1000°C		
Rezystancja	0~20 MΩ	0~20 MΩ	0~20 MΩ	0~20 MΩ	0~20 MΩ	0~40 MΩ
Pojemność						9,999 nF ~99,99 mF
Częstotliwość			0~2 kHz	0~2 kHz		0~10 MHz
Współczynnik wypełnienia				1~90%		0,1~99,9%
Funkcje dodatkowe						
Bezpiecznik 10 A		●	●	●		
Dwell (4Cyl/6Cyl/8Cyl)		●	●	●		
Tach (4Cyl/6Cyl/8Cyl)		●	●	●		
Automatyczne/Ręczne zakresy					Auto	Auto
Test diod	●	●	●	●	●	●
Tranzystory	●					
Ciągłość obwodu	●	●	●	●	●	●
Generator przebiegu prostokątnego						
True RMS					●	●
Podtrzymanie odczytu		●	●	●	●	●
Tryb Max/Min					●	●
Wartość względna					●	●
Test baterii (1,5V; 9V; 12V)				12V		
Sleep mode						
Wskaźnik słabej baterii		●	●	●	●	●
Auto power off					●	●
Ogólne						
Zasilanie	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22)	1.5V (2x AA)	1.5V (2x AA)
Wymiary wyświetlacza	26x61 mm	60x54 mm	60x54 mm	60x54 mm	58x36 mm	58x36 mm
Waga	330 g	352 g	352 g	352 g	370 g	370 g
Wymiary urządzenia	175x88x40 mm	179x88x39 mm	179x88x39 mm	179x88x39 mm	175x81x48,5 mm	175x81x48,5 mm
Dołączone akcesoria		przewody, bateria, instrukcja, holster	przewody, bateria, instrukcja, sonda pomiaru temperatury, holster	przewody, bateria, instrukcja, sonda pomiaru temperatury, holster	przewody, bateria, instrukcja	przewody, bateria, instrukcja

Digital Meters



Type / Characteristics	UT201	UT202+	UT202A	UT203	UT204+	UT205	UT601
DC voltage	0~600 V	0~600 V	0~600 V	0~600 V	0~600 V	0~600 V	
AC voltage	0~600 V	0~600 V	0~600 V	0~600 V	0~600 V	0~600 V	
DC current				0~400 A	0~400 A	0~1000 A	
AC current	0~400 A	0~400 A	0~600 A	0~400 A	0~400 A		
Temperature		-40°C ~1000°C					
Resistance	0~20 MΩ	0~20 MΩ	0~20 MΩ	0~40 MΩ	0~40 MΩ	0~40 MΩ	0~2000 MΩ
Capacitance						0~200 μF	0~20 mF
Frequency				0~1 MHz	0~1 MHz	0~10 MHz	
Duty cycle				0.1~99.9%	0.1~99.9%	0.1~99.9%	
Features							
Auto/manual range	Auto	Auto		Auto	Auto	Auto	
Diode test	●	●	●	●	●	●	●
Transistors testing							●
Continuity buzzer	●	●	●	●	●	●	●
True RMS					●		
Max measurement	●	●					
Data hold	●	●	●	●	●	●	
Max/Min mode			●				
Relative value				●	●	●	
Sleep mode	●	●		●	●	●	
Low battery indication	●	●	●	●	●	●	●
General characteristics							
Power	3V (2x AAA)	3V (2x AAA)	9V (6F22)	9V (6F22)	9V (6F22)	9V (6F22) 3V (2x AAA)	9V (6F22)
LCD size	35,6x18 mm	35,6x18 mm	36x18 mm	36x18 mm	36x18 mm	52x27 mm	61x32 mm
Weight	220 g	220 g	200 g	200 g	200 g	540 g	310 g
Product size	210x75,6x30 mm	210x75,6x30 mm	210x76x30 mm	210x76x30 mm	210x76x30 mm	260x90x45 mm	172x83x38 mm
Standard accessories	test lead, batteries, manual, case	test lead, battery, manual, point contact temperature probe, case	test lead, battery, manual, case	test lead, bat-tery, manual, case	test lead, battery, manual, case	test lead, batteries, manual, case	test lead, battery, manual, holster

Digital Meters





Type / Characteristics	UT502	UT595
Insulation resistance	500 V: 3 MΩ~2000 MΩ 500 V: 5 MΩ~4000 MΩ 2500 V: 30 MΩ~20 GΩ	250 V: 0.05 MΩ~250 MΩ 500 V: 0.05 MΩ~500 MΩ 1000 V: 0.05 MΩ~1000 MΩ
Load current	250/500 V; 1 mA 500/1000 V; 1 mA 1000/2500 V; 1 mA	
Test voltages	500~2500 V	
Short circuit current	<2 mA	<2 mA
Low resistance continuity		range: 0 Ω ~199 Ω testing current: 0~2 Ω: >200 mA
Line impedance		range: 0.01 Ω~2000 Ω operational voltage: 195 V~440 V (45~65 Hz) testing current: 20 A PFC range: 0 kA~26 kA
Loop impedance		range: 0.01 Ω ~2000 Ω operational voltage: 195 V~253 V (45~65 Hz) testing current: 20 A PFC range: 0 kA~26 kA
Loop impedance without tripping		range: 1 Ω ~2000 Ω operational voltage: 195 V~253 V (45~65 Hz) testing current: 15 mA PFC range: 0 kA~26 kA
RCD		operational voltage: 195 V~253 V (45~65 Hz) testing current: 10 mA, 30mA, 100 mA, 300 mA, 500 mA trip time: x ½ *IΔn range 0~2000 ms x 1 *IΔn range 0~300 ms x 1 *IΔn range 0~500 ms (selective mode) x 2 *IΔn range 0~300 ms x 2 *IΔn range 0~500 ms (selective mode) x 5 *IΔn range 0~40 ms
Phase sequence test		operational voltage: 100 V~440 V (45~65 Hz) indication: L1→L2→L3 – positive change, L1→L3→L2 – to reverse
RCD measurement ramp slope		testing current: 10 mA, 30 mA, 100 mA, 300 mA, 500 mA
DC voltage	0~1000 V	range: 0 V~440 V frequency: 45~65 Hz resolution: 1 V
AC voltage	0~750 V	range: 0 V~440 V frequency: 45~65 Hz resolution: 1 V
Features		
Auto/manual range	Auto	
Alarm	●	
Low battery indication	●	
General characteristics		
Power	1.5V (6x LR6)	1.5V (8x LR6)
LCD size	71x34 mm	125x37 mm
Weight	500 g	1000 g
Product size	150x100x71 mm	210x175x90 mm
Standard accessories	test lead, batteries, manual, alligator clip, case	test lead, batteries, manual, alligator clip



WIRING ACCESSORIES AND
ELECTRICIANS EQUIPMENT

OPK cable ties









Cable ties for binding, fastening and organizing:
- binding, fastening and organizing electric cables
- secure fastening

Special features:
- material - polyamide PA66
- black colour with UVC mark in product code means strengthened resistance to UV radiation
- usage temperature from: - 40°C to +85°C
- minimal temperature for installation of the product: - 20°C

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 black colour with strenghtened UV-resistance	Dimensions (L x W) [mm]	Maximum bunch diameter	Tensile strength [kg]
OPK 2,5-80-N/100	OPK 2,5-80-C/100	OPK 2,5-80-UVC/100	80x2,5	14	8,0
OPK 2,5-100-N/100	OPK 2,5-100-C/100	OPK 2,5-100-UVC/100	100x2,5	20,5	8,0
OPK 2,5-150-N/100	OPK 2,5-150-C/100	OPK 2,5-150-UVC/100	150x2,5	36,5	8,0
OPK 2,5-160-N/100	OPK 2,5-160-C/100	OPK 2,5-160-UVC/100	160x2,5	39,8	8,0
OPK 2,5-200-N/100	OPK 2,5-200-C/100	OPK 2,5-200-UVC/100	200x2,5	52,5	8,0
OPK 3,6-140-N/100	OPK 3,6-140-C/100	OPK 3,6-140-UVC/100	140x3,6	33	18,0
OPK 3,6-200-N/100	OPK 3,6-200-C/100	OPK 3,6-200-UVC/100	200x3,6	46	18,0
OPK 3,6-250-N/100	OPK 3,6-250-C/100	OPK 3,6-250-UVC/100	250x3,6	65	18,0
OPK 3,6-300-N/100	OPK 3,6-300-C/100	OPK 3,6-300-UVC/100	300x3,6	84	18,0
OPK 3,6-370-N/100	OPK 3,6-370-C/100	OPK 3,6-370-UVC/100	370x3,6	106	18,0
OPK 4,8-160-N/100	OPK 4,8-160-C/100	OPK 4,8-160-UVC/100	160x4,8	36,6	23,0
OPK 4,8-200-N/100	OPK 4,8-200-C/100	OPK 4,8-200-UVC/100	200x4,8	49,5	23,0
OPK 4,8-250-N/100	OPK 4,8-250-C/100	OPK 4,8-250-UVC/100	250x4,8	65	23,0
OPK 4,8-300-N/100	OPK 4,8-300-C/100	OPK 4,8-300-UVC/100	300x4,8	81	23,0
OPK 4,8-360-N/100	OPK 4,8-360-C/100	OPK 4,8-360-UVC/100	360x4,8	100	23,0
OPK 4,8-400-N/100	OPK 4,8-400-C/100	OPK 4,8-400-UVC/100	400x4,8	108	22,0
OPK 4,8-430-N/100	OPK 4,8-430-C/100	OPK 4,8-430-UVC/100	430x4,8	122,5	23,0
OPK 4,8-500-N/100	OPK 4,8-500-C/100	OPK 4,8-500-UVC/100	500x4,8	150	22,0
OPK 4,8-550-N/100	OPK 4,8-550-C/100	OPK 4,8-550-UVC/100	550x4,8	145	23,0
OPK 7,6-200-N/100	OPK 7,6-200-C/100	OPK 7,6-200-UVC/100	200x7,6	50,9	54,0
OPK 7,6-250-N/100	OPK 7,6-250-C/100	OPK 7,6-250-UVC/100	250x7,6	66,8	54,0
OPK 7,6-300-N/100	OPK 7,6-300-C/100	OPK 7,6-300-UVC/100	300x7,6	82,8	54,0
OPK 7,6-360-N/100	OPK 7,6-360-C/100	OPK 7,6-360-UVC/100	360x7,6	103,5	54,0
OPK 7,6-400-N/100	OPK 7,6-400-C/100	OPK 7,6-400-UVC/100	400x7,6	105	55,0
OPK 7,6-450-N/100	OPK 7,6-450-C/100	OPK 7,6-450-UVC/100	450x7,6	130,5	54,0
OPK 7,6-500-N/100	OPK 7,6-500-C/100	OPK 7,6-500-UVC/100	500x7,6	145	55,0
OPK 7,6-540-N/100	OPK 7,6-540-C/100	OPK 7,6-540-UVC/100	540x7,6	159	54,0
OPK 9,0-550-N/100	OPK 9,0-550-C/100	OPK 9,0-550-UVC/100	550x9,5	163,5	80,0
OPK 9,0-780-N/100	OPK 9,0-780-C/100	OPK 9,0-780-UVC/100	780x9,0	235,5	80,0

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

Special features:
- self-extinguishing according to UL 94-HB standard
- products are compliant with REACH & RoHS directives
- free from halogen compounds
- shrinking ratio 2:1





Characteristics		
Physical	Tensile strenght	10 N/mm^2
	Extension at rupture	200%
	Lenght change	≤+5%, ≤-10%
	Water soaking	<0,5%
	Density	1.20 g/cm^3
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 extension 100%
	Thermal ageing (168 hours in 175°C)	doesn't break
	Flexibility at low temperatures (-55°C)	recommended ≤40°C
	Storing temperature	
Electrical	Dielectric strength	20 kV/m

Symbol	Colour	Min. Ø before shrinking [mm]	Max. Ø after shrinking [mm]	Wall thickness after shrinking [mm]	Number of pieces per unit [1piece=1m]
RTC 1,6-0,8-C/1	black	1,60	0,8	0,43	100 pcs
RTC 1,6-0,8-B/1	white				100 pcs
RTC 1,6-0,8-ZZT/1	yellow-green				100 pcs
RTC 1,6-0,8-N/1	blue				100 pcs
RTC 1,6-0,8-M/1	mix				100 pcs
RTC 2,4-1,2-C/1	black	2,40	0,8		100 pcs
RTC 2,4-1,2-B/1	white				100 pcs
RTC 2,4-1,2-ZZT/1	yellow-green				100 pcs
RTC 2,4-1,2-N/1	blue				100 pcs
RTC 2,4-1,2-M/1	mix				100 pcs
RTC 3,2-1,6-C/1	black	3,20	1,6	0,51	100 pcs
RTC 3,2-1,6-B/1	white				100 pcs
RTC 3,2-1,6-ZZT/1	yellow-green				100 pcs
RTC 3,2-1,6-N/1	blue				100 pcs
RTC 3,2-1,6-M/1	mix				100 pcs
RTC 4,8-2,4-C/1	black	4,80	2,4	0,51	40 pcs
RTC 4,8-2,4-B/1	white				40 pcs
RTC 4,8-2,4-ZZT/1	yellow-green				40 pcs
RTC 4,8-2,4-N/1	blue				40 pcs
RTC 4,8-2,4-M/1	mix				40 pcs
RTC 6,4-3,2-C/1	black	6,40	3,2	0,65	40 pcs
RTC 6,4-3,2-B/1	white				40 pcs
RTC 6,4-3,2-ZZT/1	yellow-green				40 pcs
RTC 6,4-3,2-N/1	blue				40 pcs
RTC 6,4-3,2-M/1	mix				40 pcs
RTC 9,5-4,8-C/1	black	9,50	4,8	0,65	20 pcs
RTC 9,5-4,8-B/1	white				20 pcs
RTC 9,5-4,8-ZZT/1	yellow-green				20 pcs
RTC 9,5-4,8-N/1	blue				20 pcs
RTC 9,5-4,8-M/1	mix				20 pcs
RTC 12,7-6,4-C/1	black	12,70	6,4	0,65	20 pcs
RTC 12,7-6,4-B/1	white				20 pcs
RTC 12,7-6,4-ZZT/1	yellow-green				20 pcs
RTC 12,7-6,4-N/1	blue				20 pcs
RTC 12,7-6,4-M/1	mix				20 pcs
RTC 15,9-8,0-C/1	black	15,90	8		20 pcs
RTC 15,9-8,0-B/1	white				20 pcs
RTC 15,9-8,0-ZZT/1	yellow-green				20 pcs
RTC 15,9-8,0-N/1	blue				20 pcs
RTC 15,9-8,0-M/1	mix				20 pcs
RTC 19,1-9,5-C/1	black	19,10	9,5		10 pcs
RTC 19,1-9,5-B/2	white				10 pcs
RTC 19,1-9,5-ZZT/1	yellow-green				10 pcs
RTC 19,1-9,5-N/1	blue				10 pcs
RTC 19,1-9,5-M/1	mix				10 pcs
RTC 25,4-12,7-C/1	black	25,40	12,7	0,89	10 pcs
RTC 25,4-12,7-B/1	white				10 pcs
RTC 25,4-12,7-ZZT/1	yellow-green				10 pcs
RTC 25,4-12,7-N/1	blue				10 pcs
RTC 25,4-12,7-M/1	mix				10 pcs
RTC 31,8-15,9-C/1	black	31,80	15,9		10 pcs
RTC 31,8-15,9-B/1	white				10 pcs
RTC 31,8-15,9-ZZT/1	yellow-green				10 pcs
RTC 31,8-15,9-N/1	blue				10 pcs
RTC 31,8-15,9-M/1	mix				10 pcs
RTC 38,1-19,1-C/1	black	38,10	19,1		10 pcs
RTC 38,1-19,1-B/1	white				10 pcs
RTC 38,1-19,1-ZZT/1	yellow-green				10 pcs
RTC 38,1-19,1-N/1	blue				25 pcs
RTC 38,1-19,1-M/1	mix				10 pcs
RTC 50,8-25,4-C/1	black	50,80	25,4		10 pcs
RTC 50,8-25,4-B/1	white				10 pcs
RTC 50,8-25,4-ZZT/1	yellow-green				10 pcs
RTC 50,8-25,4-N/1	blue				10 pcs
RTC 50,8-25,4-M/1	mix				10 pcs

* mix includes colours: red, blue, white, yellow.

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
- strong adhesion to steel, plastic and other materials
- shrinking temperature > 100°C
- working temperature of -55°C - +110°C
- shrinking ratio 3:1

Characteristics		
Physical	Tensile strenght	11 N/mm²
	Extension at rupture	300%
	Lenght change	≤+1%, ≤-15%
	Water soaking	<0,5%
	Density	1.45 g/cm³
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%
	Flexibility at low temperatures (-55°C)	doesn't break
	Flammability	meets
Electrical	Dielectric strength	15 kV/m

Symbol	Colour	Min. ø before shrinking [mm]	Max. ø after shrinking [mm]	Wall thickness after shrinking [mm]	Number of pieces per unit [1piece=1m]
RTCK 3-1-C/1	black	3	1	1	40 pcs
RTCK 3-1-T/1	transparent				40 pcs
RTCK 4-1-C/1	black				20 pcs
RTCK 4-1-T/1	transparent				20 pcs
RTCK 4.8-1.6-C/1	black	4,8	1,6	1	40 pcs
RTCK 4.8-1.6-T/1	transparent				40 pcs
RTCK 6-2-C/1	black	6	2	1,1	20 pcs
RTCK 6-2-T/1	transparent				20 pcs
RTCK 8-2-C/1	black				20 pcs
RTCK 8-2-T/1	transparent				20 pcs
RTCK 9-3-C/1	black	9	3	1,3	20 pcs
RTCK 9-3-T/1	transparent				20 pcs
RTCK 12-3-C/1	black				20 pcs
RTCK 12-3-T/1	transparent				20 pcs
RTCK 12-4-C/1	black	12	4	1,7	20 pcs
RTCK 12-4-T/1	transparent				20 pcs
RTCK 18-6-C/1	black	18	6	2	10 pcs
RTCK 18-6-T/1	transparent				10 pcs
RTCK 24-8-C/1	black	24	8	2,5	10 pcs
RTCK 24-8-T/1	transparent				10 pcs

RNT Heat shrinkable repair sleeves

Heat shrinkable repair sleeves for quick, durable and efficient repair of the damaged cable coating without the need to cut it and for the purpose to protect the mechanical, corrosion and water supply and gas pipelines.

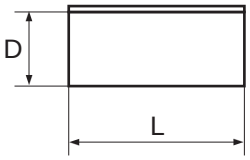
- covering the inner surface of the sleeve with a layer of hot melt glue, guarantees accurate and resistant to external conditions bonding with cable coat and compensation for any unevenness
- coating the outer layer of the sleeve with thermochromic paint which changes color after reaching the target temperature and prevents overheating of the material during its shrinking



Characteristics		
Physical	Tensile strength Elongation at break Moisture absorption Resistance to radiation ESCR 48 hours at 50°C	17,5 N/mm² (min) 300% (min) 0,1% (max) lack of dissection lack of cracks
Physical after aging at 120°C for 500 hours	Tensile strength Elongation at break	15 N/mm² (min) 200%
Electrical	Dielectric strength	12 kV/mm(min)
Chemical	Chemical resistance Tensile strength Elongation at break	good 15 N/mm² (min) 200%
Limiot temperature signalized by the paint colour change	150°C during 30 min 250°C	lack of colour change



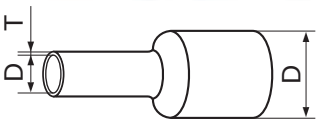




Symbol	Colour	D max. ø before shrinking [mm]	D min. ø after shrinking [mm]	Wall thickness before shrinking together with the layer of glue T [mm] ± 20%	Lenght L [mm]
RNT 42-08-250/1	black	42	8	0,9	250
RNT 42-08-500/1	black				500
RNT 42-08-750/1	black				750
RNT 42-08-1000/1	black				1000
RNT 42-08-1500/1	black				1500
RNT 76-22-250/1	black	76	22	0,9	250
RNT 76-22-500/1	black				500
RNT 76-22-750/1	black				750
RNT 76-22-1000/1	black				1000
RNT 76-22-1500/1	black				1500
RNT 100-30-250/1	black	100	30	0,9	250
RNT 100-30-500/1	black				500
RNT 100-30-750/1	black				750
RNT 100-30-1000/1	black				1000
RNT 100-30-1500/1	black				1500
RNT 139-38-250/1	black	139	38	0,9	250
RNT 139-38-500/1	black				500
RNT 139-38-750/1	black				750
RNT 139-38-1000/1	black				1000
RNT 139-38-1500/1	black				1500
RNT 185-55-250/1	black	185	55	0,9	250
RNT 185-55-500/1	black				500
RNT 185-55-750/1	black				750
RNT 185-55-1000/1	black				1000
RNT 185-55-1500/1	black				1500
RNT 210-55-250/1	black	210	55	0,9	250
RNT 210-55-500/1	black				500
RNT 210-55-750/1	black				750
RNT 210-55-1000/1	black				1000
RNT 210-55-1500/1	black				1500

RTP Thickened heat shrinkable sleeves





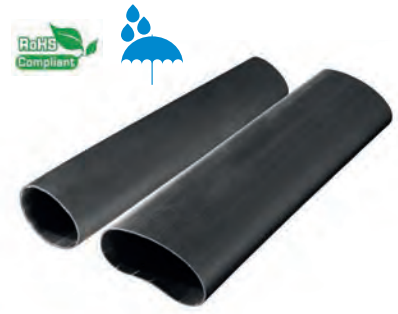
Thickened heat shrinkable repair sleeves for repairt of the direct insulation on cables up to 1kV and external cable coatings nN and Sn.

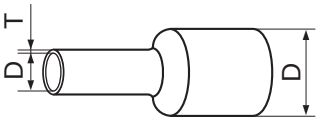
- made of thermally stabilized, cross-linked polymers
- resistant to changing weather conditions
- provide flexible seals, very high mechanical and chemical protection
- protects against UV rays
- shrinking ratio 3:1

Symbol	Colour	Min. ø before Shrinking D [mm]	Max. ø after Shrinking D [mm]	Wall thickness after shrinking T [mm]	Number of pieces per unit [1 piece = 1m]
RTP 9-3-C/1	black	9	3	1,7	10 pcs
RTP 12-4-C/1	black	12	4	2	10 pcs
RTP 22-6-C/1	black	22	6	2,5	10 pcs
RTP 30-8-C/1	black	30	8	2,5	10 pcs
RTP 34-7-C/1	black	34	7	3	10 pcs
RTP 40-12-C/1	black	40	12	2,8	10 pcs
RTP 55-16-C/1	black	55	16	3	10 pcs
RTP 65-19-C/1	black	65	19	3	10 pcs
RTP 80-22-C/1	black	80	22	3,2	10 pcs
RTP 100-30-C/1	black	100	30	3,2	5 pcs
RTP 140-40-C/1	black	140	40	3,2	5 pcs

Characteristics		
Physical	Relative density	1,25 ± 0,2 g/cm³
	Moisture absorption	0,2% (max)
	Tensile strength	10 N/mm² (min)
	Elongation at break	350% (min)
Physical after aging at 120°C for 500 hours	Tensile strength	8 N/mm² (min)
	Elongation at break	300% (min)
Electrical	Slope resistivity	10^{10}Ωm (min)
	Dielectric strength	8 kV/mm (min)
	Constant dielectric	3,5 (max)
Chemical	Resistance to fungus	<1
	Salt spray test	meets
	Chemical resistance	good

RTPK Thickened heat shrinkable sleeve with glue





Thickened heat shrinkable repair sleeves with glue for repairt of the direct insulation on cables up to 1kV and external cable coatings nN and Sn.

- made of thermally stabilized, cross-linked polymers
- inner side of the pipe covered with a layer of thermoplastic glue
- resistant to changing weather conditions
- provide flexible seals, very high mechanical and chemical protection
- protects against UV rays
- shrinking ratio 3:1

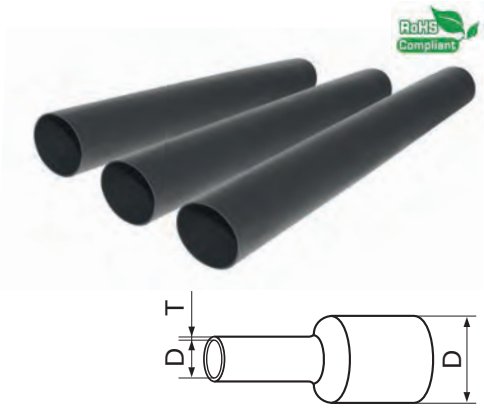
Symbol	Colour	Min. ø before Shrinking D [mm]	Max. ø after Shrinking D [mm]	Wall thickness after shrinking T [mm]	Number of pieces per unit [1 piece = 1m]
RTPK 9-3-C/1	black	9	3	1,7	10 pcs
RTPK 12-4-C/1	black	12	4	2	10 pcs
RTPK 22-6-C/1	black	22	6	2,5	10 pcs
RTPK 30-8-C/1	black	30	8	2,5	10 pcs
RTPK 34-7-C/1	black	34	7	3	10 pcs
RTPK 40-12-C/1	black	40	12	2,8	10 pcs
RTPK 55-16-C/1	black	55	16	3	10 pcs
RTPK 65-19-C/1	black	65	19	3	10 pcs
RTPK 80-22-C/1	black	80	22	3,2	10 pcs
RTPK 100-30-C/1	black	100	30	3,2	10 pcs
RTPK 140-40-C/1	black	140	40	3,2	10 pcs
RTPK 160-50-C/1	black	160	50	3	1 pcs
RTPK 180-60-C/1	black	180	60	3	1 pcs
RTPK 200-65-C/1	black	200	65	3,5	1 pcs
RTPK 235-65-C/1	black	235	65	3,5	1 pcs

Characteristics		
Physical	Relative density	1,25 ± 0,2 g/cm³
	Moisture absorption	0,2% (max)
	Tensile strength	10 N/mm² (min)
	Elongation at break	350% (min)
Physical after aging at 120°C for 500 hours	Tensile strength	8 N/mm² (min)
	Elongation at break	300% (min)
Electrical	Slope resistivity	10^{10}Ωm (min)
	Dielectric strength	8 kV/mm (min)
	Constant dielectric	3,5 (max)
Chemical	Resistance to fungus	good
	Salt spray test	meets
	Chemical resistance	good

RTG Thick-wall heat shrinkable sleeves

Thick-wall heat shrinkable sleeves for repair of the direct insulation on cables up to 1kV and external cable coatings nN and Sn.

- made of thermally stabilized, cross-linked polymers
- resistant to changing weather conditions
- provide flexible seals, very high mechanical and chemical protection
- protects against UV rays
- shrinking ratio 3:1



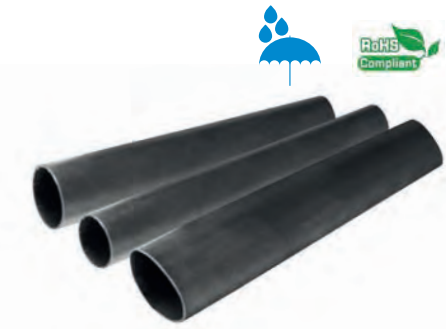
Characteristics		
Physical	Relative density	1,25 ± 0,2 g/cm³
	Moisture absorption	0,2% (max)
	Tensile strength	10 N/mm² (min)
	Elongation at break	350% (min)
Physical after aging at 120°C for 500 hours	Tensile strength	8 N/mm² (min)
	Elongation at break	300% (min)
Electrical	Slope resistivity	$10^{10}\Omega$m (min)
	Dielectric strength	8 kV/mm (min)
	Constant dielectric	3,5 (max)
Chemical	Resistance to fungus	good
	Salt spray test	meets
	Chemical resistance	good

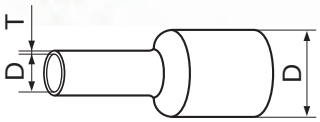
Symbol	Colour	Min. Ø before Shrinking D [mm]	Max. Ø after Shrinking D [mm]	Wall thickness after shrinking T [mm]	Number of pieces per unit [1 piece = 1m]
RTG 55-16-C/1	black	55	16	4	1 pce
RTG 92-26-C/1	black	92	26	4,2	1 pce
RTG 120-43-C/1	black	120	43	4,2	1 pce
RTG 140-37-C/1	black	140	37	4,3	1 pce

RTGK Thick-wall heat shrinkable sleeves with glue

Thick-wall heat shrinkable sleeves with glue for repair of the direct insulation on cables up to 1kV and external cable coatings nN and Sn.

- made of thermally stabilized, cross-linked polymers
- inner side of the pipe covered with a layer of thermoplastic glue
- resistant to changing weather conditions
- provide flexible seals
- very high mechanical and chemical protection
- designed for work in extreme conditions
- protects against UV rays
- shrinking ratio 3:1





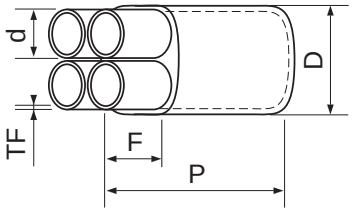
Characteristics		
Physical	Relative density	1,25 ± 0,2 g/cm³
	Moisture absorption	0,2% (max)
	Tensile strength	10 N/mm² (min)
	Elongation at break	350% (min)
Physical after aging at 120°C for 500 hours	Tensile strength	8 N/mm² (min)
	Elongation at break	300% (min)
Electrical	Slope resistivity	$10^{10}\Omega$m (min)
	Dielectric strength	8 kV/mm (min)
	Constant dielectric	3,5 (max)
Chemical	Resistance to fungus	good
	Salt spray test	meets
	Chemical resistance	good

Symbol	Colour	Min. Ø before Shrinking D [mm]	Max. Ø after Shrinking D [mm]	Wall thickness after shrinking T [mm]	Number of pieces per unit [1 piece = 1m]
RTGK 55-16-C/1	black	55	16	4	1 pce
RTGK 92-26-C/1	black	92	26	4,2	1 pce
RTGK 120-34-C/1	black	120	34	4,2	1 pce
RTGK 140-37-C/1	black	140	37	4,3	1 pce

PT heat shrinkable breakouts







Heat shrinkable breakouts for insulating of cable ends at separated cores, plastic, rubber or resaturated paper insulated.

- used for voltage up to 0,6 / 1kV as a direct electrical insulation
- used for voltage up to 18 / 30kV as a component of heads sets
- possibility to use cables of two, three, four and five cores
- abrasion resistant
- resistant to changing weather conditions
- resistant to most chemicals
- resistant to UV radiation
- made of thermally stabilized polymers
- covered on the inside with hot melt glue, providing the additional seal

Characteristics		
Physical	Density	1,05 ± 0,2 g/cm^3
	Tensile strength	13 N/mm^2 (min)
	Elongation at break	400% (min)
	Moisture absorption	0,15% (max)
	Longitudinal shrink	10%
Physical after aging at 120°C for 500 hours	Tensile strength	12 N/mm^2 (min)
	Elongation at break	300% (min)
Electrical	Slope resistivity	$10^{10}\Omega$m (min)
	Dielectric strength	10 kV/mm (min)
	Constant dielectric	5 (max)
Chemical	Corosion	absence
	Resistance to fungus	good

PAL2 two output shrinkable breakout

Symbol	ø main D		ø output d		Overall length P [mm]		The length of a finger F [mm]	The thickness of the TF [mm]
	Min. Ø before Shrinking [mm]	Max. Ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Max. ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Max. ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Dimension after total shrinking ± 20%
PAL2_1,5-25-C/1	30	10	12	4	65-68	87-90	15-17	1
PAL2_25-150-C/1	50	24	21	7	85-88	118-121	25-27	2,5
PAL2_50-185-C/1	90	45	43	15	165-170	185-195	60-65	2,2

PAL3 three output shrinkable breakout

Symbol	ø main D		ø output d		Overall length P [mm]		The length of a finger F [mm]	The thickness of the TF [mm]
	Min. Ø before Shrinking [mm]	Max. Ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Max. ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Max. ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Dimension after total shrinking ± 20%
PAL3_1,5-10-C/1	28	9	9	3	55-53	70-72	15-17	1,8
PAL3_6-35-C/1	35	15	13	4	85-88	100-102	20-23	1,8
PAL3_25-120-C/1	55	23	25	8	130-133	165-177	35-37	2,5
PAL3_50-185-C/1	75	28	35	13	170-173	211-215	43-47	3
PAL3_120-300-C/1	110	35	50	17	180-183	210-220	50-55	3,5
PAL3_240-1000-C/1	170	56	64	28	190-200	225-230	56-60	3,5

PAL4 four output shrinkable breakout

Symbol	ø main D		ø output d		Overall length P [mm]		The length of a finger F [mm]	The thickness of the TF [mm]
	Min. Ø before Shrinking [mm]	Max. Ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Max. ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Max. ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Dimension after total shrinking ± 20%
PAL4_1,5-10-C/1	28	9	8	2	55-58	77-80	15-17	1,7
PAL4_6-35-C/1	35	15	13	4	80-83	102-105	20-23	1,8
PAL4_25-120-C/1	55	23	20	8	130-133	167-170	35-38	3
PAL4_35-185-C/1	70	25	25	8	150-153	186-194	32-35	2,5
PAL4_120-400-C/1	95	36	35	14	170-173	220-222	49-53	3
PAL4_185-530-C/1	117	36	46	14	170-173	220-222	49-53	3

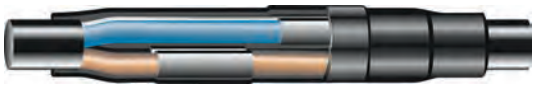
PAL5 five output shrikable breakout

Symbol	ø main D		ø output d		Overall length P [mm]		The length of a finger F [mm]	The thickness of the TF [mm]
	Min. Ø before Shrinking [mm]	Max. Ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Max. ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Max. ø after Shrinking [mm]	Min. ø before Shrinking [mm]	Dimension after total shrinking ± 20%
PAL5_1,5-10-C/1	35	15	20	3	75-80	90-100	19-21	1,8
PAL5_6-35-C/1	50	15	15	4	78-83	95-105	23-25	2
PAL5_25-120-C/1	65	21	20	8	130-133	165-170	35-38	2,3
PAL5_35-185-C/1	70	15	20	13	78-83	95-105	23-25	2

MPT Joints

Joints are used to connect Y/A/KY and Y/A/KXS power cables with voltage 0,6/1 kV.
- insulation of wires repaired using thickened heat shrinkable tubing with an inner layer of hot melt glue
- mechanical protection and external sealing is made of a coating heat shrinkable pipe with glue





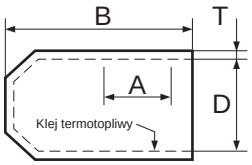
Symbol	Number of veins	Cross-section		The length L [m]
		min	max	
MPT_1-CX1-10-25/1	1	1x10	1x25	0,5
MPT_2-CX1-16-70/1	1	1x16	1x70	0,75
MPT_3-CX1-70-120/1	1	1x70	1x120	1
MPT_4-CX1-120-150/1	1	1x120	1x150	1
MPT_5-CX1-120-300/1	1	1x120	1x300	1
MPT_1-CX4-10-25/1	4	4x10	4x25	0,8
MPT_2-CX4-16-70/1	4	4x16	4x70	0,8
MPT_3-CX4-70-120/1	4	4x70	4x120	0,8
MPT_4-CX4-120-150/1	4	4x120	4x150	1
MPT_5-CX4-120-300/1	4	4x120	5x300	1
MPT_2-CX5-16-70/1	5	5x16	5x70	0,8
MPT_5-CX5-120-300/1	5	5x120	5x300	1

KU Heat shrinkable end cap with glue

Heat shrinkable end cap with glue for insulation and sealing:
- ends of all LV cables type with polymer insulation
- protection of metal and wooden elements (eg ends of columns)
- made of heatshrinkable material
- include a layer of hot melt glue inside



Characteristics		
Physical	Density Moisture absorption Tensile strength Elongation at break Hardness	1.1 ± 0.2 g/cm^3 1% (max) 10 N/mm^2 (min) 300% (min) 45 ± 3 Shore D
Physical after aging at 120°C for 500 hours	Tensile strength Elongation at break	8 N/mm^2 (min) 200% (min)
Electrical	Slope resistivity Dielectric strength Constant dielectric	1010 Ωm (min) 10 kV/mm (min) 5 (max)



Symbol	D ø inner without glue [mm]		Length [mm]		A [mm]	Longitudinal shrink LC [mm]	Wall thickness T [mm]
	E (min) ø before shrinking	S (max) ø after shrinking	E (min) ø before shrinking	S (max) ø after shrinking	E (min)	S	S ± 20%
KU 14-04-35/1	12	4,5	35	30	15	± 10%	1,2
KU 20-08-110/1	20	8	60	55	20	± 10%	3
KU 20-08-60/1	20	8	110	100	35	± 10%	3
KU 24-08-65/1	24	8	60	55	20	± 10%	3
KU 35-15-105/1	35	15	105	95	30	± 10%	3
KU 40-17-105/1	40	17	105	95	35	± 10%	3
KU 60-25-105/1	55	25	150	140	50	± 10%	4

TPVC Electrical tapes









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
- It keeps its characteristics in low temperatures

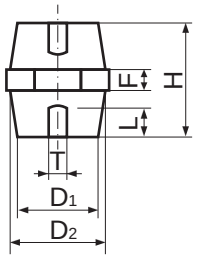
Symbol	Colour	Width [mm]	Lenght [m]	Number of pieces per unit
TPVC 15-10	White	15	10	10 pcs
	Braun	15	10	10 pcs
	Black	15	10	10 pcs
	Red	15	10	10 pcs
	Violet	15	10	10 pcs
	Multi	15	10	10 pcs
	Blue	15	10	10 pcs
	Orange	15	10	10 pcs
	Gray	15	10	10 pcs
	Green	15	10	10 pcs
	Yellow	15	10	10 pcs
	Yellow-Green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

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

*multi include colors: yellow, red, grey, brown, green&yellow, white, blue, green, black and violet

IZW Insulators





Insulators are used to fix mounting rails in cabinets and low voltage electrical devices. Can be used:

- at high ambient temperatures
- in corrosion exposed environments
- in vibration exposed places

Special features:

- material: thermoset polyester
- UL 94 VO flammability class
- threaded brass sleeve

Symbol	D1	D2	H	F	T	L	Tightening torque [Nm]	Nominal voltage [V]	Number of pieces per unit
IZW_25-M6	18	21	25	7	M6	7	7	400	10 pcs
IZW_30-M6	22	28	30	9	M6	9	7	600	10 pcs
IZW_30-M8	22	28	30	9	M8	7	16	600	10 pcs
IZW_35-M6	25	30	35	9	M6	9	7	600	10 pcs
IZW_35-M8	34	38	35	9	M8	11	16	600	10 pcs
IZW_35-M10	34	38	35	9	M10	11	33	600	10 pcs
IZW_40-M6	20	30	40	8	M6	12	7	1000	10 pcs
IZW_40-M8	35	39	40	8	M8	12	16	1000	10 pcs
IZW_40-M10	35	39	40	8	M10	11	33	1000	10 pcs
IZW_50-M10	33	40	50	11	M10	15	33	1200	10 pcs
IZW_75-M10	52	62	75	13	M10	22	40	2000	10 pcs
IZW_75-M12	52	62	75	13	M12	22	60	2000	10 pcs

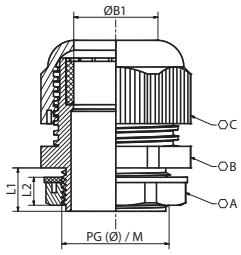
DK Cable glands

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:

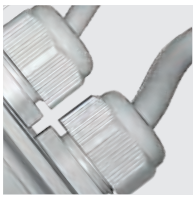
- Material: polyamid PA66
- Working temperature from -40°C up to 100°C
- Protection degree IP68
- Burning flammability class UL94V-2
- Available sizes: PG7-PG48 and M12-M40
- Available in gray (RAL 7035) and black (RAL 9005) colours
- Nut has an integrated anti vibration protection











Symbol	Metric thread	Ø [mm]	Colour	L1 [mm]	L2 [mm]	⬡A [mm]	⬡B [mm]	⬡C [mm]	ØB1 [mm]	Wires range
DK_M-12-C/1 DK_M-12-S/1	M12×1.5	12	black gray	8	4,7	17	15	16	7,5	3-6,5
DK_M-16-C/1 DK_M-16-S/1	M16×1.5	16	black gray	8	5	22	18,5	19	9	4-8
DK_M-20-C/1 DK_M-20-S/1	M20x1.5	20	black gray	9	5	25	23	24	13	6,7-12
DK_M-25-C/1 DK_M-25-S/1	M25×1.5	25	black gray	10	6	30	29	29	17,7	13-16
DK_M-32-C/1 DK_M-32-S/1	M32×1.5	32	black gray	11	6,5	39	37	35	21,8	18,5-21
DK_M-40-C/1 DK_M-40-S/1	M40×1.5	40	black gray	18	7	50	45	45	30	23-32

Symbol	PG thread	Ø [mm]	Colour	L1 [mm]	L2 [mm]	⬡A [mm]	⬡B [mm]	⬡C [mm]	ØB1 [mm]	Wires range
DK_PG-7-C/1 DK_PG-7-S/1	7	12,2	black gray	7,5	4,7	18	15	16	7,5	3-6,5
DK_PG-9-C/1 DK_PG-9-S/1	9	15,3	black gray	8	5	22	18,5	19	9	4-8
DK_PG-11-C/1 DK_PG-11-S/1	11	18,3	black gray	8	5	23	21,5	21,5	11	5-10
DK_PG-13,5-C/1 DK_PG-13,5-S/1	13,5	20,3	black gray	9	5	25	23	24	13	6,7-12
DK_PG-16-C/1 DK_PG-16-S/1	16	22,3	black gray	10	5,5	28	26,5	26,5	15,5	10,2-14
DK_PG-21-C/1 DK_PG-21-S/1	21	28,3	black gray	10	6	35	32,5	32,5	19,5	13-18
DK_PG-29-C/1 DK_PG-29-S/1	29	37	black gray	11	6,5	45	41	41,5	26,8	18,5-25
DK_PG-36-C/1 DK_PG-36-S/1	36	47	black gray	14	7,2	58	51,6	51,3	34,3	23-32
DK_PG-42-C/1 DK_PG-42-S/1	42	53	black gray	14	8	63,7	58,5	58,5	40	32,7-38
DK_PG-48-C/1 DK_PG-48-S/1	48	58,5	black gray	14	8	69	64	64	45	37-44

KKG Cable Trays





The cable trays used to carry electrical installations in control and switchgear cabinets.
Special features:
- base made of PCV-based technopolymer
- self extinguishable (UL 94) flammability class V0
- a perforated bottom made in accordance with DIN 43659
- simple assemble on the rail bottom
- ribs flexibility in trays allows their repeated flexing during installation

Symbol	Dimensions WxH [mm]	Length [m]	Number of pieces per unit
KKG 2540-2	25x40	2	50x2m
KKG 2560-2	25x60	2	35x2m
KKG 4040-2	40x40	2	35x2m
KKG 4060-2	40x60	2	28x2m
KKG 4080-2	40x80	2	20x2m
KKG 6040-2	60x40	2	25x2m
KKG 6060-2	60x60	2	16x2m
KKG 6080-2	60x80	2	16x2m
KKG 8080-2	80x80	2	12x2m
KKG 10080-2	100x80	2	10x2m
KKG 10060-2	100x60	2	10x2m

NCK Shears for cable trays



Shears for cutting plastic panels and cable trays, along full length of blade.
Special features:
- ergonomic handle for even pressure on the blade
- cutting positioner for professional placement of cut material

Cutting length: 110 mm; Tool length: 280 mm; Weight: 520 g







M_KW Driver holster

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



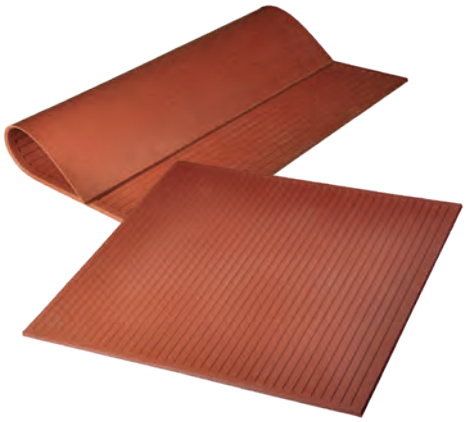
M_KE Tool pouch

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

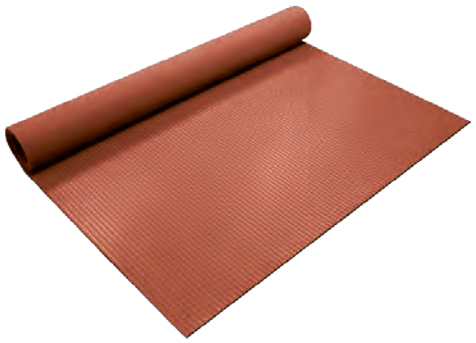


DE 750 Dielectric rug

Used as an additional electro insulating accessory increasing working safety when handling electrical equipment with voltage up to 20kV.
- minimum dielectric strength of 10kV / mm
- thickness 6 mm (of which 2 mm is RYFL slip)
- resistant to tearing and heat aging
- dimensions of 0.75 m x 0.75 m
- chamfered edges at an angle of 45 degrees allow stacking of any surface without the need for additional bonding or fixing
- has an individual production number and certificate of voltage test results



CE 1100 Dielectric rug



Made of high-percentage rubber used for the production of electrical insulation products. Increases working safety when handling electrical equipment with voltage up to 20kV.

- minimum dielectric strength of 10kV / mm
- thickness 6 mm (of which 2 mm is RYFL slip)
- width 1,10m
- lenght from 2m to 8m
- has an individual production number and certificate of voltage test results

KE Dielectric galoshes



Used in combination with the essential equipment increases safety work. Protect against stepping or touching striking voltages.

- accquire certificate of compatibility CSN EN 50321
- used as additional electro insulating accessory during work on the use of devices with voltage up to 1kV
- sampling withstand voltage up to 5 kV
- manufactured from high-percentage rubber, based on natural rubber
- hold voltage tests valid 12 months from the date of production
- from the inside lined with knit fabric that provides better tear strength
- available in two sizes: 45 and 46
- anti-slip sole, height of about 10 cm

PE Dielectric shoes



They protect the user against dangerous flow of electrical currency destruction coming through the feet to the body. Used as additional protective equipment, applied on the inner shoes (safe, protective or professional).

- designed for working with electrical equipment with voltage up to 20V
- labeled with a serial number and date of manufacture (month, year)
- marked with the double triangle (symbol of electrical insulation properties) with the designation of Class 2
- acquires everted cuff improving the protective properties (during the use should be everted on the upper)

ERE Dielectric gloves

Dielectric gloves designed to protect aginst potencial danger, which can cause serious and irreversible injuries (category III).

- meet the requirements of PN-EN 60903:2006 norms, also the extent of the increased resistance of acids, oil and ozone (category R), and far-low temperatures (category C)
- used as protective equipment when working with electricity with voltage up to 1kV
- manufactured from high quality latex
- five finger anatomic form
- flexible and ergonomic
- cooperates perfectly with antiseptic inserts and leather gloves
- available in three sizes: 9, 10, 11
- labeled with individual number and test certificate
- two year warranty
- has CE mark and authorization for use in underground



Type / Characteristics of the gloves		ELSEC 2,5	ELSEC 5	ELSEC 10	ELSEC 20	ELSEC 30
Class of the gloves		00	0	1	2	3
The test voltage, AC, effective value	kV	2,5	5	10	20	30
The minimum operating voltage, AC, rms value	kV	5	10	20	30	40
The maximum operating voltage, AC, rms value	kV	0,5	1,0	7,5	17	26,5
The maximum current leakage, rms value	mA	<12	<12	<14	<16	<18
Maximum thickness of the glove (+0,6mm)	mm	0,5	1,0	1,5	2,3	2,9
Minimum stretching strenght	MPa	16	16	16	16	16
Minimum elongation at rupture	(%)	600	600	600	600	600
Lenght	mm	360	360	360	360	360
Size		9, 10, 11	9, 10, 11	9, 10, 11	9, 10, 11	9, 10, 11
Cuff		Straight	Straight	Straight	Straight	Straight

HZP Protective helmet

The helmet has an integrated protective face shield that provides protection for the head against mechanical shock and splashes. It protects face, eyes and neck from electric threats occurring during work under voltage up to 1000V and protects against the effects of UV radiation.

Helmet parameters:

- made of polyamide
- property to protect against electric shock (Class 0) 1000VAC, 1500 VDC
- amortization ability after conditioning at temperatures (-30°C, + 50°C degrees)
- puncture resistance after conditioning at temperatures (-30°C, + 50°C degrees)
- resistance to lateral deformation
- resistance to splashes of molten metal

The parameters of the cover:

- made of polycarbonate with a thickness of 1.5 mm
- impact resistant of average energy - Impact velocity of 120 m/s ball having a mass of 0.86 g
- protection against drops and liquid splashes
- protection against molten metal and hot solids
- resistant to fogging
- protection against electric arc
- resistance to UV radiation filter code and the level of protection 2-1, 2
- luminance factor scattering of light (optical class 2)
- VLT factor of > 78% (Class 0)
- protection against thermal hazards caused by electric arc (Class 1)



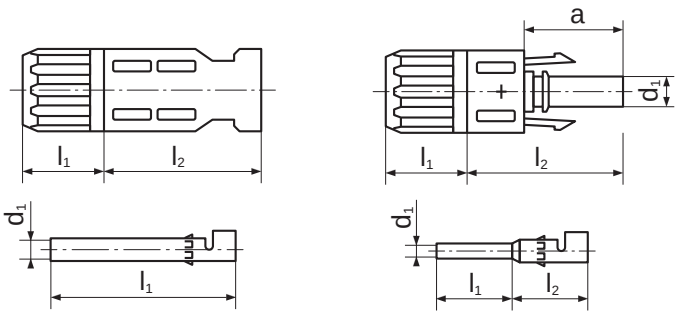
Connectors for photovoltaics

IP65

NEW



Features
- compatible with MC4
- high quality
- easy assembly
- versatility
- ensures tightness for decades of operation
- dedicated for connecting solar batteries, panels, photovoltaic modules, inverters, etc.





KFM_Z



KFT_Z



KFM_P



KFT_P

Symbol	l_1 [mm]	l_2 [mm]	a [mm]	d_1 [mm]
KFM_Z	18,5	36,9		
KFT_Z	18,5	36	22,8	6,8
KFM_P				
KFT_P				

Properties	
Rated voltage	1000V DC
Rated current	30 A
Conductor cross-section	4 ÷ 6 mm²
Installation temperature	-40°C ÷ +85°C
Working temperature	-40°C ÷ +85°C
Material	plastic
Contact material	tinned copper
Flammability class	UL94, V0
IP67	

Dedicated tools



PRF 2,5-6



PRF 2,5-6-P





HOLE PUNCHING TOOLS

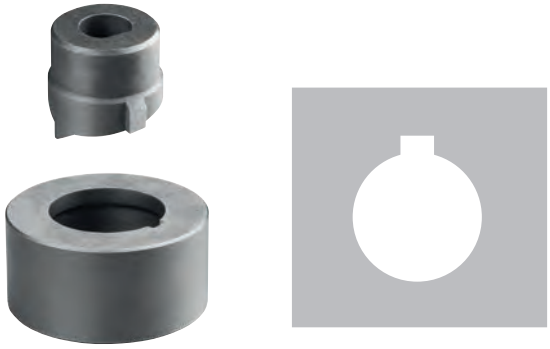
WO Round hole punches



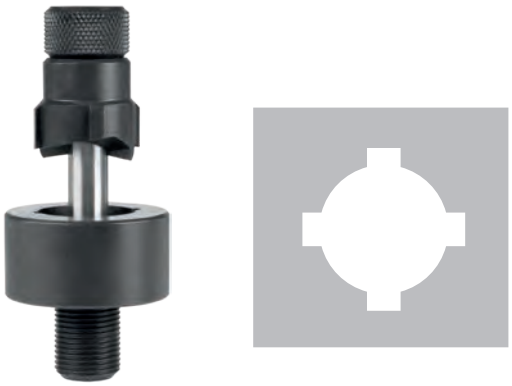
Punches for round hole punching:
- in sheet metal of switchgears, desktops
- for signal lamps, glands, buttons
- maximum sheet metal thickness up to 2 mm (at Rm<450MPa, e.g. type St3S) if using GW or GW_2 heads, maximum sheet metal thickness up to 3 mm
- made of high-strength steel
- increased durability of punching elements and bolt/pin
- up to ø 38,5 mm waste is cut into two parts for easier removal, at larger diameters waste is strongly deformed and therefore easy to remove

WO punches working with hand set, GW, GW 2 hydraulic and battery powered punch EWHE 80, hydraulic punches WHE 80, WH 100, WHP 1.
NOTE: bolt and pin to be ordered separately
For toothed punches use hydraulic drive.

WO toothed round hole punches



np.: WO 22,5-Z



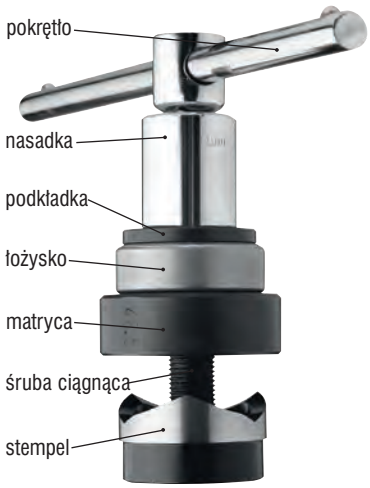
np.: WO 22,5-Z4

Type	Initial hole Ø [mm]	Bolt/ Pin	Washer	Socket	PG	Metric thread	PE	NPT
WO 16,2		M8				M16		
WO 18,6					11			
WO 20,4	10,5	M10	P10	S17	13	M20		
WO 22,5					16			
WO 25,4						M25		
WO 28,5					21		25	
WO 32,5						M32		
WO 37,0					29		34	
WO 40,5						M40		
WO 42,2	16,5	M16	P16	S24				NPT 1 1/4
WO 47,0					36			
WO 50,5						M50		
WO 54,0					42			
WO 60,0					48			

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 (page 66)
- 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 P160
- 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, page 66).
Different diameters up to Ø 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 66).
Different diameters up to Ø 120 mm on request.
Works with hydraulic heads GW and GW 2 and with battery powered punches: EWHE 80, WHE 80, WH 100 and WHP 1
Pins are purchased separately.



WON punch for punching holes in stainless steel sheet metal





Punch for round hole punching:
- in stainless steel sheet metal up to 1,5 mm
- of maximum diameter 28,5 mm
  (battery powered punches: EWHE 80, WHE 80, WH 100 and WHP 1)
- of maximum diameter 32,5 mm
  (battery powered punches: EWHE 80, WHE 80, WH 100)
- up to Ø 60 mm – GW, GW 2 heads (work with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L electric hydraulic drives)

NOTE: WON punches can work only with hydraulic tools.
WON punches have different pins than WO punches (different thread in the stamp), ordered separately.



M8 pin



M10 pin



M16 pin

Type	Hole Ø [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 up to 2 mm (at Rm<450MPa, e.g. type St3S) if using GW or GW_2 heads, maximum sheet metal thickness up to 3 mm
- initial hole diameter 23 mm

Works with GW and GW 2 hydraulic heads and with battery powered punches: EWHE 80, WHE 80, WH 100 and WHP 1.
NOTE: Different dimensions up to 140 x 140 mm 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 Rm<450MPa, e.g. type St3S)

NOTE: for initial hole use WK 26,5.
Works with GW and GW 2 hydraulic heads and with battery powered punches: EWHE 80, WHE 80, WH 100 and WHP 1.



WHP 1 Hydraulic punching tool

Hydraulic punching tool for round, square and rectangular holes:
- maximum steel sheet metal thickness up to 2 mm (at Rm<450MPa, 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




pin M10


pin M16



WHE 80 Hydraulic punching tool







Hydraulic punching tool for punching round, square and rectangular holes.
Thanks to rotatable head it is possible to cut in places of difficult access.
- maximum steel sheet metal thickness up to 2 mm (at Rm<450MPa, e.g. type St3S)
- maximum stainless steel sheet metal thickness 1,5 mm
- Works with punches:
- WO from 12.7 ÷ 80 mm
- WON from 12.7 ÷ 32.5 mm
- WK up to 68.5 x 68.5 mm
- WP

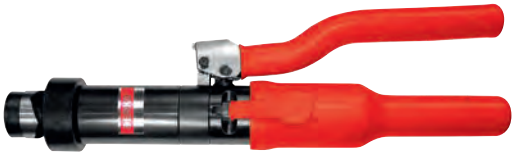
Special features:
- bi-articulated swivel head for cutting holes

Delivered with M10 and M16 pins (not applicable for WON punches).
Length: 400 mm; Weight: 3 kg; Stroke: 16 mm; Force: 36,5 kN


pin M10


pin M16

WH 100 Hydraulic punching tool



Hydraulic punching tool for round, square and rectangular holes:
- maximum steel sheet metal thickness up to 2 mm (at Rm<450MPa, 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


pin M10


pin M16

GW, GW 2 Hydraulic heads



Hydraulic heads for round, square and rectangular holes:
- maximum steel sheet metal thickness up to 3 mm (at Rm<450MPa, 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 hydraulic head i delivered with M10 and M16 pins
(not applicable for WON punches).
Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Force: 83 kN at a pressure of 630 bars


pin M10


pin M16

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

EWHE 80N battery-powered punching tool

NEW

A cordless punching tool for making round, square, and rectangular holes.
The rotating head makes it possible to cut holes in hard-to-reach places.
- max. thickness of steel sheet – 2 mm (at Rm<450 MPa, e.g., grade St3S)
- max. thickness of stainless steel – 1.5 mm

Compatible with punches:
- WO 12.7 ÷ 80 mm
- WON 12.7 ÷ 32.5 mm
- WK (max. size) 92.7 x 92.7 mm
- WP

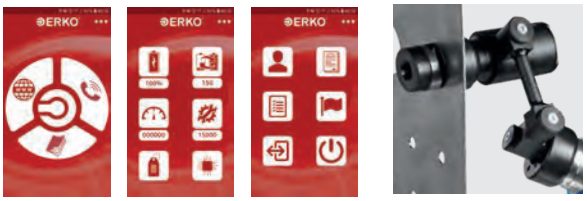
Distinctive features:
- double-jointed, rotating head for cutting holes
- powerful Li-Ion battery
- high efficiency BLDC motor
- automatic circuit-breaker ending the work cycle
- automatic pressure control
- signalling the device status with an LED diode

Thanks to dedicated mobile application, the user receives information about:
- number of cycles performed
- correctness of pressing
- failed calibration
- battery charge status
- remaining cycles until service inspection
- upcoming service inspection

The application enables additional operations:
- quick contact with the manufacturer
- access to pdf catalogue
- access to manufacturer's website

Delivered with M10 and M16 pins for WO punches
(pins for WON punches are ordered separately).
Two batteries included.
Power supply: 18 V Li-Ion battery 2.0 Ah MAKITA
Length: 470 mm; Weight: 3.5 kg without the battery; Pressure: 28 kN





Works with a dedicated mobile application

Mobile application menu

EWHE 80 Battery powered punching tool

Battery powered punching tool for punching round, square and rectangular holes.
Thanks to rotatable head it is possible to cut holes in places with difficult access.
- maximum steel sheet metal thickness up to 2 mm (at Rm<450MPa, e.g. type St3S)
- maximum stainless steel sheet metal thickness 1,5 mm

Works with punches:
- WO from 12.7 ÷ 80 mm
- WON from 12.7 ÷ 32.5 mm
- WK up to 68.5 x 68.5 mm
- WP

Special features:
- bi-articulated swivel head for cutting holes
- efficient lithium-ion battery
- automatic pressure control

Delivered with M10 and M16 pins (not applicable for WON punches).
The kit includes two batteries.
Length: 420 mm Weight: 3 kg. with battery, Working stroke: 16 mm, Force: 50 kN





SW 500 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 ÷ 3 mm (max Rm 370 MPa)
- max stainless steel sheet thickness of 2 mm (max Rm 540 MPa)
- sheet aluminum and plastics 1.5 ÷ 4 mm
- working range (from the edge of the sheet to the axis of the hole) max. 500 mm

Works with punches:
- SW 503 (round) 12.7 ÷ 63.5 mm
- SW 504 (square) 26.5 x 26.5 ÷ 46 x 46

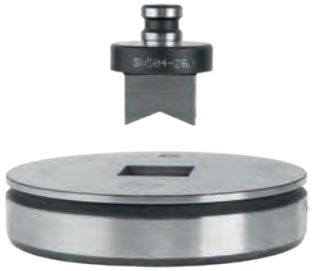
Works with AH 100, AH 500, AH 550 and AH 500L hydraulic units, and for less intensive work with H 800 hydraulic pump.
Dimensions (LxWxH): 1010 x 930 x 1600 mm;
Weight of the station without the equipment: 300 kg;
Pressure: 630 bar; Force: 55 kN.
As standard equipped with hydraulic cylinder as well as matrix socket and the matrix adapter for punches SW 503 and SW 504, and also a laser pointer, a position indicator and length ruler.
As standard station is mounted on a workbench.
NOTE: Support and measuring ruler need be ordered separately.








SW 503



SW 504

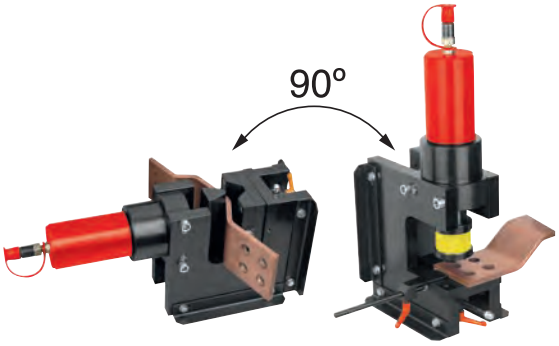
Type	ø hole	PG	Metric	PE
SW 503-12,7	12,7	7		
SW 503-15,2	15,2	9		
SW 503-16,2	16,2			
SW 503-18,6	18,6	11		
SW 503-20,4	20,4	13		
SW 503-22,5	22,5	16		
SW 503-25,4	25,4			
SW 503-28,5	28,5	21	25	
SW 503-32,5	32,5			
SW 503-37,0	37,0	29	34	
SW 503-40,5	40,5			
SW 503-42,2	42,2			NPT 1 1/4
SW 503-47	47,0	36		
SW 503-50,5	50,5			
SW 503-54	54,0	42		
SW 503-60,0	60,0	48		
SW 503-63,5	63,5			

Type	Hole dimensions [mm]
SW 504-26,5	26,5 x 26,5
SW 504-45,6	45,6 x 45,6



BUSBAR AND MOUNTING **RAIL PROCESSING**

HGD 125 Bender – puncher

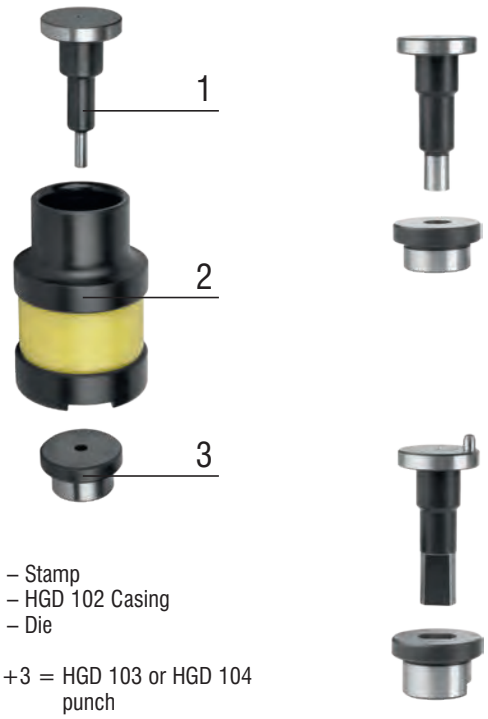


bending hole punching

Bender-puncher for bending Al and Cu busbars as well as hole punching:
- busbar width from 30 ÷ 125 mm
- busbar thickness 5 ÷ 10 mm
- bending angle range up to 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 reapetable bending

Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Dimensions: (LxWxH): 370x260x585 mm; Weight: 42 kg; Force: 190 kN
Pressure: 630 bar

Punch and casing



1 – Stamp
2 – HGD 102 Casing
3 – Die

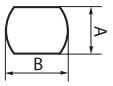
1+3 = HGD 103 or HGD 104 punch

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

NOTE: punches with other sizes made on request.

Standard dimensions of oval hole punches:

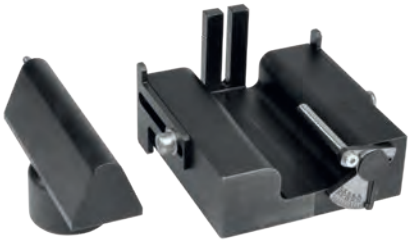


Symbol	Dimension A [mm]	Dimension B [mm]	For M screw
HGD 104 8,5-12	8,5	12	8
HGD 104 11-16	11	16	10
HGD 104 13-18	13	18	12
HGD 104 17-21	17	21	16

HGD 121, 121S bending die



HGD121



HGD121S

Designed for busbar bending. Bending angle range up to 90°.
Set includes stamp and insert die.





HC 125 Busbar cutter

Cutter for cutting Al and Cu busbars:
- busbar width from 30 ÷ 125 mm
- busbar thickness 5 ÷ 12 mm
- cutting without deformation or burr

Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Dimensions: (LxWxH): 310x240x475 mm; Weight: 32 kg; Force: 190 kN
Pressure: 630 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 up to 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
- electric sensor (HGD 105 - limit switch) enables repeatable bending only working with hydraulic unit - need to be ordered separately

Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Dimensions: (LxWxH): 700x250x230 mm; Weight: 49 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 up to 90°

Special features:
- equipped with electric sensor (limit switch) enabling reapetable 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 100, AH 500, AH 550, AH 500L hydraulic units.
Dimensions: (LxWxH): 720x300x190 mm; Weight: 42 kg; Pressure: 380 bar







SH 300 Busbar Processing Station



Station for cutting, hole punching, bending and offsetting Al and Cu busbars as well as inserting nuts:
- width range: 30 ÷ 125 mm
- thickness range 5 ÷ 12 mm
- bending angle range 15° ÷ 90°

Special features:
- equipped with an adjustable bending angle indicator (graduation rate of the resolution is 5°, measurement does not include the elasticity of the busbar)
- equipped with a bumper with scale (adjustment ruler range is 200 mm, accuracy of 1 mm)
- body height adjustment (accuracy of 1 mm)
- burr-free round and oval holes punching
- burr-free busbars cutting
- standard set for inserting nuts SH 307, SH 303

Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units (need to be ordered separately).
Overall dimensions (LxWxH): 550x540x430 mm;
Weight with standard equipment 57 kg;
Force: 150 kN;Pressure: 630 bar



Hole punching
SH 303, SH 304, SH 309



Bending SH 301



Cutting SH 305

Equipment for SH 300 station

Equipment	Type	SH 300
Insert for bending (angle indicator)	SH 301	O
Insert for bending with limit switch	SH 301-K	O
Insert for cutting	SH 305	O
Insert die for busbars offsetting. Standard dimensions 12; 10; 8; 6; 5	SH 306	O
Round hole punch (standard dimensions according to the catalog)	SH 303	O
Adapter for punches SH 303 and SH 304	SH 303-03	O
Oval hole punch (standard dimensions according to the catalog)	SH 304	O
Rectangular hole punch (dimensions according to order: maximum up to 21 mm diagonal, side not shorter than 6,6 mm)	SH 309	O
Insert die for inserting nuts (applies to ERKO nuts, others on request)	SH 307	O

O additional equipment on request

Punches for SH 300 station

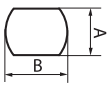




Standard dimensions of round hole punches

Symbol	Hole diameter [mm]	For M screw
SH 303-6,6	6,6	6
SH 303-8,5	8,5	8
SH 303-10,1	10,1	pod nakrętki wciskane
SH 303-11	11	10
SH 303-12,6	12,6	pod nakrętki wciskane
SH 303-13	13	12
SH 303-14,5	14,5	pod nakrętki wciskane
SH 303-17	17	16
SH 303-21	21	20

Standard dimensions of oval hole punches



Symbol	Dimension A [mm]	Dimension B [mm]	For M screw
SH 304 8,5-12	8,5	12	8
SH 304 11-16	11	16	10
SH 304 13-18	18	18	12
SH 304 17-21	21	21	16

SH 400 Busbar processing station

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

- busbar width from 30 ÷ 125 mm
- busbar thickness 5 ÷ 12 mm
- bending angle range up to 90°

Special features:

- equipped with smoothly adjusted bending angle sensor
- equipped with measuring rulers (line ruler)
- 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 (hydraulic hose with quick coupler PM 630 bar)
- standard set for inserting nuts include SH 407 insert and round hole punch SH 403 (need to be ordered separately), chart below

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





Bending SH 401PLC-K.



Hole punching
SH 403, SH 404, SH 409.



Cutting SH 405.



Offsetting SH 406PLC.



Inserting nuts SH 407.

Equipment for SH 400 station

Equipment	Type	SH 400
Insert for repeatable bending (built-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 21 mm, side not shorter than 6,6 mm)	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 ±2°		●
Repeatable offsetting		○

● standard equipment ○ additional equipment on request

Punches for SH 400 station



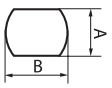


Standard dimensions of round hole punches

Symbol	Hole diameter [mm]	For M screw
SH 403 – 6,6	6,6	6
SH 403 – 8,5	8,5	8
SH 403 – 10,1	10,1	pod nakrętki wciskane
SH 403 – 11	11	10
SH 403 – 12,6	12,6	pod nakrętki wciskane
SH 403 – 13	13	12
SH 403 – 14,5	14,5	pod nakrętki wciskane
SH 403 – 17	17	16
SH 403 – 21	21	20

NOTE: Punches of other dimensions on request

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

SH900PLC busbar processing station



Station for Al and Cu busbars precise cutting, bending, hole punching, inserting nuts, offsetting:
- busbar width from 30 ÷ 125 mm
- busbar thickness 5 ÷ 12 mm
- bending angle range up to 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 0,5°)
- 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 0,5 or 1,2m)
- busbar offsetting repeatability
- additional worktop
- tilt, rotatable touch screen
- equipped with control socket
- equipped with port for ERKO hydraulic heads (hydraulic hose with quick coupler PM 630 bar)
- standard set for inserting nuts include SH 407 insert and round hole punch SH 403 (need to be ordered separately), chart on page 79

Total dimensions: (LxWxH): 1400 x 930 x 1420 mm;
Weight incl. standard equipment: 355 kg; Pressure: 630 bar;
Power: 3 x 400V/230V; 1,4 kW or 1 x 230V

Equipment for SH 900PLC station

Equipment	Type	SH 900 PLC
Insert for precise bending (built-in encoder)	SH 801PLC-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 1020 mm)	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 21 mm, side not shorter than 6,6 mm)	SH 409	○
Insert die for inserting nuts	SH 407	○
Additional busbar support	SH 408	○
Bending with correction (complying busbar flexibility) precision of bending ±0,5°		●
Measurement of height H, precision 0,2 mm		●
Measurement of lenght L, range 0-500 mm, precision 0,1 mm		

● standard equipment ○ additional equipment on request

Punches for SH 900PLC station

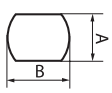




Standard dimensions of round hole punches

Symbol	Hole diameter [mm]	For M screw
SH 403 – 6,6	6,6	6
SH 403 – 8,5	8,5	8
SH 403 – 10,1	10,1	pod nakrętki wciskane
SH 403 – 11	11	10
SH 403 – 12,6	12,6	pod nakrętki wciskane
SH 403 – 13	13	12
SH 403 – 14,5	14,5	pod nakrętki wciskane
SH 403 – 17	17	16
SH 403 – 21	21	20

NOTE: Punches of other dimensions on request



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 of cut busbar 50 ÷ 180 mm
- width range of bent busbar 50 ÷ 200 mm
- thickness range of bent and cut busbar 5 ÷ 15 mm
- bending angle range up to 90°

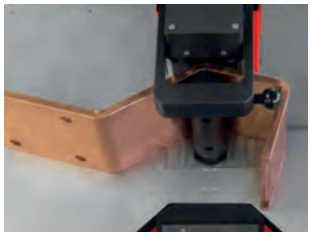
Special features:
- equipped with angle compensation system, consequent to flexibility of bent material
  - standard radius of bending inserts: R5; R8; R10; R12; R15; R20 (other sizes on request after technical consultation)
  - 4 bending inserts can be used with station (3 standard of which 1 included in the price, others paid extra, and 1 non standard custom maid)
- 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 electricity consumption makes the device very economical
- possibility of adjusting the station for individual customers needs

Total dimensions (LxWxH): 1200 x 1230 x 1274 mm;
Weight with standard equipment: 450 kg;
Force 30 kN at a pressure of 400 bar;
Power supply: 3 x 400V / 230V; 1,68 kW





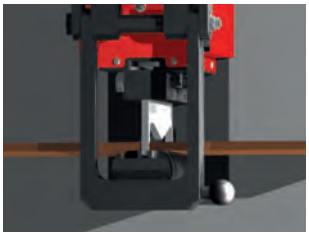
Gięcie HG 201.



Gięcie HG 201.



Gięcie HG 201.



Cięcie HG 205.

Equipment for HG 200 station

For the station below inserts are available:
- cutting insert HG 205
- 3 standard bending inserts HG 201:

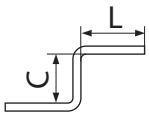
HG 201-G20 insert allows bending busbars of range:
Thickness: 15 ÷ 20 mm
Busbar width: 50 ÷ 150 mm



HG 201-G15 insert allows bending busbars of range:
Thickness: 8 ÷ 15 mm
Busbar width: 50 ÷ 200 mm



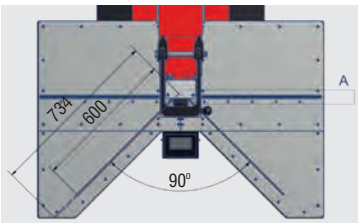
HG 201-G8 insert allows bending busbars of range:
Thickness: 5 ÷ 8 mm
Busbar width: 50 ÷ 200 mm



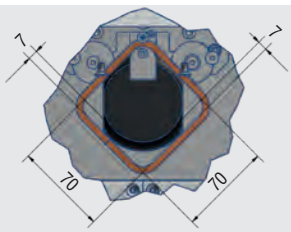
NOTE:
use bending stamp with radius equal to busbar thickness.

Insert	A	B	C	L for C=95 mm	L for C=105 mm
HG 201-G20	65	65	80	95	500
HG 201-G15	45	45	75	95	500
HG 201-G8	40	40	75	95	500

Other inserts on request after technical consultation.



Special worktop shape enables stable bending of long busbars.



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

BPS Intelligent Line

BPS is a group of intelligent busbar processing machines, designed for multi-stage and high-performance shaping of copper, aluminium, and bimetallic busbars.



Our response to the needs of the modern market

The constant strive for improved **efficiency** of modern switchboards sets **higher quality** requirements for the busbars used in them. In response to the market demands, ERKO has designed a new group of intelligent machines for multi-stage and high-performance shaping of busbars. The variety of machines offered in the BPS line enables customization to a company's specific needs in terms of production volume, technological advancement, and complexity of implemented projects.

BPS INTELLIGENT LINE – Why is it worth it?

AT EVERY STAGE OF PRODUCTION
Self-sufficiency and comprehensive range of services.

HIGH PERFORMANCE
Speed of operation and savings in time and money

BPS 1200
see the movie

TECHNOLOGICAL ADVANCEMENT
Ability to implement complex designs

MODERNITY AND FLEXIBILITY
intuitive way of designing and intelligent support of the operator

BPS-P
see the movie

PRECISION AND REPEATABILITY
compliance of the design with the final product and the current requirements

SUPPLIER WITH 40 YEARS OF EXPERIENCE
A trusted and reliable business partner who knows the industry inside out

BS-B
see the movie

Innovative computational algorithm

The group of machines in the BPS product line received an innovative computational algorithm developed especially to enable precise and repeatable processing of busbars. The design of a busbar consisting of holes and multi-stage bending simply involves creating a design for the busbar and then processing it using one of the machines from the BPS product line. The applied computational algorithms guarantee the compliance of the final product with its initial design.

The implemented intelligent algorithm safeguards the operator against design or production of faulty busbars at every stage of the work process. The software informs, among others, about incorrect position of any particular hole from the edge of the busbar and its bends; about spacing between hole; the need to adjust the bend radius to the material properties; or the possibility to make a long oval hole.

With these intelligent functionalities, we can be certain that the busbar meets the requirements of modern switchboards. This solution puts the BPS product line among European machine innovations implemented in the Industry 4.0 system.

Busbar geometry always in line with the design.

Minimising risks and saving material.

Intelligent assistance of the operator.

The intelligent solutions applied in the BPS line of machines support the operator during busbar processing. They supplement the operator's knowledge with information related to construction, technology, and material, and safeguard the operator against production of faulty busbars.

Innovative assistance system of the operator



Main features of the family of BPS machines

Algorithm for shaping busbars allows for identification of constraints of individual materials.

High tolerance and repeatability of the dimensions of manufactured busbars.

Intuitive graphic interface supporting product programming, including the competences and preferences of the operators.

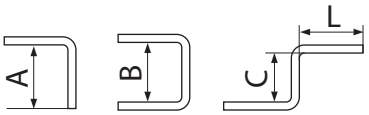
Access to manufacturing-related information (real-time access to performance and process data)

Flexible configuration of the machining socket

BPS 1200 busbar processing station

NEW

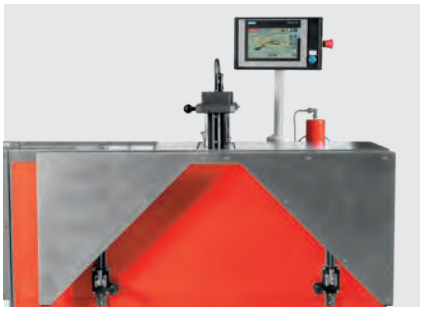




Rys. 1 Rys. 2 Rys. 3

Increasing the speed of the busbar production process by up to 30% compared to the previous generation.





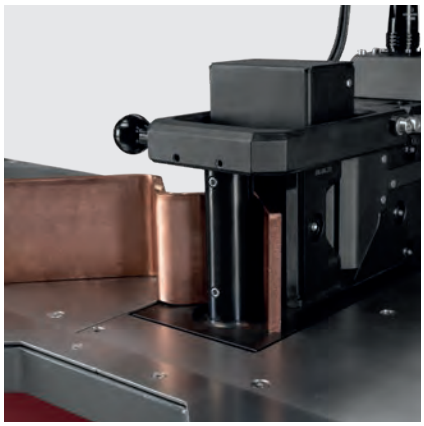
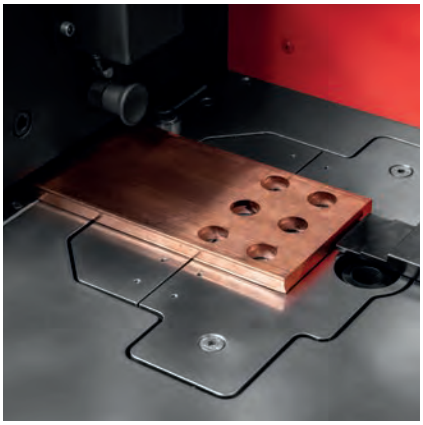


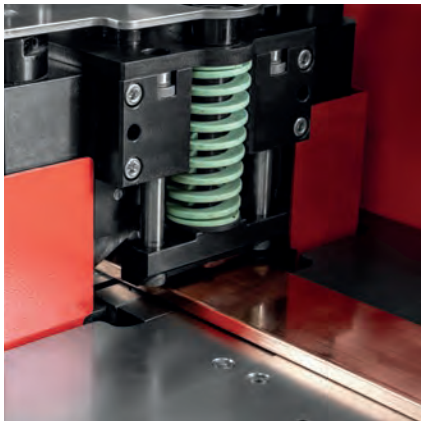
Station for precise cutting, bending, and punching of Al, Cu, and Al-Cu busbars
- busbar width 20 ÷ 125 mm
- busbar thickness 5 ÷ 12 mm
- bending angle (5-90)°

Distinctive features:
- Increasing the speed of the busbar production process by up to 30% compared to the previous generation.
- it works with innovative software for designing busbars
- possibility to use the innovative computational algorithm
- automatic positioning of the measuring ruler during punching, bending, and cutting operations (based on procedures or previously entered data)
- measuring ruler position accuracy 0.1mm for cutting and punching of processed busbars (up to 2 000 mm) and bending (up to 1 600 mm)
- possibility of bending in an "L" shape for busbars up to 10 mm thick at a distance of 40 mm from the edge (fig. 1)
- possibility of bending in a "C" shape for busbars up to 10 mm thick at a distance of 45 mm from the edge (fig. 2)
- possibility of bending in a "Z" shape for busbars up to 10 mm thick at a distance 40 mm from the edge and between the bends the bends (fig. 3)
- bending angle accuracy ± 0.2° with adjustment for busbar elasticity
- guillotine can be hidden under the worktop surface
- automatic controlled press of the cut busbar
- minimum length of cut busbar: 30 mm
- burr-free and no surface deformation busbar cutting
- a movable cassette which allows installing of four punches and eliminates the need for retooling
- burr-free round and oval holes punching
- possibility of saving and recalling busbar processing procedures
- built-in reliable and efficient hydraulic drive
- additional connections for other tools offered by ERKO (hydraulic hose with a PM quick coupler)
- maintained mobility of the machine
- possibility of remote diagnostics

Total dimensions: (LxWxH) 3 800 mm x 2 000 mm x 1 700 mm
Weight with standard equipment 650 kg; Working pressure: 630 bar
Power supply: 3x400/230 V AC; Electric power: 2 kW





Punches for BPS 1200 busbar processing station



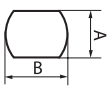
Standard dimensions of round punches:

Type	Ø of the hole [mm]	Under the M screw
BPS 1203 - 5,5	5,5	5
BPS 1203 - 6,6	6,6	6
BPS 1203 - 8,5	8,5	8
BPS 1203 - 11	11	10
BPS 1203 - 13	13	12
BPS 1203 - 17	17	16
BPS 1203 - 21	21	20

ATTENTION: we also make punches of other dimensions on request.



Standard dimensions of oval punches:



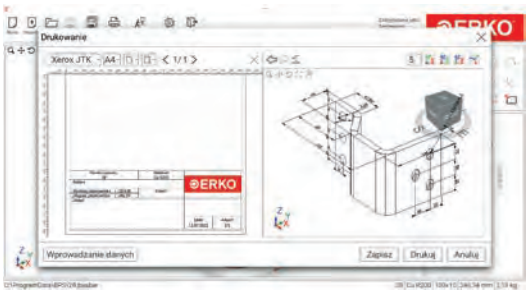
Type	Dimension A [mm]	Dimension B [mm]	Under the M screw
BPS 1204 8,5-12	8,5	12	8
BPS 1204 11-16	11	16	10
BPS 1204 13-18	13	18	12
BPS 1204 17-21	17	21	16

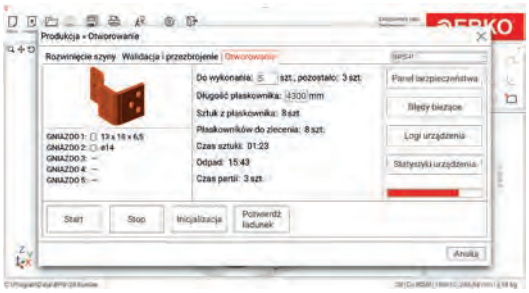
BPS-P busbar processing station

NEW



Direct work of the machine with the innovative algorithm for designing busbars.



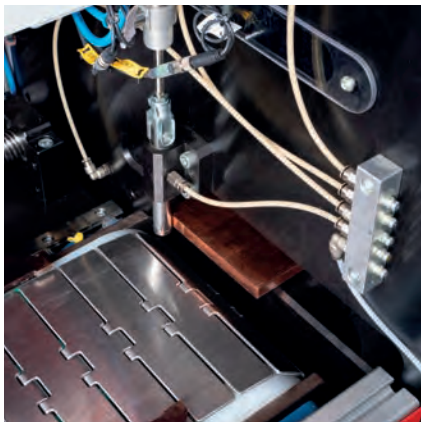
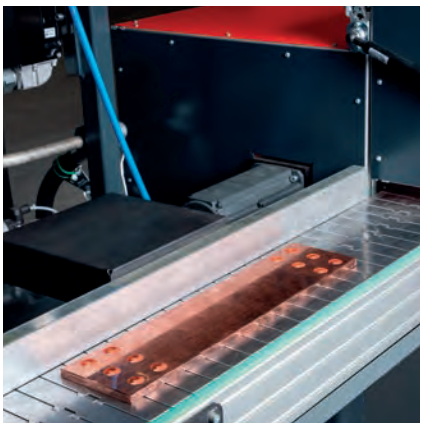


Station for precise cutting, bending, and punching of Al, Cu and Al-Cu busbars
- busbar width 20 ÷ 160 mm
- busbar thickness 3 ÷ 15 mm
- maximum length of the cut busbar: 4 metres

Distinctive features:
- Direct work of the machine with the innovative algorithm for designing busbars
- operator support covers designing, technology, and processed material
- application providing possibility to print the designed busbar in 2D and 3D views
- possibility of adaptation to work in the production line
- control system performing CNC functions
- designing busbars directly on the machine with a 3D visualisation and generating the developed length of a bent busbar
- equipped with a 22-inch operator's touchscreen with the multitouch function
- dedicated to high-performance and precise serial production
- busbar feeding ruler accuracy of the position: 0.1 mm
- movable cassette which allows installing of five punches and eliminates the need for retooling
- burr-free round, oval, and custom-designed holes punching
- minimum length of cut busbar: 25 mm
- burr-free and no surface deformation, single operation busbar cutting
- possibility of saving designs on a network drive
- possibility of using designs developed on desktop software
- possibility of extending the machine with additional machining tools (e.g. custom-made punches)
- remote software update, including material base
- it facilitates use for people with disabilities
- stable, stationary structure
- force of pressure 300 kN

Total dimensions (LxWxH): 7 253 mm x 3 639 mm x 2 000 mm;
Weight with standard equipment 3200 kg with the hydraulic power pack;
Working pressure: 300 bar
Power supply: 3x400/230 V AC; Electric power: 21 kW





Punches for BPS-P busbar processing station



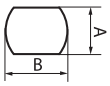
Standard dimensions of round punches:

Type	Ø of the hole [mm]	Under the M screw
BPS-P 103 - 5,5	5,5	5
BPS-P 103 - 6,6	6,6	6
BPS-P 103 - 8,5	8,5	8
BPS-P 103 - 11	11	10
BPS-P 103 - 13	13	12
BPS-P 103 - 17	17	16
BPS-P 103 - 21	21	20

ATTENTION: we also make punches of other dimensions on request.



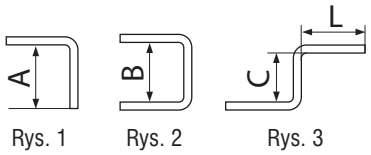
Standard dimensions of oval punches:



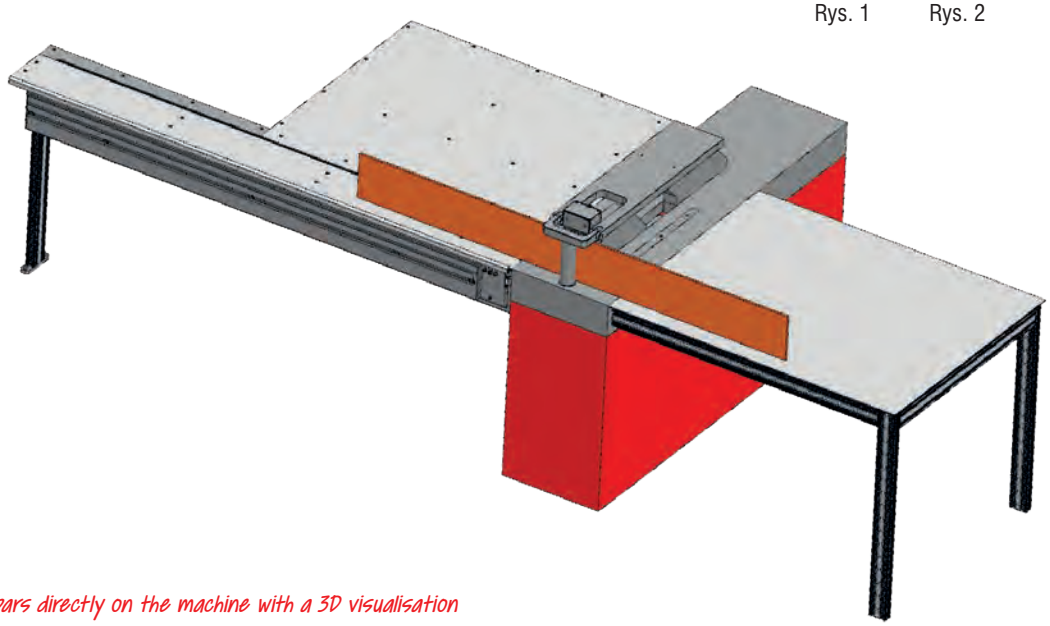
Type	Dimension A [mm]	Dimension B [mm]	Under the M screw
BPS-P 104 8,5-12	8,5	12	8
BPS-P 104 11-16	11	16	10
BPS-P 104 13-18	13	18	12
BPS-P 104 17-21	17	21	16

BPS-B busbar processing station

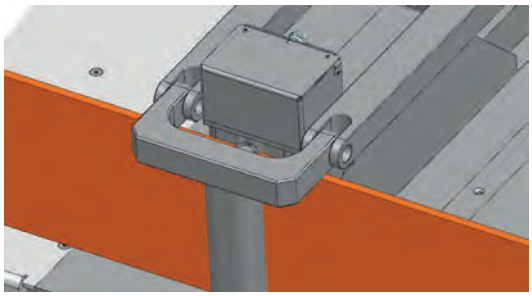
NEW

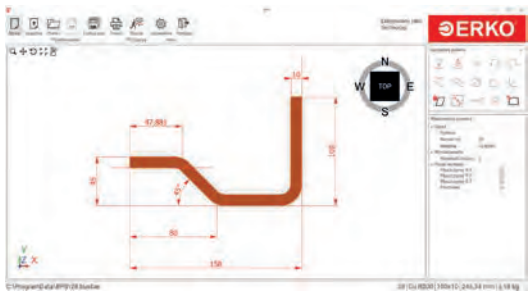


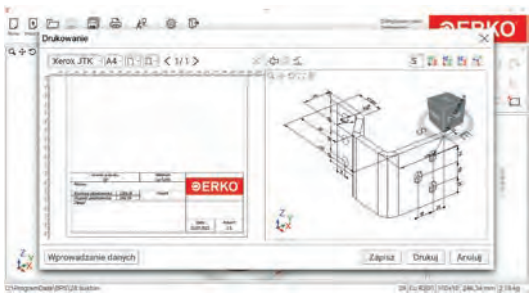
Rys. 1 Rys. 2 Rys. 3



Designing busbars directly on the machine with a 3D visualisation and generating the developed length of a bent busbar.







Station for precise bending of Al, Cu, and Al-Cu busbars (in the design phase)
- 1 busbar width 20 ÷ 200 mm
- 2 busbar thickness 3 ÷ 15 mm
- 3 bending angle 5° ÷ 90°

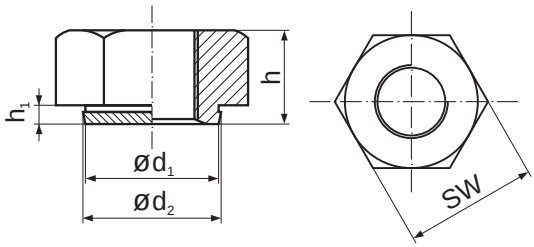
Distinctive features:
- operator support covers designing, technology, and processed material
- application providing possibility to print the designed busbar in 2D and 3D views
- possibility of adaptation to work in the production line
- control system performing CNC functions
- visualisation of the bending process
- Direct work of the machine with the innovative algorithm for designing busbars
- designing busbars directly on the machine with a 3D visualisation and generating the developed length of a bent busbar
- equipped with a 22-inch operator's touchscreen with the multitouch function
- dedicated to high-performance and precise serial production
- busbar feeding ruler accuracy of the position: 0.1 mm
- possibility of bending in an "L" shape for busbars up to 10 mm thick at a distance of 40 mm from the edge (fig. 1)
- possibility of bending in a "C" shape for busbars up to 10 mm thick at a distance of 45 mm from the edge (fig. 2)
- possibility of bending in a "Z" shape for busbars up to 10 mm thick at a distance 40 mm from the edge and between the bends the bends (fig. 3)
- bending angle adjustment to busbar elasticity
- possibility of remote diagnostics
- possibility of saving designs on a network drive
- possibility of using designs developed on desktop software
- possibility of extending the machine with additional machining tools (e.g., custom-made inserts)
- remote software update, including material base
- it facilitates use for people with disabilities
- stable, stationary structure

Coming in 2024.


SIMATIC HMI
TOUCH
RESET

NW Inserting nuts









Inserting nuts:
- made of machining steel 11SMnPb30
- surface hardened
- galvanized
- high standard
- special geometry ensures optimum connection of the inserting nut with construction element

Thread	Sheet thickness [mm]	Hexagon dimension [mm]	d_1 Ø [mm]	d_2 Ø [mm]	Collar height h_1 [mm]	Nut height h [mm]
M8	2	13	10	10,3	1,8	6,5
M10	2	15	12,5	12,85	1,8	8
M12	3	17	14,5	14,85	2,9	10

Attempt to unscrew the nut afther the press in the steel sheet

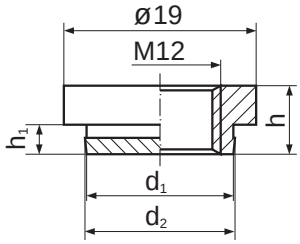
Nut size	M8	M10	M12
The minimum value [Nm.]	24	41	41

Set for inserting nuts (inserting nut + inserting die + hole punch):

Insert type	Punch type	Nut type
SH 307	SH 303-10,1; SH 403-10,1	NW M8
SH 307	SH 303-12,6; SH 403-12,6	NW M10
SH 307	SH 303-14,5; SH 403-14,5	NW M12

NWO Inserting nuts





Inserting nuts:
- made of machining steel 11SMnPb30
- surface hardened
- galvanized
- high standard
- special geometry ensures optimum connection of the inserting nut with construction element

Thread	Sheet thickness [mm]	Ø [mm]	d_1 Ø [mm]	d_2 Ø [mm]	Collar height h_1 [mm]	Nut height h [mm]
M8	3	19	14,5	14,85	2,9	6,8
M10	3	19	14,5	14,85	2,9	6,8
M12	3	19	14,5	14,85	2,9	6,8

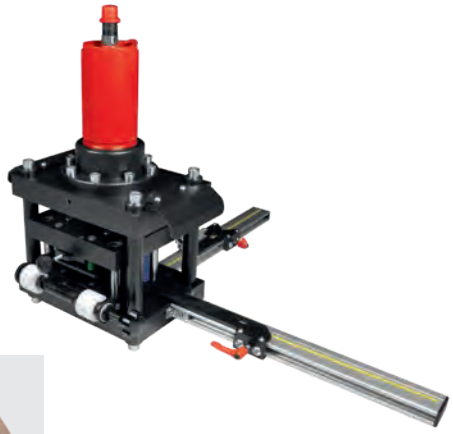
Set for inserting nuts (inserting nut + inserting die + hole punch):

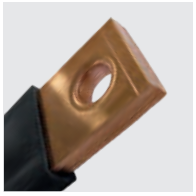
Insert type	Punch type	Nut type
SH 307	SH 303-14,5; SH 403-14,5	NWO M8
SH 307	SH 303-14,5; SH 403-14,5	NWO M10
SH 307	SH 303-14,5; SH 403-14,5	NWO M12

HSE 100 Flexible busbar processing station

Station for hole punching, cutting and initial stripping of flexible busbars:
- busbar width range 30 ÷ 100 mm
- busbar thickness range 4 ÷ 10 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: HSE 105 module for cutting and initial stripping to be ordered separately.
Works with H 800 hydraulic pump and AH 100, AH 500, AH 550, AH 500L hydraulic units.
Dimensions (LxWxH): 490 x 390 x 490 mm; Weight: 32,5 kg; Force: 190 kN
Pressure: 630 bar





Punches for HSE 100 station

Standard dimensions:

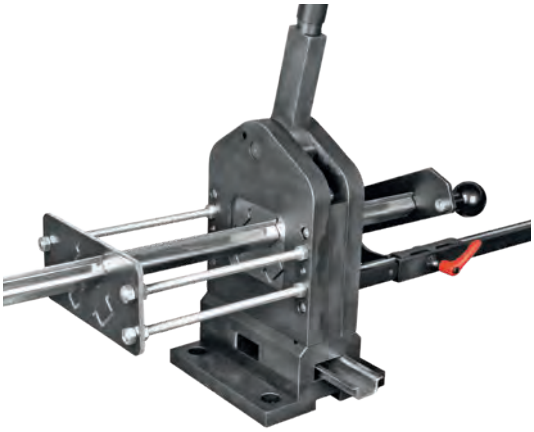
Symbol	Hole diameter [mm]	For M screw
HSE 103 – 6,6	6,6	6
HSE 103 – 8,5	8,5	8
HSE 103 – 11	11	10
HSE 103 – 13	13	12
HSE 103 – 17	17	16
HSE 103 – 21	21	20

NOTE: Punches of other dimensions on request





GLR 6 Mounting rail cutter



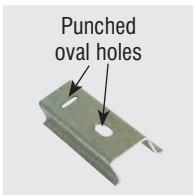
Hand cutter for mounting rails. Optional module for longitudinal and transverse oval holes punching:

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

Dimensions including hole punching modul: (LxWxH): 240 x 160 x 1167 mm;
Weight: 17,5 kg
NOTE: Standard version with included two profiles, additional profiles ordered separately.
Measuring ruler to be ordered separately

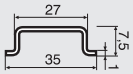
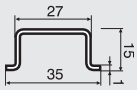
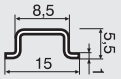
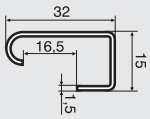
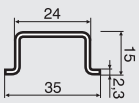








MOUNTING RAILS PROFILES

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
P4		TS 32	PN-EN 60715:2007
P5		TS 35C1	PN-EN 60715:2007
		Other thin-walled profiles: steel, Al, Cu – as agreed	



HYDRAULIC DRIVES

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



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 (lenght 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

AH 100 Hydraulic units



Electric hydraulic power unit:
- equipped with 2,5 m hydraulic hose with PM quick coupler
- works with all ERKO hydraulic heads and devices (equipped with PT quick coupler)
- power supply voltage 24V. The capacity of built-in battery 9 Ah
- efficiency: 0,31 L/min at 630 bar
- IP41 degree of protection
- useful amount of oil: 0,65 l

Dimensions: 415 x 315 x 220 mm; Weight: 20 kg
Includes battery charger.
NOTE: as option AC adapter 230V AC/24V DC with Index AH_100-AC/DC allowing work independently from the battery.

AH 500, AH 550 Hydraulic units



Electric hydraulic power units:
- equipped with hydraulic hose with PM quick coupler
- standard equipped with hydraulic hose (2,5 m) with PM quick coupler, enabling work with all ERKO hydraulic heads and devices with PT quick coupler

Dimensions: 520 x 370 x 690 mm; Weight: 43kg
On request possibility of manufacturing with many pressure ports and other lenght 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.

Special features	AH 500	AH550
power supply voltage	3 x 400V/230V 1 x 230V (for non intensive works)	3 x 400V/230V
power	0,85 kW	1,4 kW
efficiency	0,66 l/min	1,33 l/min

AH 500L Hydraulic units



Electric hydraulic power units:
- equipped with hydraulic hose (2,5 m long) with PM quick coupler
- works with all ERKO hydraulic heads and devices (equipped with PT quick coupler)
- 230V AC 50 Hz power supply voltage
- power 0,75 kW
- efficiency 0,66 dm^3/min
- working temperature -25°C - +40°C

Dimensions: 336 x 235 x 406 mm; Weight: 25 kg



SHARK® TECHNOLOGY



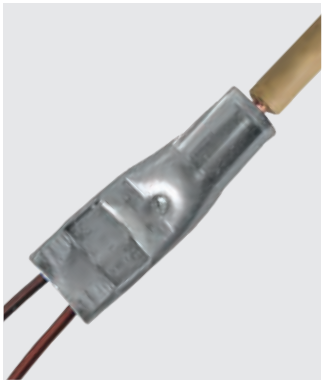


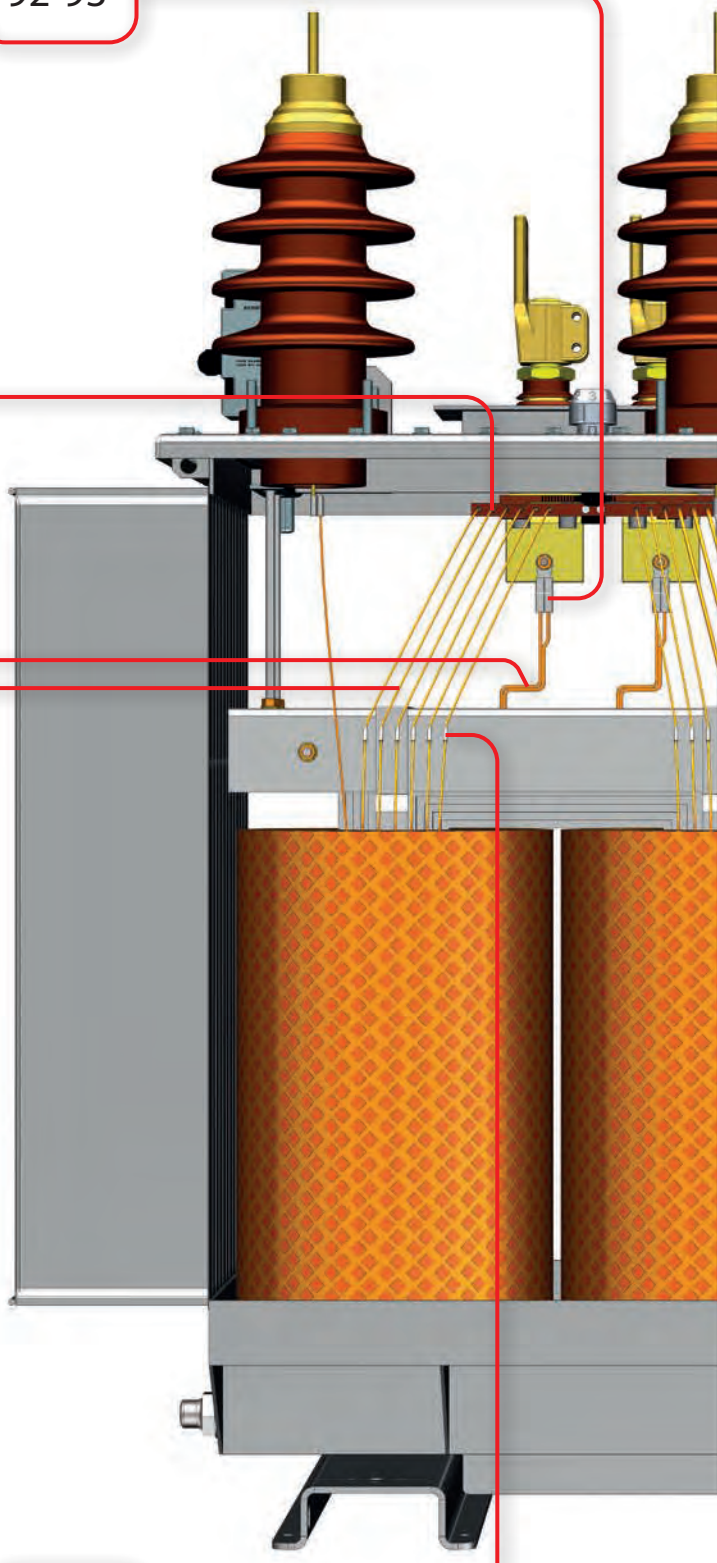


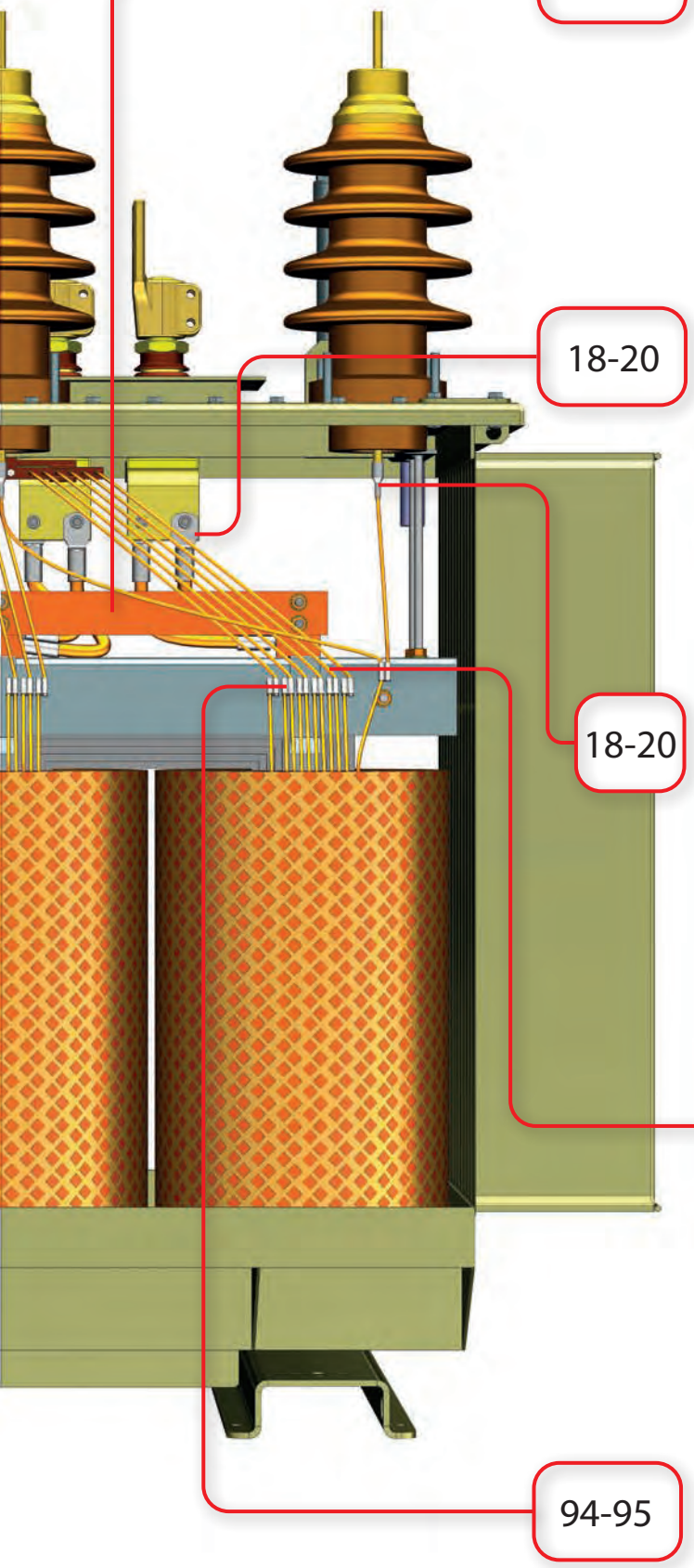




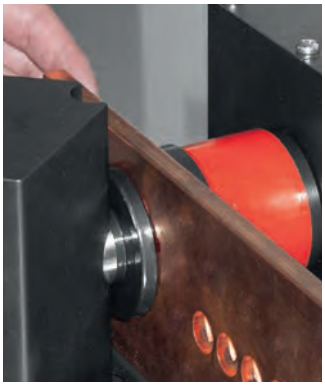





92-93
96
97
96
94-95


71-80
18-20
18-20
96
94-95



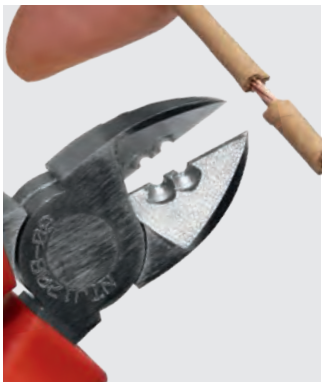





GERKO




GERKO







SHARK connectors

for winding enameled and non-enameled Cu and Al wires

SHARK technology is dedicated to connect winding enameled wires in motors 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 -1 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. In the process of cable isolation, the bale narrows (notch is formed), which leads to a local reduction in cross-section and mechanical weakening of the cable. Using SHARK technology products eliminates this problem, which leads to longer indefectible use of cables and devices, in which connectors and terminals are installed.

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. The ecological and environmental aspects are extremly important. Using Shark terminals and connectors eliminates dangerous waste. Process of connecting wires with insulation or enamels requires using mechanical or chemical methods. Mechanical methods include insulation scrapping which can cause dust and pollution of the working environment. Another method is heathing or soldering insulation using hard solder with addition of silver. It causes pollution of environment by toxic results of this process and also requires service staff to have special permissions. Chemical method consists in dissolving insulation in corrosive substances. Both methods have many technological and environmental disadvantages. Shark technology eliminates all those problems. Thanks to this, there is no dusting of the working environment, permeation into the environment dangerous waste such as enamel and native material. There is also no pollution that is dangerous for the process and further operation of the transformer from the cleaning process. The risk of short circuits during the further operation of the transformer is reduced, which turns info increased indefectible work of the entire network.

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.

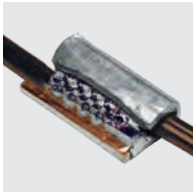
Increased efficiency
All our customers who implemented Shark technology gained a significant increase in performance comparing to previously used technology.

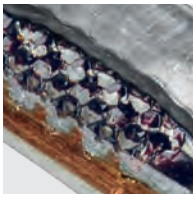
Economical technology
Elimination of preparatory processes, energy consuming soldering process, reduction of stored connectors range, high efficiency of he process makes Shark technology more beneficial than traditional methods. Traditional method of connecting wires requires from operators precise, complicated technology and using tools dedicated to the given wire cross-section (e.g. in case of crimping filled wires).
Making connectios using Shark connectors and terminals guarantee repeatability and effectiveness of the connection. ERKO also offers dedicated and efficient tools enablingsmooth implementation of Shark technology in enterprises.

Universal technology
With one Shark connector 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 cnnection solution of any presently used by customer. Enamelled insulated copper or aluminum wires can be connected. Connectors can be used for connecting profile and round wires. Shark connectors can be also used (with observance of the erelvant rules) for connectins single-strand wires without insulation and multi-strand wires withoud insulation. After making connection with terminals and connectors, connector's teeth bithe through the insulation and stick into the core of the connected wire. This way we receive electrical and mechanical permanent connection.

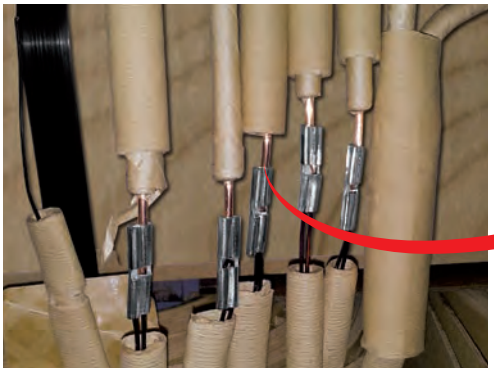
Possibility to adapt connectors to customer needs.







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.





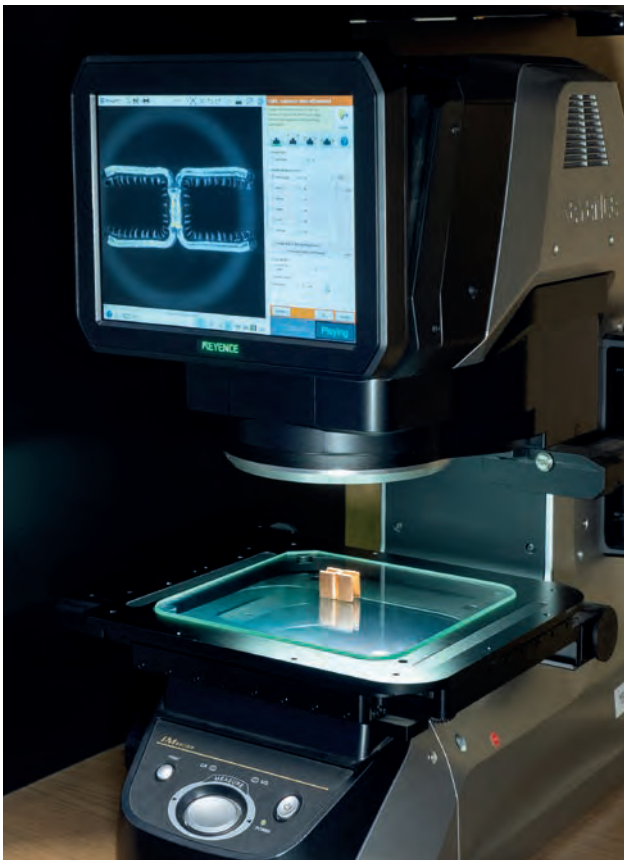
Tests

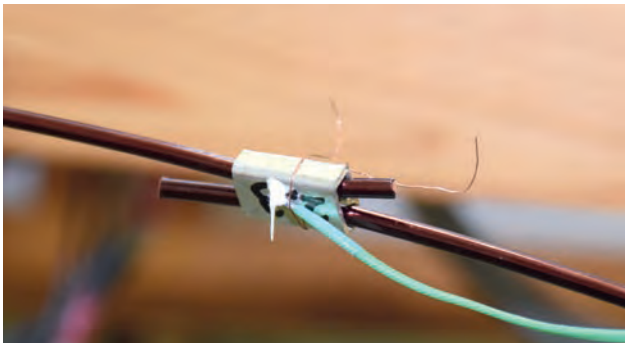
On request, we make tests to assess SHARK effectiveness of connectors and tools used to make a connection. The tests are based on PN-EN 61238-1: 2004 standard.

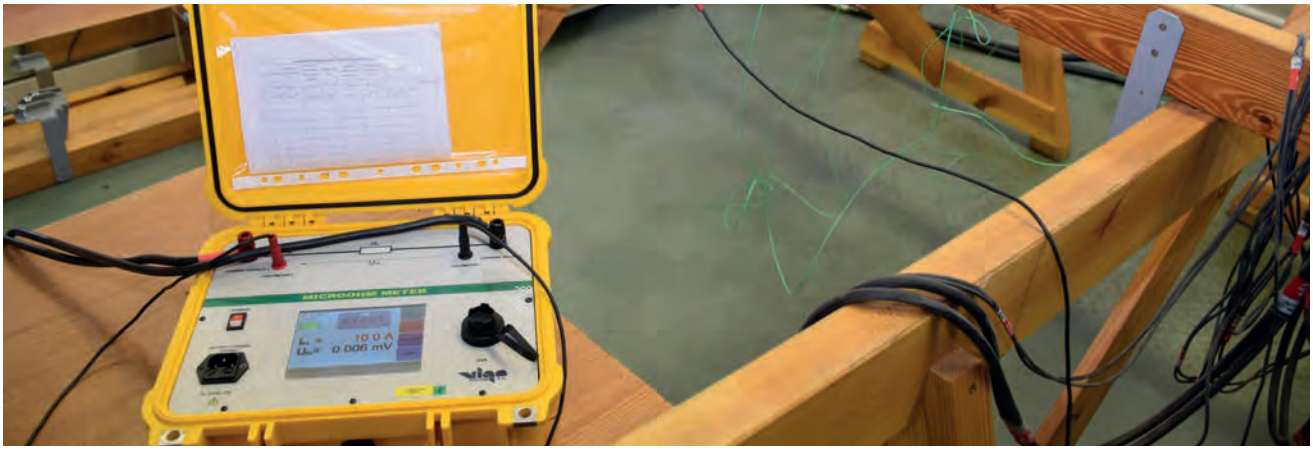
During the tests, are the following assumptions:

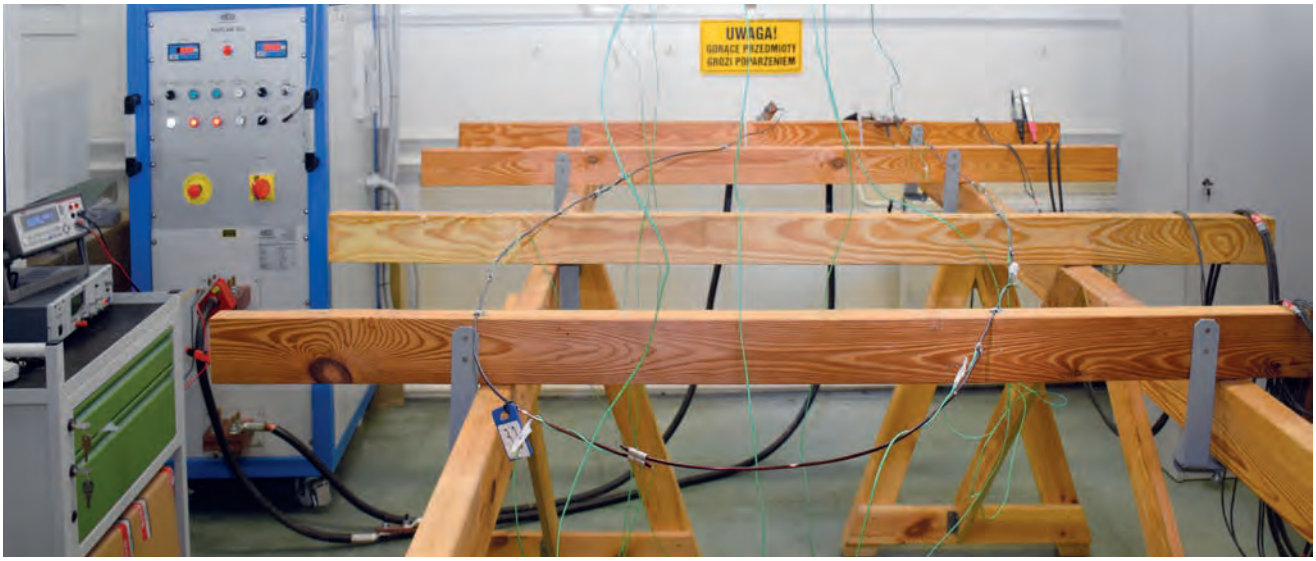
- the connector can not introduce additional resistance to the circuit research
- in the process of heating cyclic joints, the temperature does not exceed a temperature of conductor where they are installed.

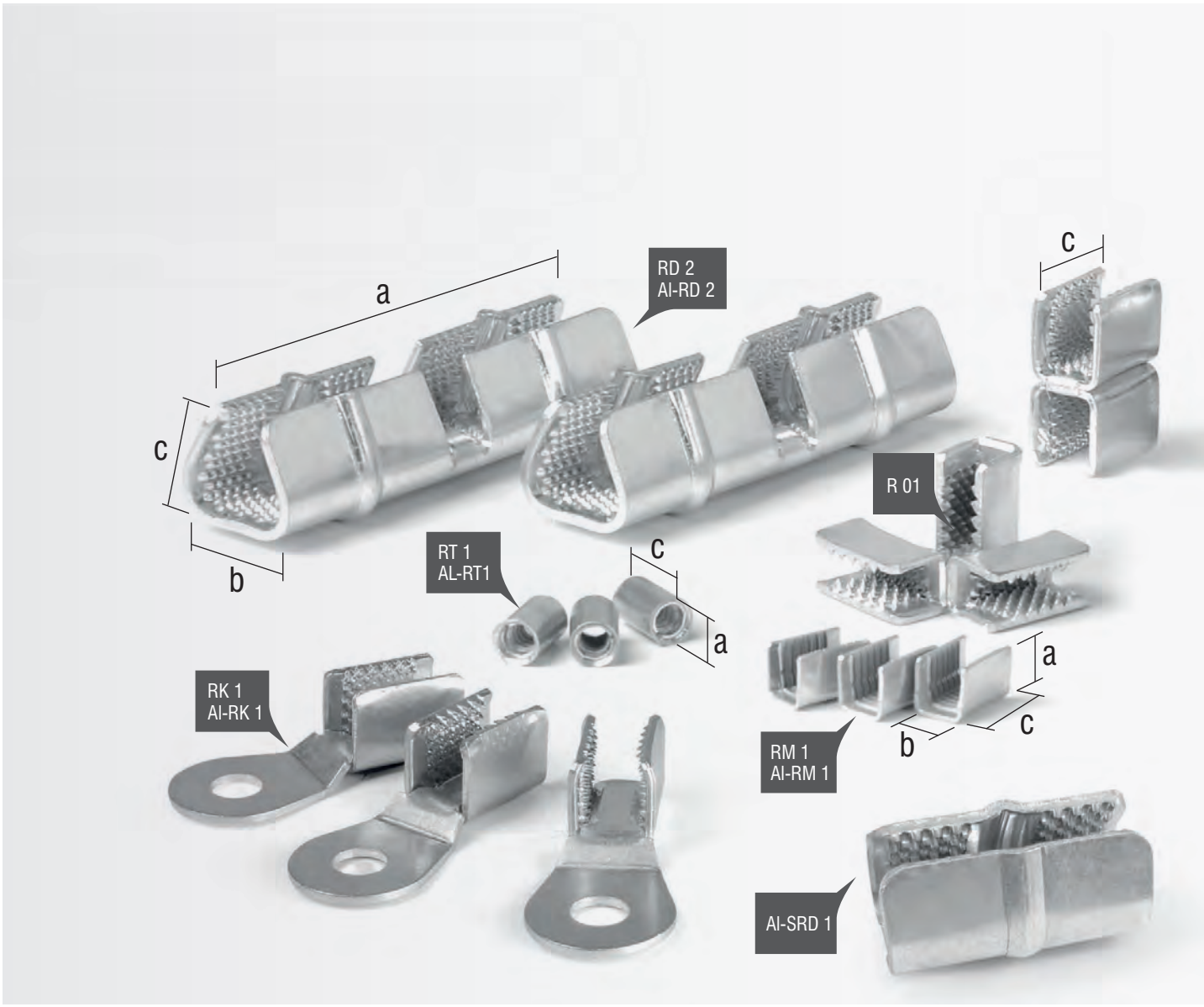
In order to carry out the tests, we perform the so-called test chain.
It is created by a series connection of identical sections guide with the tested SHARK connectors. The lengths of wires linking the individual connectors are strictly defined in the PN-EN 61238-1: 2004standard.







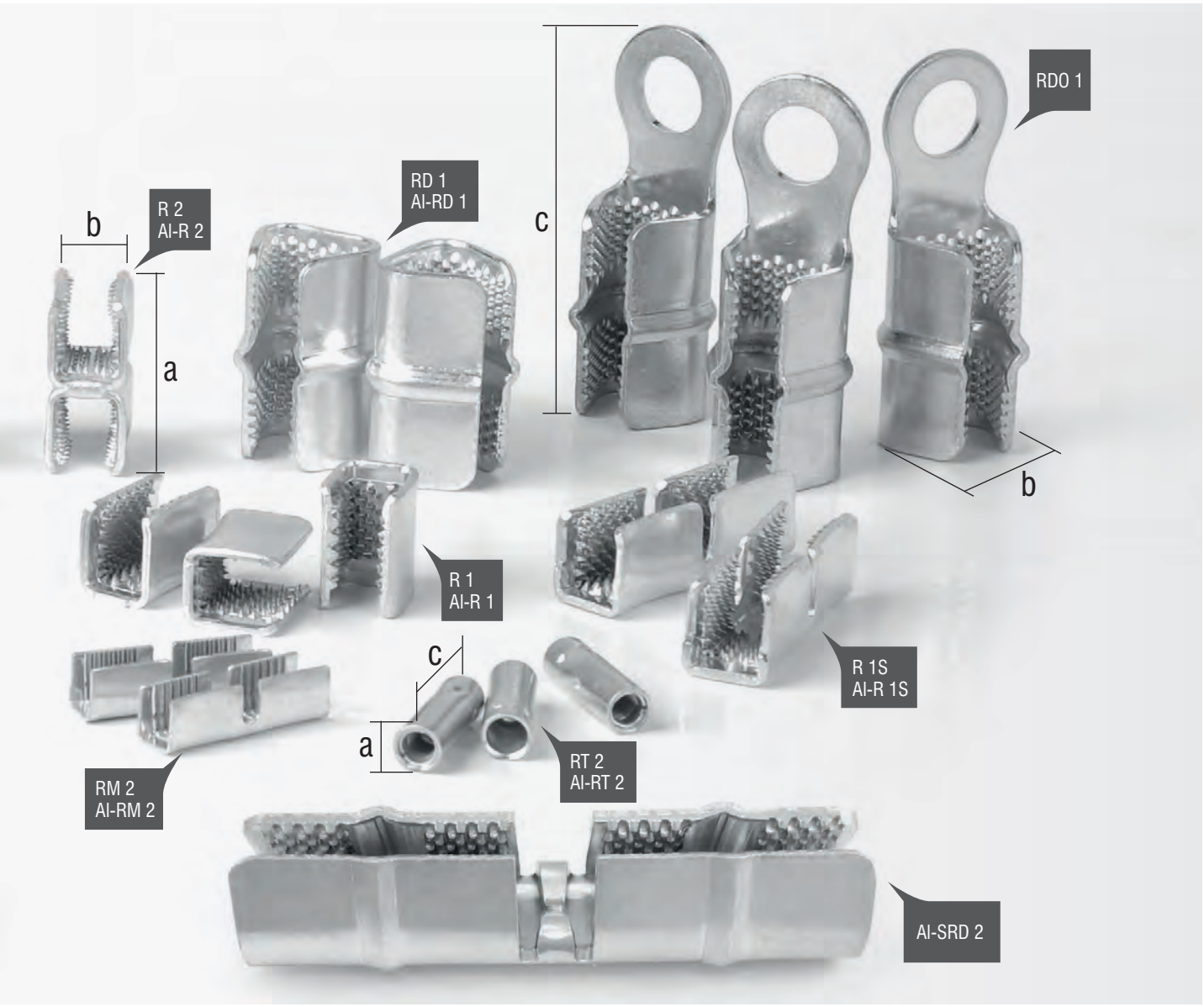




Recommended for Cu wires

Connector type	Round wires Diameters range [mm]		Rectangular wires range [mm]				Total cross section [mm²]	Connector's dimensions [mm]			Crimping tool
			Thicknes		Width						
	Ømin	Ømax	min	max	min	max		a	b	c	
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	Al_GRM 1, Al_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	Al_GR 1
R 1	1,5	5	2	4,1	2	7,1	26,6	14,5	13	19,5	
RK 1**	1,5	4	2	4,1	2	7,1	26,6	14,5	13	49	
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	
RDO 1			2,15*	4	5*	14,5	25-65	19	23,5	65,5	Al_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
** hole for M8, M10, M12 screw



Recommended for Al wires

Connector type	Round wires Diameters range [mm]		Rectangular wires range [mm]				Total cross section [mm²]	Connector's dimensions [mm]			Crimping tool
			Thicknes		Width						
	Ømin	Ømax	min	max	min	max		a	b	c	
Al-RT 1	1	1,5	-	-	-	-	4,5	Ø8,5	-	11	GRT 1, EGRT 1
Al-RT 2	1	1,9	-	-	-	-	2x4,5	Ø8,5	-	22	
Al-RM 1	0,8	2,2	-	-	-	-	7,6	8	9	12,5	Al_GRM, Al_EGRM 1
Al-RM 2	1	2,2	-	-	-	-	2x7,6	8	9	28	
Al-R 1	1,5	4	2	4	3,5	8,2	30	14,5	14	19,5	Al_GR
Al-R 1S	1,5	4	2	4	3,5	8,2	2x32	14,5	14	42	
Al-R 2	1,5	4	2	4	3,5	8,2	2x32	29	14	19,5	
Al-RK 1**	1,5	4	2	4,1	2	7,1	26,6	14,5	14	49	
Al-SRD 1	2,65	4	2	4	4	10	40	19,5	17	36,5	Al_GRD
Al-SRD 2	2,65	4	2	4	4	10	2x40	19,5	17	81,5	
Al-RD 1	2,65	4	2	4	4	14,5	40	19	23,5	36,5	
Al-RD 2	2,65	4	2	4	4	14,5	2x40	19	23,5	81,5	
RDO 1			3,15	4	5	14,5	25-65	19	23,5	65,5	

** hole for M8, M10, M12 screw

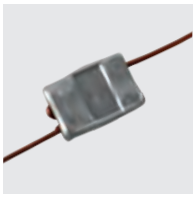
GRT 1 Hydraulic head



Head for SHARK connectors:
- RT 1, RT 2
- on winding enameled and non-enameled wires
- equipped with SRT dies
- PRT quick coupler

Length: 330 mm; Weight: 2,7 kg





Form of crimping on wire.

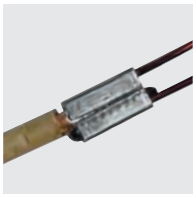
GRM 1 Hydraulic head



Head for SHARK connectors:
- RM 1, RM 2
- on winding enameled and non-enameled wires
- equipped with SRM dies
- ZT quick coupler

Length : 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

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





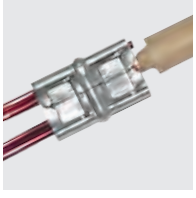
Form of crimping on wire.

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

Length: 420 mm; Weight: 18,5 kg





Form of crimping on wire.

EGRT battery powered hydraulic press

NEW

Electro-hydraulic press for SHARK® connectors:
- RT 1, RT 2, Al-RT 1, Al-RT 2
- pressed on enamelled and non-insulated winding wires
- equipped with SRT pressing dies

Distinctive features:
- battery operation with a powerful Li-Ion battery
- automatic return after maximum pressure is reached
- automatic circuit-breaker ending the work cycle after completed pressing
- correct pressing signalled with a green diode, incorrect - red diode

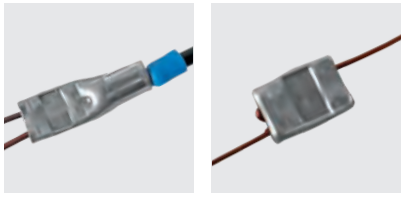
Thanks to dedicated mobile application, the user receives information about:
- number of cycles performed
- correctness of pressing
- failed calibration
- battery charge status
- remaining cycles until service inspection
- upcoming service inspection

The application enables additional operations:
- quick contact with the manufacturer
- access to pdf catalogue
- access to manufacturer's website

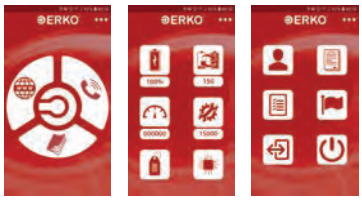
Two batteries and a charger included.
Length: 481 mm; Weight: 3.5 kg



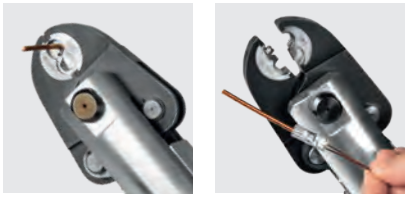
Works with a dedicated mobile application



Type of connector pressing on the conductor



Mobile application menu



EGRM battery powered hydraulic press

NEW

Electro-hydraulic press for SHARK® connectors:
- RM 1, RM 2, Al-RM 1, Al-RM 2
- pressed on enamelled and non-insulated winding wires
- equipped with SRM pressing dies

Distinctive features:
- battery operation with a powerful Li-Ion battery
- automatic return after maximum pressure is reached
- automatic circuit-breaker ending the work cycle after completed pressing
- correct pressing signalled with a green diode, incorrect - red diode

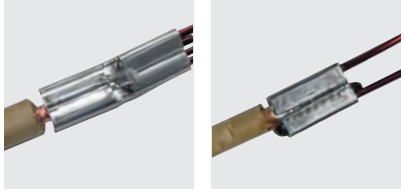
Thanks to dedicated mobile application, the user receives information about:
- number of cycles performed
- correctness of pressing
- failed calibration
- battery charge status
- remaining cycles until service inspection
- upcoming service inspection

The application enables additional operations:
- quick contact with the manufacturer
- access to pdf catalogue
- access to manufacturer's website

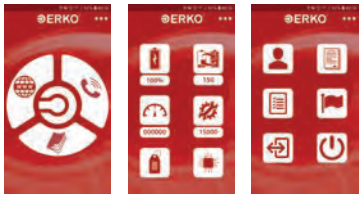
Two batteries and a charger included.
Length: 446 mm; Weight: 3.4 kg



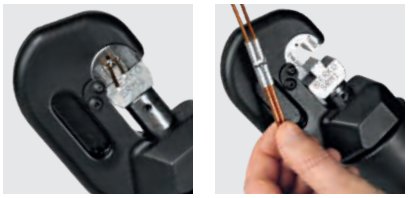
Works with a dedicated mobile application



Type of connector pressing on the conductor



Mobile application menu



SIPD and SIPL paper insulation shears

1000 V



SIPD paper insulation shears for solid wire and SIPL for stranded wire
- soft wire diameter up to 2 mm
- wire stripping diameters up to 3 mm (diameter must be specified in the order)

Distinctive features:
- blades hardness approx. 60 HRC
- long term use also during intensive work
- material: chrome-vanadium
- non-sparking, anti-slip, two-component insulated grips with elastomer insert

IMPORTANT: The shears are made only to order. Please specify the diameter of the stripped wire and the type of wire in the order.
Length: 160 mm; Weight: 220 g





PRPL and PRPD hand presses for transformer switches



Hand presses for crimping sleeves on transformer switches.
PRPL 2.5
- sleeve diameter: inner 3 mm, outer 5
- a copper strand made of 7 wires with a diameter of 0.65 mm each

PRPD 3
- sleeve diameter: inner 3 mm, outer 5
- diameter of copper wire 3 mm

PRPD 5
- sleeve diameter: inner 3 mm, outer 7 mm
- diameter of copper wire 5 mm







EPPL 2,5, EPPD 3, EPPD 5 battery powered hydraulic presses for transformer switches

NEW



Electro-hydraulic presses designed for pressing sleeves on transformer switches
EPPL 2.5
- sleeve diameter: inner 3 mm, outer 5
- a copper strand made of 7 wires with a diameter of 0.65 mm each

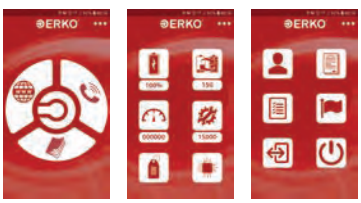
EPPD 3
- sleeve diameter: inner 3 mm, outer 5
- diameter of copper wire 3 mm

EPPD 5
- sleeve diameter: inner 3 mm, outer 7 mm
- diameter of copper wire 5 mm

Distinctive features:
- battery operation with a powerful Li-Ion battery
- automatic return after maximum pressure is reached
- automatic circuit-breaker ending the work cycle after completed pressing

Length: 482 mm; Weight: 3.6 kg

Works with a dedicated mobile application



Mobile application menu







EGPP Battery powered bender

NEW

Battery powered bender for aluminium and cooper rectangular wires.
- (Thickness) x (width) in the range (2 ÷ 5.5 mm) x (3 ÷ 12 mm)
- max. cross section 63 mm²

Special features:
- efficient Li-Ion battery
- automatic retraction when maximum pressure is achieved
- automatic off switch ending operation cycle after a proper crimping is complete
- electronic record of operation cycle – data transfer via USB

2 batteries and charger provided with set.
Length: 402 mm; Weight: 2,6 kg

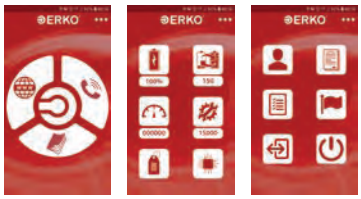
Works with a dedicated mobile application











Mobile application menu

EWPB battery powered punching tool

NEW

Battery powered punching tool for aluminium and cooper bundle of sheet metal
- width of the bundle of sheet metal 30 ÷ 55 mm
- punching holes with a diameter of 6.5 ÷ 13 mm

Size range of bundle of aluminium sheet
- thickness of a single sheet metal 0,3 ÷ 0,5 mm
- number of sheets bundled 3 ÷ 8 pieces

Size range of bundle of copper sheet
- thickness of a single sheet metal 0,3 ÷ 0,4 mm
- number of sheets bundled 3 ÷ 8 pieces

Special features:
- efficient Li-Ion battery
- automatic retraction when maximum pressure is achieved
- automatic off switch ending operation cycle after a proper crimping is complete
- electronic record of operation cycle – data transfer via USB

2 batteries and charger provided with set.
Length: 420 mm; Weight: 4,4 kg

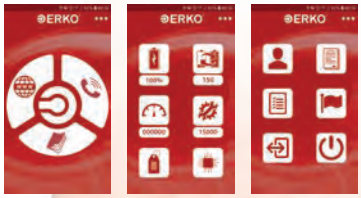
Works with a dedicated mobile application



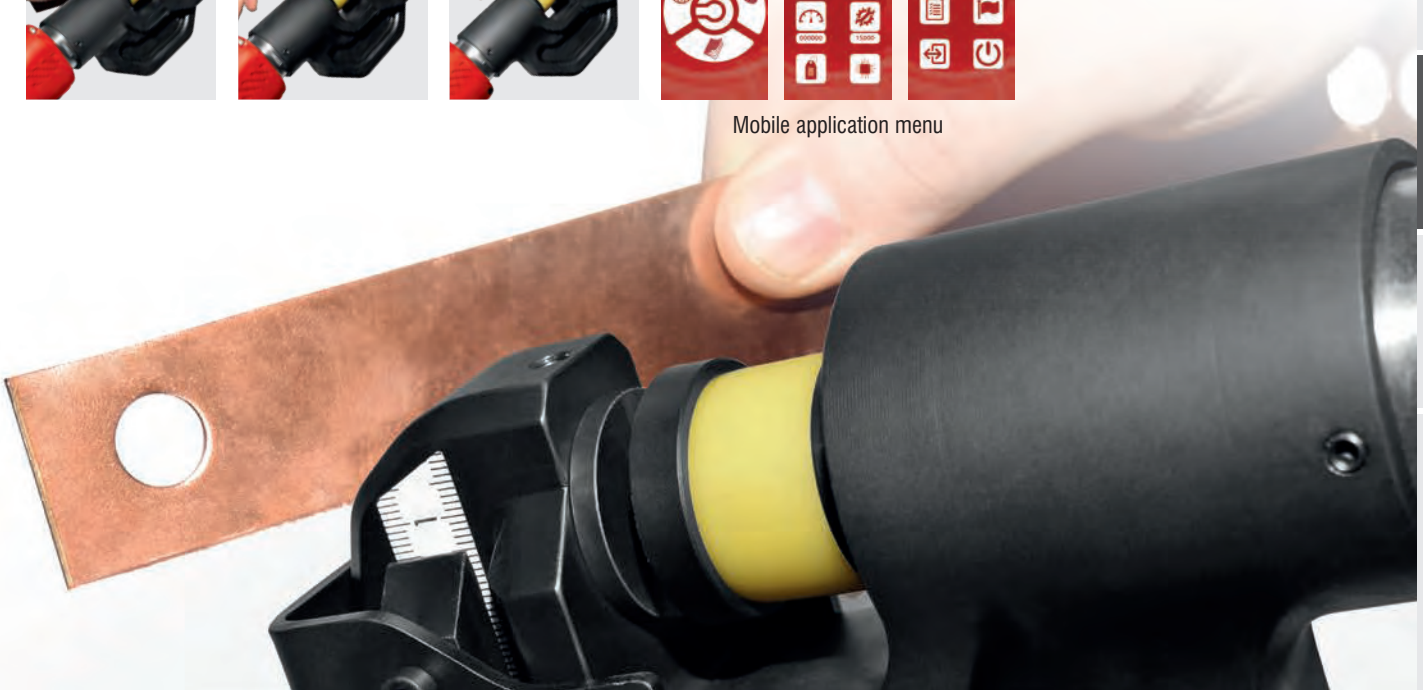








Mobile application menu



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



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

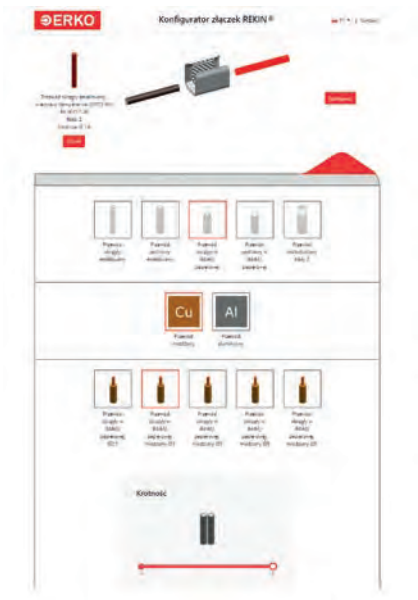
Electric hydraulic power unit:
- pressure: 200 ÷650 bar
- power supply voltage: 3 x 400 V/230 V (sequence of phases unimportant)
- power: 1,1 kW
- efficiency: 0,66 ÷ 1,33 l/m
- works with hydraulic heads GR 1, GRM 1, GRT 1, GRD 1
- equipped with hydraulic hose
- quick coupler: PM for GR 1 and GRD 1, ZM for GRM 1, PRM for GRT 1
- 2,5m long hydraulic hose

Configurations of integrated workstations in SHARK technology



The head extension arm with GR 1, GRT 1, GRM 1, or GRD 1 hydraulic head and a matching hydraulic unit make a complete integrated workplace.

Connection configurator



The connection configurator provides information on possibilities offered by the SHARK technology and how to make a correct pressing. We use the configurator to define the characteristics of wires to be connected on both sides. As a result, we receive information about the connector dedicated to that defined connection and detailed information on how to make a correct pressing.

See the configurator
https://rekin.erko.pl/

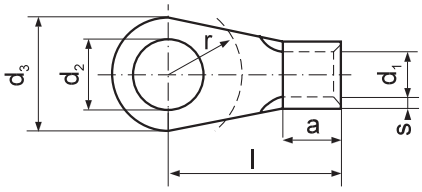


CABLE **TERMINALS AND CONNECTORS**

KOA Ring terminal

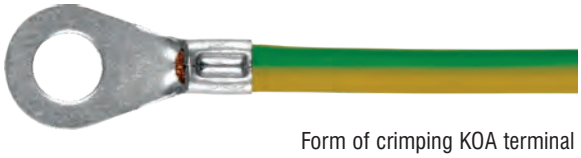
for multi-wire Cu cables





Without insulation
Material: galvanically tinned copper
According to DIN 46234

Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [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		
	4	4,3	KOA 4-0,5			6,5	12		6	0,40		
	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		
1,5 ÷ 2,5	3	3,2	KOA 3-2,5	0,8	2,3	6	11	5	4,5	0,60	100	PR33
	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		
	16	17	KOA 16-2,5 *			22	21		17	1,90		
4 ÷ 6	4	4,3	KOA 4-6	1	3,6	8	14	6	6	1,30	100	
	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	EPZC300N EPZ300N GZ300 HRZ300 PRZ240
	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		
	8	8,5	KOA 8-16			14	22		10	4,10		
	10	11	KOA 10-16			18	24		12	5,00		
	12	13	KOA 12-16			22	26		13	5,85		



Form of crimping KOA terminal

Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [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	
	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	
	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	
	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		EPZC300N EPZ300N GZ300 HRZ300 PRZ240
	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	
	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	
	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	
	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		

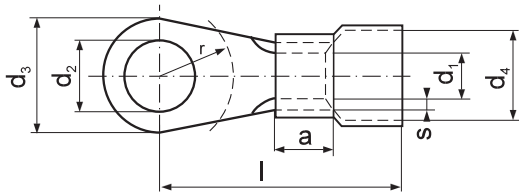
*– outside DIN standard

**– tubular part not soldered

KOE Ring terminal

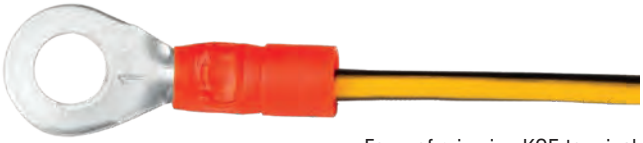
for multi-wire Cu cables





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

Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	d_4 [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	
	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	
	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
	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		
	12	13	KOE 12-2,5 *			18		25		13	1,70		
	16	17	KOE 16-2,5 *			22		26		16	1,95		
4 ÷ 6	4	4,3	KOE 4-6	1	3,6	8	7	20	6	6	1,73	100	
	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	
	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		EPZC300N
16	5	5,5	KOE 5-16	1,2	5,8	11	9,7	30	10	7,5	4,60	100	EPZ300N
	6	6,5	KOE 6-16			11		30		7,5	4,60		GZ300
	8	8,5	KOE 8-16			14		32		10	4,90		HRZ300
	10	11	KOE 10-16			18		34		12	5,32		PRZ240
	12	13	KOE 12-16			22		36		13	6,65		
25	6	6,5	KOE 6-25	1,5	7,5	12	12	36	11	7,5	8,20	50	
	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 [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	d_4 [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	
	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	
	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	EPZC300N EPZ300N GZ300 HRZ300 PRZ240
	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	
	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	24,5	60	22	12	29,80	20	
	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.

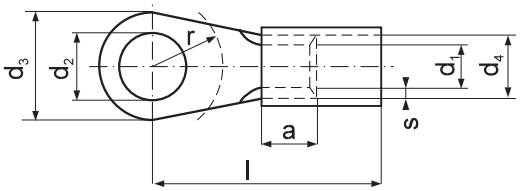
VO class insulation on request – symbol e.g. KOE 5-1-VO.



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 [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	d_4 [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		
	16	17	KOV 16-2,5			21		26		16	1,80		
4 ÷ 6	4	4,3	KOV 4-6	1	3,6	8	5,6	20	6	6	1,69	100	
	5	5,5	KOV 5-6			10		21		6,5	1,89		PR33
	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		

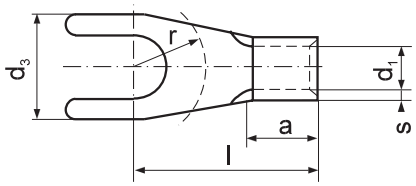
Insulation colours, * - outside DIN standard

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

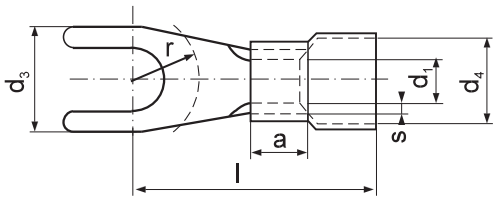
Cross section [mm²]	For screw M	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	l [mm]	a [mm]	r [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
0,5 ÷ 1	3	KNA 3-1	0,8	1,6	6	11	5	4,5	0,50	100	
	4	KNA 4-1			8	12		4,5	0,60		
	5	KNA 5-1			10	14		6,5	0,75		
	6	KNA 6-1 *			11	17		7,6	0,95		
1,5 ÷ 2,5	3	KNA 3-2,5	0,8	2,3	6	11	5	4,5	0,55	100	
	3,5	KNA 3,5-2,5			6	11		4,5	0,50		
	4	KNA 4-2,5-A *			6,8	12		4,5	0,69		
	4	KNA 4-2,5			8	12		4,5	0,65		PR33
	5	KNA 5-2,5			10	14		6,5	0,90		
	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	
	5	KNA 5-6			10	15		6,5	1,60		
	6	KNA 6-6			11	16		7	1,70		
	8	KNA 8-6			14	19		10	2,20		
10	5	KNA 5-10	1,1	4,5	10	17	8	6,5	2,35	100	EPZC300N, EPZ300N, GZ300, PRZ240, HRZ300
	6	KNA 6-10			11	17		7,5	2,30		
	8	KNA 8-10			14	19		10	2,80		

* – 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 [mm²]	For screw M	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	d_4 [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		
	6	KNE 6-1 *			11		22		7	1,10		
1,5 ÷ 2,5	3	KNE 3-2,5	0,8	2,3	6	5	11	5	4,5	0,77	100	
	3,5	KNE 3,5-2,5			6		11		4,5	0,72		
	4	KNE 4-2,5-A *			6,8		17		4,5	0,86		PR33
	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		
4 ÷ 6	4	KNE 4-6	1	3,6	8	7	20	6	4,5	1,68	100	
	5	KNE 5-6			10		21		6,5	1,87		
	6	KNE 6-6			11		22		7	2,03		
	8	KNE 8-6			14		25		10	2,49		
10	5	KNE 5-10	1,1	4,5	10	8,4	25	8	6,5	3,00	100	EPZC300N, EPZ300N,
	6	KNE 6-10			11		25		7,5	3,30		GZ300, PRZ240,
	8	KNE 8-10			14		27		10	3,04		HRZ300

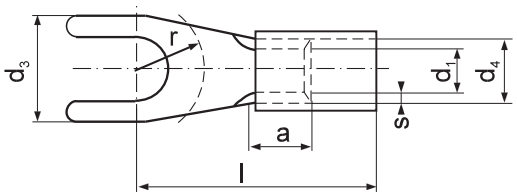
Insulation colours, * – outside DIN standard

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 46237





Cross section [mm²]	For screw M	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	d_4 [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		
	6	KNV 6-1 *			11		22		7	1,05		
1,5 ÷ 2,5	3	KNV 3-2,5	0,8	2,3	6	3,9	11	5	4,5	0,76	100	
	3,5	KNV 3,5-2,5			6		11		4,5	0,75		
	4	KNV 4-2,5-A *			6,8		17		4,5	0,89		PR33
	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		
4 ÷ 6	4	KNV 4-6	1	3,6	8	5,6	20	6	6,5	1,76	100	
	5	KNV 5-6			10		21		7,5	1,77		
	6	KNV 6-6			11		22		10	1,80		
	8	KNV 8-6			14		25		10	2,45		

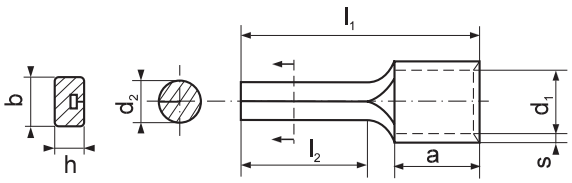
Insulation colours, * – outside DIN standard

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





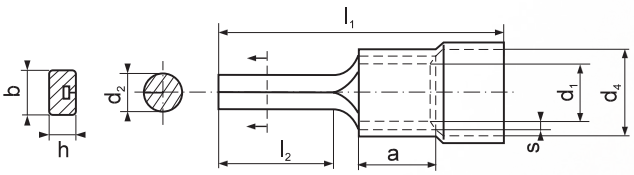
Without insulation
Material: galvanically tinned copper
According to DIN 46230

Cross section [mm²]	Symbol	s [mm]	d_1 [mm]	d_2 [mm]	b [mm]	h [mm]	l_1 [mm]	l_2 [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	
	KWA 1-A	0,8	1,6	1,9	-	-	19	12	5	0,60	100	
	KWA 1-20	0,8	1,6	1,9	-	-	28	20	5	0,80	100	
1,5 ÷ 2,5	KWA 2,5	0,8	2,3	1,9	-	-	17	10	5	0,61	100	PR33
	KWA 2,5-A	0,8	2,3	1,9	-	-	19	12	5	0,62	100	
	KWA 2,5-20	0,8	2,3	1,9	-	-	28	20	5	0,71	100	
4 ÷ 6	KWA 6	1	3,6	2,7	-	-	20	10	6	1,45	100	
10	KWA 10	1,1	4,5	-	4,3	2,4	22	12	8	2,54	100	EPZC300N, EPZ300N, GZ300, PRZ240, HRZ300
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 [mm²]	Symbol	s [mm]	d_1 [mm]	d_2 [mm]	d_4 [mm]	b [mm]	h [mm]	l_1 [mm]	l_2 [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	
	KWE 1-A	0,8	1,6	1,9	4	-	-	24	12	5	0,70	100	
	KWE 1-20	0,8	1,6	1,9	4	-	-	33	20	5	0,90	100	
1,5 ÷ 2,5	KWE 2,5	0,8	2,3	1,9	5,1	-	-	22	10	5	0,78	100	PR33
	KWE 2,5-A	0,8	2,3	1,9	5,1	-	-	24	12	5	0,72	100	
	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	
10	KWE 10	1,1	4,5	-	8,4	4,3	2,4	30	12	8	3,04	100	EPZC300N EPZ300N GZ300 PRZ240 HRZ300
16	KWE 16	1,2	5,8	-	9,7	5,5	2,6	36	13	10	4,50	100	

Insulation colours

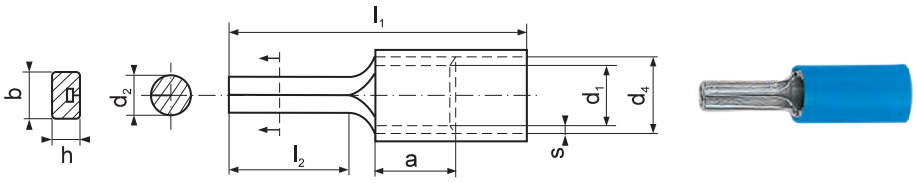
Standard production: the edges of folded tubular part are soldered.
VO class insulation on request – symbol e.g. KWE 6-VO.



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 [mm²]	Symbol	s [mm]	d_1 [mm]	d_2 [mm]	d_4 [mm]	b [mm]	h [mm]	l_1 [mm]	l_2 [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	
	KWV 1-A	0,8	1,6	1,9	3,2	-	-	24	12	5	0,75	100	
	KWV 1-20	0,8	1,6	1,9	3,2	-	-	33	20	5	0,85	100	
1,5 ÷ 2,5	KWV 2,5	0,8	2,3	1,9	3,9	-	-	22	10	5	0,68	100	PR33
	KWV 2,5-A	0,8	2,3	1,9	3,9	-	-	24	12	5	0,68	100	
	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	

Insulation colours

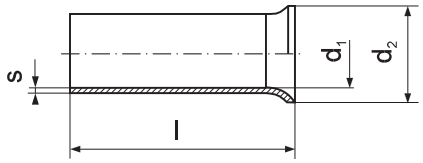
Standard production: the edges of folded tubular part are soldered.
VO class insulation on request – symbol e.g. KWV 6-VO.



TA Cable end-sleeve

for multi-wire Cu cables





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

Cross section [mm²]	Symbol	s [mm]	d_1 [mm]	d_2 [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	
	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		
	TA 0,75-14				14 *	0,10		
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		
	TA 1-14				14 *	0,10		
1,5	TA 1,5-7	0,15	1,7	2,8	7	0,06	100	
	TA 1,5-8				8 *	0,07		
	TA 1,5-10				10	0,09		
	TA 1,5-12				12	0,11		PR33
	TA 1,5-14				14 *	0,13		T10N
	TA 1,5-18				18	0,16		TC6
	TA 1,5-20				20 *	0,17		T16
2,5	TA 2,5-7	0,15	2,2	3,4	7	0,08	100	T16S
	TA 2,5-8				8 *	0,09		
	TA 2,5-10				10	0,12		
	TA 2,5-12				12	0,14		
	TA 2,5-14				14 *	0,16		
	TA 2,5-18				18	0,21		
	TA 2,5-20				20 *	0,20		
4	TA 4-6	0,2	2,8	4,0	6 *	0,11	100	
	TA 4-9				9	0,17		
	TA 4-12				12	0,23		
	TA 4-14				14 *	0,27		
	TA 4-18				18	0,35		
	TA 4-20				20 *	0,36		
6	TA 6-10	0,2	3,5	4,7	10	0,24	100	
	TA 6-12				12	0,26		
	TA 6-15				15	0,35		
	TA 6-18				18	0,40		
	TA 6-21				21 *	0,46		
10	TA 10-12	0,2	4,5	5,8	12	0,34	100	
	TA 10-15				15	0,46		
	TA 10-18				18	0,50		
	TA 10-21				21 *	0,61		PR33
16	TA 16-12	0,2	5,8	7,5	12	0,47	100	T10N
	TA 16-15				15	0,56		T16
	TA 16-18				18	0,71		T16S
	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 [mm²]	Symbol	s [mm]	d_1 [mm]	d_2 [mm]	l [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
25	TA 25-15	0,2	7,3	9,5	15	0,78	50	
	TA 25-18				18	0,96		
	TA 25-21				21 *	1,14		
	TA 25-23				23 *	1,30		EPZC300N
	TA 25-27				27 *	1,44		EPZ300N
	TA 25-32				32	1,54		GZ300
35	TA 35-15	0,2	8,3	11	15 *	0,92	50	PRZ240
	TA 35-18				18	0,94		HRZ300
	TA 35-21				21 *	1,12		PR33
	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	
	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		EPZC300N
95 *	TA 95-25	0,5	15	18	25	5,70	20	EPZ300N
	TA 95-30				30	6,80		GZ300
120 *	TA 120-32	0,5	17	20	32	8,34	20	PRZ240
150 *	TA 150-32	0,5	18,5	21	32	9,70	20	HRZ300
185 *	TA 185-32	0,6	20	23,5	32	11,50	20	
	TA 185-40				40	14,45		

* - lenght outside DIN standard

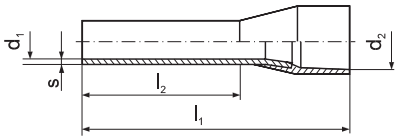
Cable end-sleeves of other dimensions on request.



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 [mm²]	Symbol	Insulation colour	s [mm]	d_1 [mm]	d_2 [mm]	l_1 [mm]	l_2 [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	T16S
	TE 0,14-8					12	8	0,04		
0,25 *	TE 0,25-6	light blue	0,15	0,75	1,8	10	6	0,05	100	
	TE 0,25-8					12	8	0,05		T16
0,34 *	TE 0,34-6	turquoise	0,15	0,8	2	10	6	0,04	100	T16S
	TE 0,34-8					12	8	0,05		
0,5	TE 0,5-6 V	white	0,15	1	2,6	12	6	0,08	100	
	TE 0,5-8 V					14	8	0,08		
	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	
	TE 0,5-8					14	8	0,09		
	TE 0,5-10					16	10	0,10		
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	
	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	
	TE 1-8					14	8	0,09		
	TE 1-10					16	10	0,12		
	TE 1-12					18	12	0,12		PR33
1,5	TE 1,5-8 V	black	0,15	1,7	3,5	14	8	0,12	100	T10N
	TE 1,5-10 V					16	10	0,15		T16
	TE 1,5-12 V					18	12	0,16		T16S
	TE 1,5-18 V					24	18	0,21		TC6
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		
2,5	TE 2,5-8	dark blue	0,15	2,2	4,2	14	8	0,14	100	
	TE 2,5-10					16	10 *	0,19		
	TE 2,5-12					18	12	0,18		
	TE 2,5-18					24	18	0,26		
4	TE 4-10 V	grey	0,2	2,8	4,8	17	10	0,26	100	
	TE 4-12 V					20	12	0,29		
	TE 4-18 V					26	18	0,40		
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		
6	TE 6-10	yellow	0,2	3,5	6,3	18	10 *	0,40	100	
	TE 6-12					20	12	0,44	100	
	TE 6-14					23	15 *	0,55		
	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		T10N + as below
	TE 10-18					28	18	0,79		
16	TE 16-12	dark blue	0,2	5,8	8,8	24	12	0,78	100	
	TE 16-15					27	15 *	0,95		PR33, T10N, T16, T16S
	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		EPZC300N, EPZ300N, GZ300,
35	TE 35-16	red	0,2	8,3	12,7	30	16	1,44	50	PRZ240, PR33, HRZ300
	TE 35-18					30	18	1,54		
	TE 35-25					39	25	2,43		
50	TE 50-20	dark blue	0,3	10,3	15	36	20	2,75	20	PR33, PP19, PP8 + as below
	TE 50-25					40	25	3,10		
70 *	TE 70-20	yellow	0,5	13	16,2	37	20	5,90	20	
95 *	TE 95-25	red	0,5	15	19,5	45	25	8,95	20	EPZC300N, EPZ300N, GZ300,
120 *	TE 120-27	dark blue	0,5	17	21,2	51	27	10,05	20	PRZ240, HRZ300
150 *	TE 150-32	yellow	0,5	18,5	24	58	32	14,85	20	

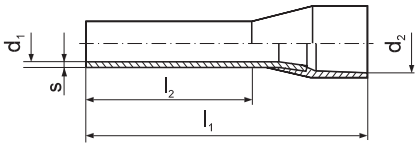
* – parameter outside standard

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





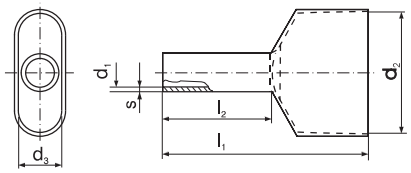
Cross section [mm²]	Symbol	Insulation colour	s [mm]	d_1 [mm]	d_2 [mm]	l_1 [mm]	l_2 [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
0,5	TP 0,5-8	white	0,15	1	2,6	14	8	3,40	40	PR33 T10N TC6 T16 T16S
0,75	TP 0,75-8	grey	0,15	1,2	2,8	14	8	3,87	40	
1	TP 1-8	red	0,15	1,4	3	14	8	4,43	40	
1,5	TP 1,5-8	black	0,15	1,7	3,5	14	8	5,16	40	
2,5	TP 2,5-8	blue	0,15	2,2	4,2	14	8	6,37	40	

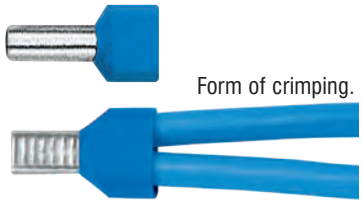
VO class insulation on request – symbol e.g. TP 1-8-VO.
Insulating sleeves are available in other colours.

for multi-wire Cu cables

TV Double cable end sleeve

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

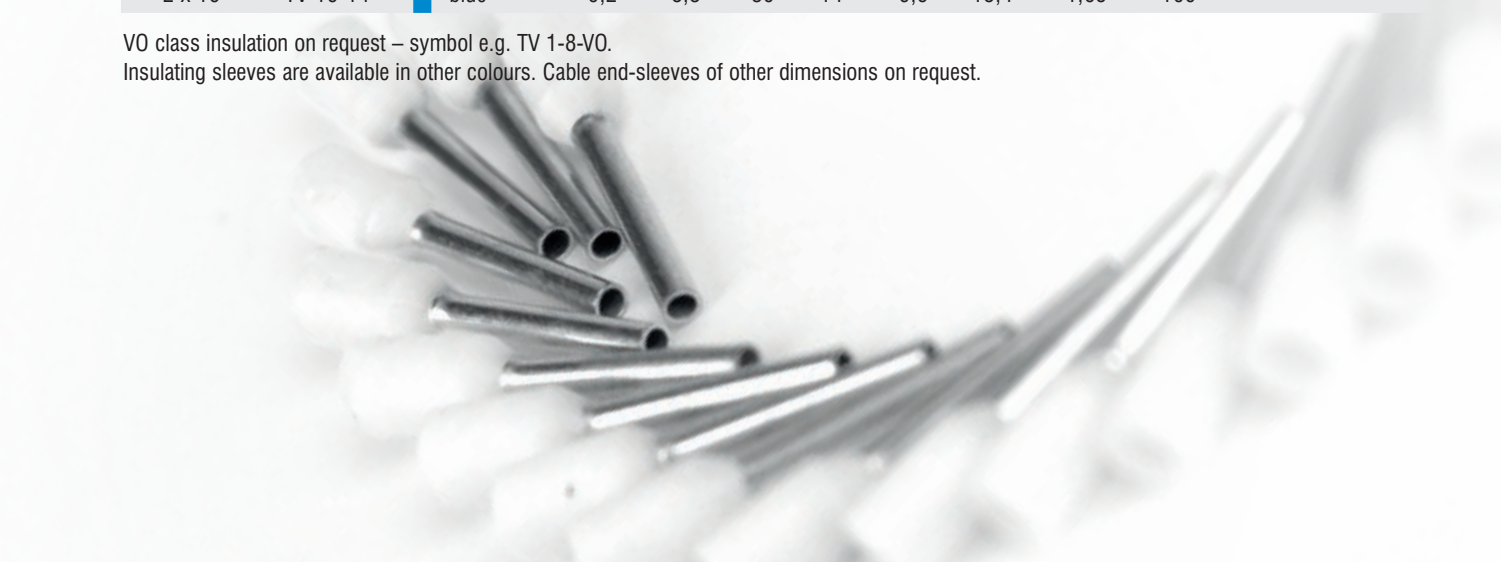




Form of crimping.

Cross section [mm²]	Symbol	Insulation colour	s [mm]	d_1 [mm]	l_1 [mm]	l_2 [mm]	d_3 [mm]	d_2 [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	
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	T10N PR33 TC6 T16 T16S
	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	T10N, TC6, T16
2 x 6	TV 6-14	yellow	0,2	4,8	26	14	6,9	10	0,78	100	
2 x 10	TV 10-14	red	0,2	6,4	26	14	8	14,6	1,00	100	PR33
2 x 16	TV 16-14	blue	0,2	8,3	30	14	9,6	18,4	1,65	100	

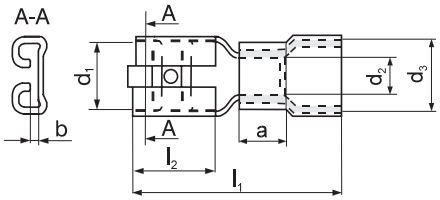
VO class insulation on request – symbol e.g. TV 1-8-VO.
Insulating sleeves are available in other colours. Cable end-sleeves of other dimensions on request.



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

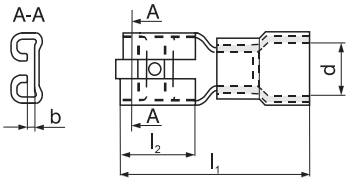
Nominal wire cross section [mm²]	Cross section [mm²]	Symbol	b [mm]	l_1 [mm]	l_2 [mm]	d_1 [mm]	a_{min} [mm]	d_2 [mm]	d_3 [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
1	> 0,5 ÷ 1	MSE 6,3-1	0,8	21	7,5	6,7	4,5	1,6	3,2	0,92	100	
2,5	> 1 ÷ 2,5	MSE 6,3-2	0,8	21	7,5	6,7	4,5	2,3	3,8	1,09	100	PR33
6	> 2,5 ÷ 6	MSE 6,3-6	0,8	21	7,5	6,7	4,5	3,4	5,5	1,49	100	

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

MSEPA wire sleeve in full insulation

for multi-wire Cu cables





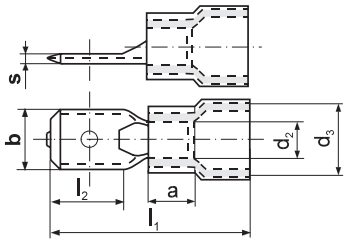
With polyamid insulation
Thermal resistance: -55°C to +125°C
Material: brass

Nominal wire cross section [mm²]	Symbol	b [mm]	d [mm]	l_1 [mm]	l_2 [mm]	Weight [g / pce]	Unit [pcs]	Crimping tools
0,5 - 1,5	MSEPA 2,8-1	0,8	2,7	18,6	8	0,22	100	
0,5 - 1,5	MSEPA 4,8-1	0,8	2,7	20	6	0,25	100	
0,5 - 1,5	MSEPA 6,3-1	0,8	2,7	21,5	6,8	0,28	100	
1,5 - 2,5	MSEPA 2,8-2	0,8	3,2	20,5	8	0,29	100	PR33
1,5 - 2,5	MSEPA 4,8-2	0,8	3,2	20,5	6	0,26	100	
1,5 - 2,5	MSEPA 6,3-2	0,8	3,2	21,8	6,8	0,32	100	
4 - 6	MSEPA 6,3-6	0,8	5,8	25	6,8	0,35	100	

TSE Tab

for multi-wire Cu cables





With copper tube and polyamid insulation
Thermal resistance: -40°C to +125°C
Material: brass
Made according DIN 46248

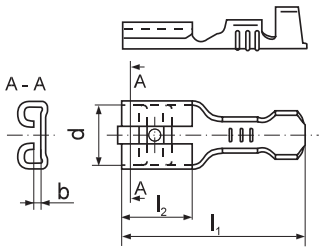
Nominal wire cross section [mm²]	Cross section [mm²]	Symbol	s [mm]	l_1 [mm]	l_{2min} [mm]	b [mm]	a_{min} [mm]	d_2 [mm]	d_3 [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
1	> 0,5 ÷ 1	TSE 6,3-1	0,8	21	8	6,3	4,5	1,6	3,2	0,82	100	
2,5	> 1 ÷ 2,5	TSE 6,3-2	0,8	21	8	6,3	4,5	2,3	3,8	1,01	100	PR33
6	> 2,5 ÷ 6	TSE 6,3-6	0,8	21	8	6,3	4,5	3,4	5,2	1,39	100	

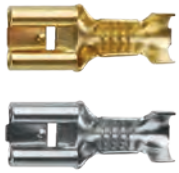
Standard production –tinned.
VO class insulation on request – symbol e.g. TSE 6,3-1-VO.

for multi-wire Cu cables

MS Receptacle

Material: brass
According to DIN 46247





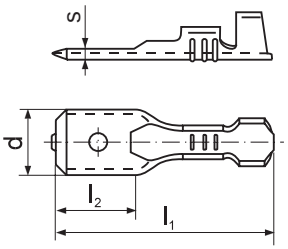
Nominal wire cross section [mm²]	Cross section [mm²]	Symbol	b [mm]	l_1 [mm]	l_2 [mm]	d [mm]	Cable insulation diameter	Weight [g/pce]	Unit [pcs]	Crimping tools
1	> 0,5 ÷ 1	MS 2,8-1	0,4	14	6,3	3,1	2 ÷ 3,3	0,23	100	PR33
1	> 0,5 ÷ 1	MS 2,8-1A	0,8	14	6,3	3,1	2 ÷ 3,3	0,22	100	
1	> 0,5 ÷ 1	MS 6,3-1	0,8	19,2	7,5	6,7	2 ÷ 3,3	0,68	100	
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	
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	
6	> 2,5 ÷ 6	MS 6,3-6	0,8	19,2	7,5	6,7	3,8 ÷ 5,1	0,86	100	

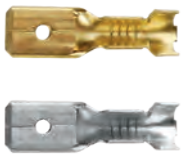
Standard production – non tinned. When ordering tinned add 'Sn' symbol e.g. MS 6,3-2 Sn.
When ordering nickel plated add 'Ni' symbol e.g. MS 6,3-6 Ni. Made on request.

for multi-wire Cu cables

TS Tab

Material: brass
According to DIN 46248





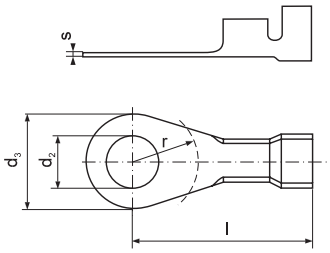
Nominal wire cross section [mm²]	Cross section [mm²]	Symbol	s [mm]	l_1 [mm]	l_2 [mm]	d [mm]	Cable insulation diameter	Weight [g/pce]	Unit [pcs]	Crimping tools
1	> 0,5 ÷ 1	TS 6,3-1	0,8	20	8,5	6,3	2 ÷ 3,3	0,59	100	PR33
2,5	> 1 ÷ 2,5	TS 4,8-2*	0,8	17	7,2	4,8	2,7 ÷ 4,3	0,50	100	
2,5	> 1 ÷ 2,5	TS 6,3-2	0,8	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

KOP Claw terminal

Material: brass
According to DIN 46225





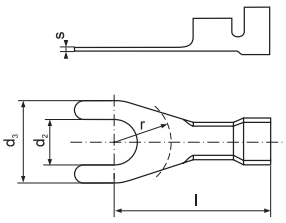
Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_3 [mm]	l [mm]	r [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
0,5 ÷ 1	3	3,2	KOP 3-1	0,6	8	18,3	4,5	0,71	100	S44-2
	4	4,3	KOP 4-1		8	18,3	6,5	0,68		
	5	5,3	KOP 5-1		9,5	17,5	6,5	0,71		
	6	6,5	KOP 6-1		12	22	7,5	0,98		
1 ÷ 2,5	3	3,2	KOP 3-2,5	0,6	8	18,3	4,5	0,86	100	PR33
	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

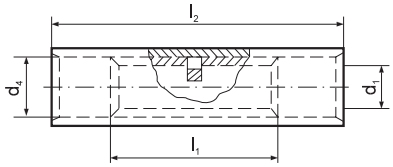
Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_3 [mm]	l [mm]	r [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
0,5 ÷ 1	3	3,2	KNP 3-1	0,6	8	18,3	4,5	0,70	100	
	4	4,3	KNP 4-1		8	18,3	6,5	0,67		S44-2
	5	5,3	KNP 5-1		9,5	17,5	6,5	0,67		
1 ÷ 2,5	4	4,3	KNP 4-2,5	0,6	8	18,3	6,5	0,81	100	
	5	5,3	KNP 5-2,5		9,5	17,5	6,5	0,83		PR33
	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.

KLE Connector

for multi-wire Cu cables





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

Cross section [mm²]	Symbol	d_1 [mm]	d_4 [mm]	l_1 [mm]	l_2 [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
0,5 ÷ 1	KLE 1	1,6	3,2	15	25	1,18	100	PR33
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	
6	KLE 6	3,8	5,5	15	25	2,32	50	
10	KLE 10	4,5	6,9	20	32	4,88	50	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR50

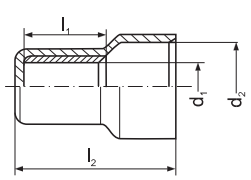
Insulation colours

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

KLK End connector

for multi-wire Cu cables





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

Cross section [mm²]	Symbol	d_1 [mm]	d_2 [mm]	l_1 [mm]	l_2 [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
0,5 ÷ 2,5	KLK 2,5	2,3	5	7	15	0,74	100	PR33
2,5 ÷ 6	KLK 6	3,8	7,5	7	17,5	1,26	50	

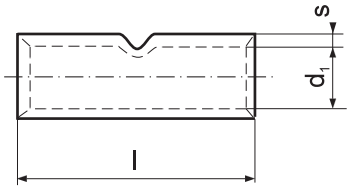
Insulation colours

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

for multi-wire Cu cables

KLA Connector

Material: galvanically tinned copper
Non tinned on request





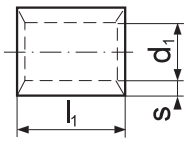
Cross section [mm²]	Symbol	s [mm]	d_1 [mm]	l [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
0,5 ÷ 1	KLA 1-15	0,8	1,6	15	0,81	100		PR33, A11-6, A22-2, RA16, PP8, PP19
	KLA 1-20			20	1,06			
1,5 ÷ 2,5	KLA 2,5-15	0,95	2,3	15	1,25	100		
	KLA 2,5-20			20	1,76			
4	KLA 4-15	1	3	15	1,64	100		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, PR50
	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	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR50
	KLA 10-30			30	5,76			
16	KLA 16-25	1,5	5,5	25	7,18	50	8	
	KLA 16-30			30	8,64			
	KLA 16-50			50	14,36			
25	KLA 25-29	1,5	7	29	10,20	50	10	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR150, PR50
	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	
	KLA 35-50			50	25,00			
50	KLA 50-38	2	10	38	25,00	20	14	
	KLA 50-56			56	37,05			
70	KLA 70-42	2,25	12	42	37,30	20	16	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR150
	KLA 70-56			56	49,65			
95	KLA 95-48	2,25	13,5	48	48,90	10	17	
	KLA 95-70			70	68,34			
120	KLA 120-52	2,25	15,5	52	58,10	10	19	
	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	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300
240	KLA 240-90	2,5	21,5	90	155,00	10	25	
300	KLA 300-100	3	24,5	100	220,00	10	30	EPZC300N, EPZ300N, GZ300, HRZ300, GU300
400	KLA 400-100	3,5	27	100	287,50	10	34	GU625

Production on request. Connectors of other dimensions.

for multi-wire Cu cables

KLB Parallel connector

Without insulation
Material: galvanically tinned copper
Non tinned on request



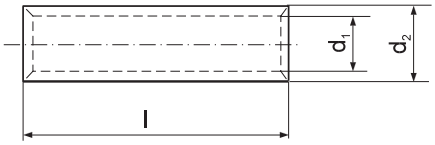


Cross section [mm²]	Symbol	s [mm]	d_1 [mm]	l_1 [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
0,5 ÷ 1	KLB 1	0,8	1,6	7	0,36	100		PR33
1 ÷ 2,5	KLB 2,5	0,95	2,3	7	0,65	100		
2,5 ÷ 4	KLB 4	1	3	7	0,72	50		
4 ÷ 6	KLB 6	1	4	7	0,90	50	6	PR33, PR50
6 ÷ 10	KLB 10	1,2	4,5	10	1,86	50	7	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR50
10 ÷ 16	KLB 16	1,5	5,5	11	3,24	50	8	
16 ÷ 25	KLB 25	1,5	7	14	6,00	50	10	PR50 + as below
25 ÷ 35	KLB 35	1,75	8,5	16	7,91	20	12	
35 ÷ 50	KLB 50	2	10	19	12,48	10	14	
50 ÷ 70	KLB 70	2,25	12	19	17,19	10	16	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR150
70 ÷ 95	KLB 95	2,75	13,5	20	24,91	10	18	
95 ÷ 120	KLB 120	2,75	15,5	22	32,00	10	20	

KLD Connector

for multi-wire Cu cables





Material: galvanically tinned copper
Non tinned on request.

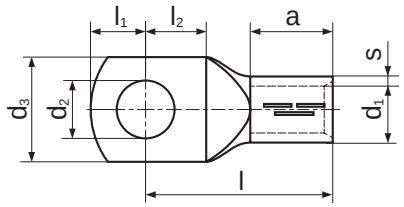
Cross section [mm²]	Symbol	Wire diameter Ø [mm]	d_1 [mm]	d_2 [mm]	l [mm]	Weight [g/pce]	Unit [pcs]	Crimping tools
1,5 ÷ 2,5	KLD 2,5	1,38÷1,78	1,9	3,9	25	2,08	50	D11-6
4	KLD 4	2,25	2,3	4,2	25	2,30	50	
6	KLD 6	2,75	3	5	25	2,68	50	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR150, PR50
10	KLD 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	
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 [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	l_1 [mm]	l_2 [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		PR33
	5	5,3	KCS 5-2,5			8,5	7	5,5	6,2	17	1,70			
	6	6,4	KCS 6-2,5			9,5	7	6,7	7,3	18	1,82			
	8	8,4	KCS 8-2,5			13	7	7,3	10	22	2,05			
4	4	4,3	KCS 4-4	1	3	8,5	8	5	6	19	2,30	50		
	5	5,3	KCS 5-4			9	8	5,5	6,2	19	2,30			
	6	6,4	KCS 6-4			10	8	6,5	7,3	20	2,44			
	8	8,4	KCS 8-4			13	8	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	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, PR33, GU300, PR50
	5	5,3	KCS 5-6			9,5	9	6	6,2	20	3,32			
	6	6,4	KCS 6-6*			11	9	6	7,5	21,5	3,48			
	8	8,4	KCS 8-6			13	9	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	EPZC300N EPZ300N GZ300 HRZ300 PRZ240 GU300 PR50
	6	6,4	KCS 6-10*			12	9	6	7,5	22,5	5,54			
	8	8,4	KCS 8-10*			14	9	8	9	24,5	5,96			
	10	10,5	KCS 10-10*			16	9	10	11	27	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	10	6	7,5	24	9,12			
	8	8,4	KCS 8-16*			14,5	10	8	9	26	10,06			
	10	10,5	KCS 10-16*			17	10	10	11	28	10,56			

Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	l_1 [mm]	l_2 [mm]	l [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
25	6	6,4	KCS 6-25*	1,5	7	14	11	6	7,5	27	11,74	50	10	
	8	8,4	KCS 8-25*			16	11	8	9	28	13,06			
	10	10,5	KCS 10-25*			18	11	10	11	31	15,56			
	12	13	KCS 12-25			19	15	13	14	35	15,32			EPZC300N
35	6	6,4	KCS 6-35*	1,75	8,5	17	15	6	7,5	31,5	18,90	20	12	EPZ300N
	8	8,4	KCS 8-35*			17	15	8	9	33	20,35			GZ300
	10	10,5	KCS 10-35*			19	15	10	11	35	21,80			HRZ300
	12	13	KCS 12-35			21	17	13	14	38	23,15			PRZ240
	14	15	KCS 14-35			21	17	15,5	15,5	40	23,80			GU300
50	8	8,4	KCS 8-50*	2	10	20	17	8	10	38,5	32,30	20	14	PR120
	10	10,5	KCS 10-50*			20	17	10	11	39	31,25			PR150
	12	13	KCS 12-50*			21	17	12	13	40,5	31,4			PR50
	14	15	KCS 14-50			23	19	15,5	15,5	43	32,70			
	16	17	KCS 16-50			28	19	16	17	45	35,80			
70	8	8,4	KCS 8-70*	2,25	12	23,5	17	8	10	40	47,55	20	16	
	10	10,5	KCS 10-70*			23,5	17	10	11	42	41,00			
	12	13	KCS 12-70			23,5	22	13	14	46	47,20			
	14	15	KCS 14-70			23,5	22	15,5	15,5	48	49,65			
	16	17	KCS 16-70			28	22	16	17	50	49,70			
95	8	8,4	KCS 8-95	2,25	13,5	26	25	10	11	49	55,80	10	18	EPZC300N
	10	10,5	KCS 10-95*			26	20	10	11	44	48,50			EPZ300N
	12	13	KCS 12-95*			26	20	12	13	47	59,70			GZ300
	14	15	KCS 14-95			26	25	15,5	15,5	53	59,20			HRZ300
	16	17	KCS 16-95			28	25	16	17	55	59,80			PRZ240
	20	21	KCS 20-95			34	25	19	20	57	69,80			GU300
120	8	8,4	KCS 8-120	2,25	15,5	29	26	10	11	51	64,70	10	19	PR120
	10	10,5	KCS 10-120*			29	23	10	11	51	68,40			PR150
	12	13	KCS 12-120*			29	23	12	13	53	72,80			
	14	15	KCS 14-120			29	26	15,5	15,5	56	72,80			
	16	17	KCS 16-120			29	26	16	17	58	72,30			
	20	21	KCS 20-120			35	26	19	20	61	78,40			
150	10	10,5	KCS 10-150	2,25	17	31	28	12	13	57	83,00	10	20	EPZC300N,
	12	13	KCS 12-150			31	28	13	14	58	81,60			EPZ300N,
	14	15	KCS 14-150			31	30	15,5	15,5	62	76,40			GZ300, HRZ300,
	16	17	KCS 16-150			31	30	16	17	62	93,50			PRZ240, GU300,
	20	21	KCS 20-150			36	30	19	20	66	96,70			PR150
185	10	10,5	KCS 10-185	2,5	19	35	30	12	13	62	105,00	10	23	
	12	13	KCS 12-185			35	30	13	14	63	112,00			
	14	15	KCS 14-185			35	30	15,5	15,5	65	110,80			PRZ240
	16	17	KCS 16-185			35	30	16	17	67	112,00			+ as below
	20	21	KCS 20-185			39	30	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	
	12	13	KCS 12-240			39	30	12	13	65	120,00			
	14	15	KCS 14-240			39	35	15,5	15,5	68	123,20			
	16	17	KCS 16-240			39	35	16	17	70	135,00			EPZC300N,
	20	21	KCS 20-240			39	35	19	20	73	140,60			EPZ300N,
300	12	13	KCS 12-300	3	24,5	45	45	13	14	80	195,00	10	30	GZ300, HRZ300,
	14	15	KCS 14-300			45	45	15,5	15,5	81	211,05			PRZ240, GU300
	16	17	KCS 16-300			45	45	16	17	83	205,00			
	20	21	KCS 20-300			45	45	19	20	86	217,80			
400	12	13	KCS 12-400	3,5	27	49	44	24	24	92	335,00	5	34	
	14	15	KCS 14-400			49	44	24	24	92	285,00			
	16	17	KCS 16-400			49	44	24	24	92	345,83			GU625
	20	21	KCS 20-400			49	44	24	24	92	281,00			

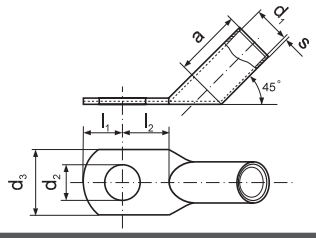
Production on request. Terminal with control hole - symbol KCS-K.

* – nowe wykonanie.

KCS45 Tubular angle terminal

for multi-wire Cu cables





Material: galvanically tinned copper
Non tinned on request.

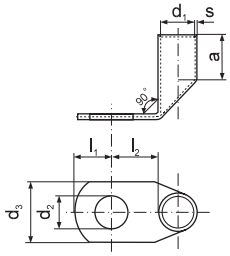
Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	l_1 [mm]	l_2 [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
6	5	5,3	KCS45 5-6	1	4	9,5	9	8	8,5	3,90	10	6	EPZC300N, EPZ300N, GZ300, HRZ300,
	6	6,4	KCS45 6-6			10		7,5	8,5	3,73			PRZ240, PR33, GU300, PR50
10	5	5,3	KCS45 5-10	1,2	4,5	12	10	8	8,5	5,93	10	7	
	6	6,4	KCS45 6-10			12		7,5	8,5	6,14			
	8	8,4	KCS45 8-10			13		10	11	6,60			EPZC300N, EPZ300N, GZ300,
16	6	6,4	KCS45 6-16	1,5	5,5	13	13	7,5	8,5	10,00	10	8	HRZ300, PRZ240, GU300,
	8	8,4	KCS45 8-16			13		10	11	10,50			PR50
	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	
	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	
	8	8,4	KCS45 8-35			17		10	11	24,20			EPZC300N, EPZ300N,
	10	10,5	KCS45 10-35			19		12	13	25,20			GZ300, HRZ300,
	12	13	KCS45 12-35			21		13	14	26,30			PRZ240, GU300,
	14	15	KCS45 14-35			21		15,5	15,5	27,70			PR120, PR150, PR50
50	8	8,4	KCS45 8-50	2	10	20	19	10	11	33,20	10	14	
	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	
	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	10	18	
	12	13	KCS45 12-95			26		13	14	59,11			EPZC300N, EPZ300N,
	14	15	KCS45 14-95			26		15,5	15,5	67,90			GZ300, HRZ300,
	16	17	KCS45 16-95			28		16	17	69,00			PRZ240, GU300,
	20	21	KCS45 20-95			34		19	20	74,00			PR120, PR150
120	10	10,5	KCS45 10-120	2,25	15,5	29	26	12	13	75,17	10	19	
	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	10	20	
	12	13	KCS45 12-150			31		13	14	90,23			EPZC300N, EPZ300N,
	14	15	KCS45 14-150			31		15,5	15,5	93,50			GZ300, HRZ300, PRZ240,
	16	17	KCS45 16-150			31		16	17	95,60			GU300, PR150
	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	10	23	
	12	13	KCS45 12-185			35		13	14	120,00			
	14	15	KCS45 14-185			35		15,5	15,5	120,30			PRZ240,
	16	17	KCS45 16-185			35		16	17	117,95			+ as below
	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	10	25	
	14	15	KCS45 14-240			39		15,5	15,5	145,10			
	16	17	KCS45 16-240			39		16	17	146,30			EPZC300N, EPZ300N, GZ300,
	20	21	KCS45 20-240			39		19	20	148,60			HRZ300, PRZ240, GU300
300	12	13	KCS45 12-300	3	24,5	45	44	13	14	234,30	10	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	10	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.





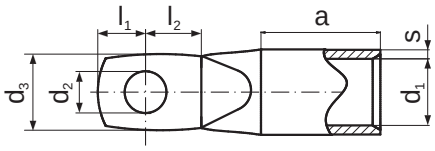
Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	l_1 [mm]	l_2 [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
6	5	5,3	KCS90 5-6	1	4	9,5	9	8	8,5	4,00	10	6	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, PR33, GU300, PR50
	6	6,4	KCS90 6-6			10		7,5	11	4,30			
10	5	5,3	KCS90 5-10	1,2	4,5	12	10	8	8,5	6,10	10	7	
	6	6,4	KCS90 6-10			12		7,5	11	6,40			
	8	8,4	KCS90 8-10			13		10	13	5,90			EPZC300N, EPZ300N, GZ300,
16	6	6,4	KCS90 6-16	1,5	5,5	13	13	7,5	11	10,10	10	8	HRZ300, PRZ240, GU300, PR50
	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	
	8	8,4	KCS90 8-25			16		10	13	14,60			
	10	10,5	KCS90 10-25			18		12	15	16,20			+ as below
	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	
	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			EPZC300N, EPZ300N, GZ300,
50	8	8,4	KCS90 8-50	2	10	20	19	10	13	32,60	10	14	HRZ300, PRZ240, GU300,
	10	10,5	KCS90 10-50			20		12	15	34,20			PR120, PR150, PR50
	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	
	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	10	18	EPZC300N, EPZ300N,
	12	13	KCS90 12-95			26		13	18	63,53			GZ300, HRZ300,
	14	15	KCS90 14-95			26		15,5	20	68,40			PRZ240, GU300,
	16	17	KCS90 16-95			30		16	22	73,59			PR120, PR150
	20	21	KCS90 20-95			35		19,5	24	71,61			
120	10	10,5	KCS90 10-120	2,25	15,5	29	26	12	15	72,61	10	19	
	12	13	KCS90 12-120			29		13	18	80,00			
	14	15	KCS90 14-120			29		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	10	20	
	12	13	KCS90 12-150			31		13	18	88,96			EPZC300N, EPZ300N,
	14	15	KCS90 14-150			31		15,5	20	93,90			GZ300, HRZ300, PRZ240,
	16	17	KCS90 16-150			31		16	22	96,70			GU300, PR150
	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	10	23	
	12	13	KCS90 12-185			35		13	22	122,70			
	14	15	KCS90 14-185			35		15,5	22	124,20			PRZ240
	16	17	KCS90 16-185			35		16	22	120,00			+ as below
	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	10	25	
	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			EPZC300N, EPZ300N, GZ300,
300	12	13	KCS90 12-300	3	24,5	45	44	13	22	238,00	10	30	HRZ300, PRZ240, 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	10	34	
	14	15	KCS90 14-400			49		24	24	342,90			
	16	17	KCS90 16-400			49		24	24	342,40			GU625
	20	21	KCS90 20-400			49		24	24	341,10			

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

KCZ Circuit breaker tubular terminal

for multi-wire Cu cables





Material: galvanically tinned copper
Non tinned on request.

Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	l_1 [mm]	l_2 [mm]	Dies discriminant	Crimping tools
35	6	6,4	KCZ 6-35	1,75	8,5	15	17	7,5	8,5	12	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR150, PR50
	8	8,4	KCZ 8-35	1,75	8,5	15	17	10	11		
50	6	6,4	KCZ 6-50	2	10	15	19	7,5	10	14	
	8	8,4	KCZ 8-50	2	10	17	19	10	11		
	10	10,5	KCZ 10-50	2	10	19	19	12	13		
70	6	6,4	KCZ 6-70	2,25	12	17	20	7,5	10	16	
	8	8,4	KCZ 8-70	2,25	12	17	20	10	11		
	10	10,5	KCZ 10-70	2,25	12	19	20	12	13		
	12	13	KCZ 12-70	2,25	12	19	20	13	14		
95	6	6,4	KCZ 6-95	2,25	13,5	19	25	7,5	12	18	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120, PR150
	8	8,4	KCZ 8-95	2,25	13,5	19	25	10	12		
	10	10,5	KCZ 10-95	2,25	13,5	19	25	12	13		
	12	13	KCZ 12-95	2,25	13,5	19	25	13	14		
120	6	6,4	KCZ 6-120	2,25	15,5	19	26	7,5	14	19	
	8	8,4	KCZ 8-120	2,25	15,5	19	26	10	14		
	10	10,5	KCZ 10-120	2,25	15,5	19	26	12	14		
	12	13	KCZ 12-120	2,25	15,5	19	26	13	14		
150	6	6,4	KCZ 6-150	2,25	17	19	30	7,5	14	20	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR150
	8	8,4	KCZ 8-150	2,25	17	19	30	10	14		
	10	10,5	KCZ 10-150	2,25	17	19	30	12	14		
	12	13	KCZ 12-150	2,25	17	19	30	13	15		
185	10	10,5	KCZ 10-185	2,25	19	24,5	30	12	18	23	PRZ240 + as below
	12	13	KCZ 12-185	2,25	19	31	30	13	18		
	16	17	KCZ 16-185	2,25	19	31	30	16	18		
240	10	10,5	KCZ 10-240	2,5	21,5	31	35	12	19	25	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300,
	12	13	KCZ 12-240	2,5	21,5	31	35	13	19		
	16	17	KCZ 16-240	2,5	21,5	31	35	16	19		
300	10	10,5	KCZ 10-300	3	24,5	31	45	12	24	30	
	12	13	KCZ 12-300	3	24,5	31	45	24	24		
	16	17	KCZ 16-300	3	24,5	31	45	24	24		

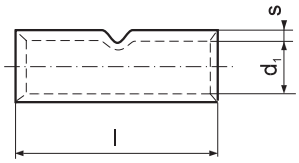
Terminal type with narrow palm to facilitate assembly. The flat palm formed by a special forming processes.
Production on request. We can manufacture connectors with other dimensions than in the chart above, according to individual arrangements.



for multi-wire Cu cables

KLN Connector

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





Cross section [mm²]	Symbol	s [mm]	d_1 [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
10	KLN 10-30	0,75	4,5	30	3,24	50	6	PP19 + as below
16	KLN 16-50	1,5	5,5	50	14,44	50	8	
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	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120-D, PR150-D, PR50-D
50	KLN 50-56	2,25	10	56	42,60	20	14	
70	KLN 70-56	2,5	11,5	56	53,78	10	16	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120-D
95	KLN 95-70	2,75	13,5	70	87,08	10	18	
120	KLN 120-70	2,75	15,5	70	96,50	10	20	
150	KLN 150-80	3,25	17	80	147,00	1	22	PRZ240 + as below
185	KLN 185-85	3,25	19	85	173,00	1	25	
240	KLN 240-90	3,75	21,5	90	238,00	1	28	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300
300	KLN 300-100	3,75	24,5	100	294,00	1	32	
400	KLN 400-150	5,5	27,5	150	747,00	1	38	GU625
500	KLN 500-160	5,5	31	160	897,00	1	42	
625	KLN 625-160	4,75	34,5	160	798,00	1	44	

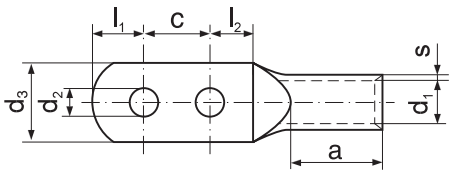
Production on request. Connectors of dimensions other than in chart.



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 [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	c [mm]	l_1 [mm]	l_2 [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	PR50-D + as below
	8	8,4	KCL 8-25			16			10	11	21,58		
35	6	6,4	KCL 6-35	2,15	8,2	17	20	20	7,5	8,5	36,90	12	
	8	8,4	KCL 8-35			17			10	11	37,86		
50	6	6,4	KCL 6-50	2,25	10	20	28	20	7,5	8,5	53,40	14	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120-D, PR150-D, PR50-D
	8	8,4	KCL 8-50			20			10	11	55,07		
70	8	8,4	KCL 8-70	2,5	11,5	24	28	22	10	11	76,28	16	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120-D, PR150-D
	10	10,5	KCL 10-70			24			12	13	70,30		
95	8	8,4	KCL 8-95	2,75	13,5	28	35	22	10	11	108,83	18	
	10	10,5	KCL 10-95			28			12	13	113,30		
120	8	8,4	KCL 8-120	2,75	15,5	32	35	30	10	11	132,57	20	
	10	10,5	KCL 10-120			32			12	13	135,00		
	12	13	KCL 12-120			32			13	14	135,00		
150	10	10,5	KCL 10-150	3,25	17	34	35	30	12	13	177,47	22	PR150-D + as below
	12	13	KCL 12-150			34			13	14	179,80		
185	10	10,5	KCL 10-185	3,25	19	37	40	30	12	13	211,55	25	PRZ240 + as below
	12	13	KCL 12-185			37			13	14	212,13		
240	10	10,5	KCL 10-240	3,75	21,5	42	40	40	12	13	377,20	28	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300
	12	13	KCL 12-240			42			13	14	314,50		

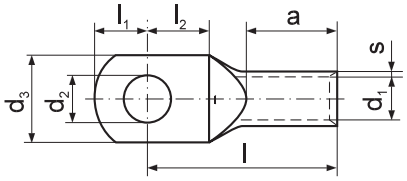
Production on request. Terminals of dimensions other than in chart.

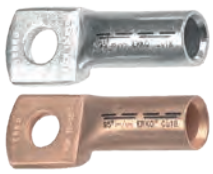


for multi-wire Cu cables

KCR Tubular terminal

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





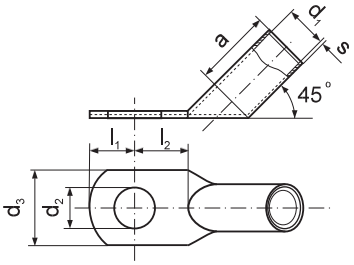
Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	l_1 [mm]	l_2 [mm]	l [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
10	5	5,3	KCR 5-10	0,75	4,5	9	10	7,5	8,5	27	3,56	50	6	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR50-D
	6	6,4	KCR 6-10			9		8,5	8,5		3,65			
	8	8,4	KCR 8-10*			12		10	10,5		3,60			
16	6	6,4	KCR 6-16	1,5	5,5	13	20	7,5	9	36	12,08	50	8	
	8	8,4	KCR 8-16			13,5		10	11		12,24			
	10	10,5	KCR 10-16			17		12,5	12,5		12,80			
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			16		10	11,5		15,80			
	10	10,5	KCR 10-25			17		12,5	12,5	39	16,94			
	12	13	KCR 12-25			19		13	14		16,00			
35	6	6,4	KCR 6-35*	2,15	8,2	17	20	9	9	42	30,00	20	12	PR50-D + as below
	8	8,4	KCR 8-35			17,5		10	11		30,15			
	10	10,5	KCR 10-35			19		12	13		30,45			
	12	13	KCR 12-35			21		14,5	14,5		31,55			
	14	15	KCR 14-35*			21		15,5	15,5		30,70			
50	8	8,4	KCR 8-50	2,25	10	20	28	10	11	52	45,35	20	14	
	10	10,5	KCR 10-50			22		12	13		44,95			
	12	13	KCR 12-50			24		14,5	14,5		46,80			
	14	15	KCR 14-50*			24		15,5	15,5		45,60			
	16	17	KCR 16-50			28		16	17		44,55			
70	8	8,4	KCR 8-70	2,5	11,5	24	28	11,5	11,5	55	62,80	20	16	EPZC300N EPZ300N GZ300 HRZ300 PRZ240 GU300 PR120-D PR150-D
	10	10,5	KCR 10-70			24		12	13		62,50			
	12	13	KCR 12-70			24		14,5	14,5		61,30			
	14	15	KCR 14-70*			24		15,5	15,5		61,90			
	16	17	KCR 16-70			30		16	17		71,55			
95	8	8,4	KCR 8-95*	2,75	13,5	28	35	10	11	65	91,00	10	18	
	10	10,5	KCR 10-95			28		13,5	13,5		93,20			
	12	13	KCR 12-95			28		14,5	14,5		95,10			
	14	15	KCR 14-95*			28		15,5	15,5		93,60			
	16	17	KCR 16-95			32		16	17		92,60			
120	10	10,5	KCR 10-120	2,75	15,5	32	35	13,5	13,5	70	110,90	10	20	
	12	13	KCR 12-120			32		14,5	14,5		114,00			
	14	15	KCR 14-120*			32		15,5	15,5		111,90			
	16	17	KCR 16-120			32		16	17		113,60			
	20	21	KCR 20-120			38		19	20		120,00			
150	10	10,5	KCR 10-150	3,25	17	34	35	13,5	13,5	78	160,70	10	22	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR150-D
	12	13	KCR 12-150			34		14,5	14,5		160,00			
	14	15	KCR 14-150*			34		15,5	15,5		160,00			
	16	17	KCR 16-150			34		16	17		159,00			
	20	21	KCR 20-150			40		19	20		162,20			
185	10	10,5	KCR 10-185	3,25	19	37	40	12	17	82	185,00	10	25	PRZ240 + as below
	12	13	KCR 12-185			37		13	17		180,00			
	14	15	KCR 14-185*			37		15,5	15,5		185,00			
	16	17	KCR 16-185			37		16	17		192,00			
	20	21	KCR 20-185			40		19	20		190,30			
240	12	13	KCR 12-240	3,75	21,5	42	40	13	17	92	265,00	10	28	EPZC300N EPZ300N GZ300 HRZ300 PRZ240 GU300
	14	15	KCR 14-240*			42		15,5	15,5		270,00			
	16	17	KCR 16-240			42		16	17		270,00			
	20	21	KCR 20-240			45		19	20		277,70			
300	14	15	KCR 14-300*	3,75	24,5	48	50	15,5	15,5	100	334,00	1	32	
	16	17	KCR 16-300			48		16	17		330,00			
	20	21	KCR 20-300			48		19	20		332,00			
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			55		24	24		672,96			
	20	21	KCR 20-400			55		24	24		600,00			
500	16	17	KCR 16-500*	5,5	31	60	70	24	24	125	740,00	1	42	
	20	21	KCR 20-500			60		24	24		830,00			
625	16	17	KCR 16-625*	4,75	34,5	63*	80	24	24	135	840,00	1	44	
	20	21	KCR 20-625			63*		24	24		820,00			

* – parameter outside standard.

KC45 Tubular angle terminal

for multi-wire Cu cables





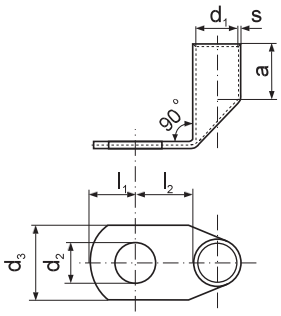
Material: galvanically tinned copper
Non tinned on request.
Tubular part dimensions according to DIN 46235

Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	l_1 [mm]	l_2 [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, PR50-D
	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	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, PR33, GU300, PR50-D
	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	
	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	PR150-D + as above
	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			PR50-D + as below
50	8	8,4	KC45 8-50	2,25	10	20	28	10	11	44,10	10	14	
	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			EPZC300N EPZ300N GZ300 HRZ300 PRZ240 GU300 PR120-D PR150-D
95	10	10,5	KC45 10-95	2,75	13,5	27	35	12	13	92,08	10	18	
	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	10	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	10	22	
	12	13	KC45 12-150			34		13	14	147,57			
	14	15	KC45 14-150			34		15,5	15,5	156,90			PR150-D + as below
	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	10	25	
	12	13	KC45 12-185			36		13	14	168,00			
	14	15	KC45 14-185			36		15,5	15,5	185,80			PRZ240 + as below
	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	10	28	
	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			EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300

for multi-wire Cu cables

KC90 Tubular angle terminal

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



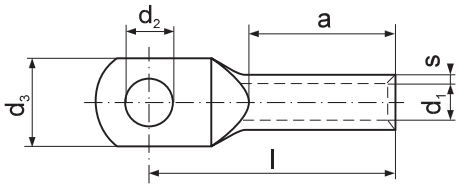


Cross section [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	a [mm]	l_1 [mm]	l_2 [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
6	5	5,3	KC90 5-6	0,85	3,8	8,5	10	8	8,5	2,80	50		PR33, PR50-D
	6	6,4	KC90 6-6			8,5		7,5	11	2,90			
10	5	5,3	KC90 5-10	0,75	4,5	10	10	8	8,5	3,70	50	6	
	6	6,4	KC90 6-10			10		7,5	11	3,80			EPZC300N, EPZ300N,
	8	8,4	KC90 8-10			12		10	13	4,50			GZ300, HRZ300,
16	6	6,4	KC90 6-16	1,5	5,5	13	20	7,5	11	13,10	50	8	PRZ240, PR33,
	8	8,4	KC90 8-16			13		10	13	13,50			GU300, PR50-D
	10	10,5	KC90 10-16			17		12	15	13,60			
25	6	6,4	KC90 6-25	1,5	7	14	20	7,5	11	16,90	50	10	
	8	8,4	KC90 8-25			16		10	13	16,50			PR150-D
	10	10,5	KC90 10-25			17		12	15	18,00			+ as above
	12	13	KC90 12-25			18		13	18	32,00			
35	6	6,4	KC90 6-35	2,15	8,2	17	20	7,5	11	40,80	20	12	
	8	8,4	KC90 8-35			17		10	13	32,40			
	10	10,5	KC90 10-35			19		12	15	32,00			
	12	13	KC90 12-35			21		13	18	32,90			
	14	15	KC90 14-35			21		15,5	20	44,90			PR50-D
50	8	8,4	KC90 8-50	2,25	10	20	28	10	13	49,90	20	14	+ as below
	10	10,5	KC90 10-50			20		12	15	50,20			
	12	13	KC90 12-50			24		13	18	49,80			
	14	15	KC90 14-50			24		15,5	20	55,20			
	16	17	KC90 16-50			28		16	22	58,60			
70	8	8,4	KC90 8-70	2,5	11,5	24	28	10	13	58,50	20	16	
	10	10,5	KC90 10-70			24		12	15	61,70			
	12	13	KC90 12-70			24		13	18	63,20			
	14	15	KC90 14-70			24		15,5	20	67,20			EPZC300N
	16	17	KC90 16-70			28		16	22	82,40			EPZ300N
95	10	10,5	KC90 10-95	2,75	13,5	27	35	12	15	96,95	10	18	GZ300
	12	13	KC90 12-95			27		13	18	92,70			HRZ300
	14	15	KC90 14-95			27		15,5	20	98,20			PRZ240
	16	17	KC90 16-95			29		16	22	104,04			GU300
120	10	10,5	KC90 10-120	2,75	15,5	30	35	12	15	111,93	10	20	PR120-D
	12	13	KC90 12-120			30		13	18	115,43			PR150-D
	14	15	KC90 14-120			30		15,5	20	114,40			
	16	17	KC90 16-120			30		16	22	117,97			
	20	21	KC90 20-120			35		19	24	133,71			
150	10	10,5	KC90 10-150	3,25	17	34	35	12	15	150,17	10	22	
	12	13	KC90 12-150			34		13	18	157,90			
	14	15	KC90 14-150			34		15,5	20	159,70			PR150-D
	16	17	KC90 16-150			34		16	22	161,10			+ as below
	20	21	KC90 20-150			40		19	24	170,10			
185	10	10,5	KC90 10-185	3,25	19	36	40	12	22	197,80	10	25	
	12	13	KC90 12-185			36		13	22	185,00			
	14	15	KC90 14-185			36		15,5	22	188,10			EPZC300N
	16	17	KC90 16-185			36		16	22	189,80			EPZ300N
	20	21	KC90 20-185			40		19	24	195,90			Z300
240	12	13	KC90 12-240	3,75	21,5	42	40	13	22	243,70	10	28	HRZ300
	14	15	KC90 14-240			42		15,5	22	245,80			PRZ240
	16	17	KC90 16-240			42		16	22	248,80			GU300
	20	21	KC90 20-240			43		19	24	257,30			

AR Tubular terminal

for single- and multi-wire Al cables





Material: aluminum

Tubular part dimensions according to DIN 46267 part 2

Cross section [mm²] se	rm/sm	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	l [mm]	a [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
25	16	8	8,4	AR 8-16 *	3,2	5,6	18	52	26	13,55	20	12	
		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	EPZC300N EPZ300N GZ300 HRZ300 PRZ240 GU300 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	
		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	
		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	
		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	EPZC300N EPZ300N GZ300 HRZ300 PRZ240 GU300
		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	
		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	
		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	
		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	EPZC300N EPZ300N GZ300 HRZ300 GU300
		16	17	AR 16-240						155,00			
		20	21	AR 20-240						180,70			
	300	16	17	AR 16-300	5,35	23,3	49	124	76	180,00	1	34	
		20	21	AR 20-300						185,00			
	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	16	17	AR 16-500	7,5	29	59	148	88	448,60	1	44	
		20	21	AR 20-500						446,10			
	625	16	17	AR 16-625*	8,5	35	71	152	95	540,00	1	52	
		20	21	AR 20-625*						585,90			

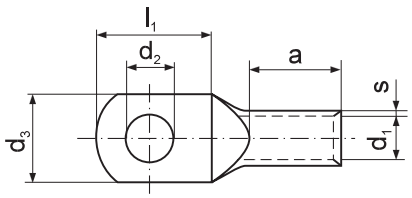
* – outside DIN standard.

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 rm/sm [mm²]	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	l_1 [mm]	a [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
16	6	6,4	ARC 16	2	5,2	16	18	23	5,27	20	9	PR95A (nie dot. 16 mm²), + 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	25,5	43	26,60	10	18	
120	12	13	ARC 120	2,7	14,3	28	30	52	35,40	10	20	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300
150	16	17	ARC 150	2,9	16,2	34	33	55	45,28	10	22	EPZC300N, EPZ300N, GZ300, HRZ300, GU300
185	16	17	ARC 185	3,1	17,8	38	37	60	59,10	10	23	
240	16	17	ARC 240	4	20,2	40	40	64	95,00	10	28	

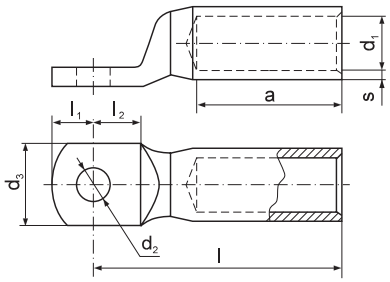
Production on request. Terminals of dimensions other than in chart.

for single- and multi-wire Al cables

AS Tight terminal

Material: aluminum

According to DIN 46329





Cross section [mm²] se	Cross section [mm²] rm/sm	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	l_1 [mm]	l_2 [mm]	l [mm]	a [mm]	Dies discriminant	Crimping tools
25	16	8	8,4	AS 8-16*	3,2	5,6	25	10	15,5	50	30	12	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR95A
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	
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	EPZC300N, EPZ300N, GZ300, HRZ300, GU300
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	
	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	

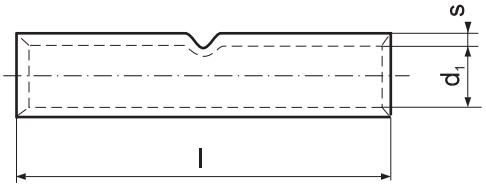
* outside DIN standard

se- single-strand sector wire
rm – multi-strand round wire
sm – multi-strand sector wire
Terminals of dimensions other than in chart on request.
Connectors with contact paste on request - indicate such. AS 8-16-P.

ALD Tubular connector

for single- and multi-wire Al cables





Material: aluminum

According to DIN 46267 part 2

Cross section [mm²] se	rm/sm	Symbol	s [mm]	d_1 [mm]	l [mm]	Weight [g/szt]	Unit [pcs]	Dies discriminant	Crimping tools
25	16	ALD 16 *	3,2	5,6	55	13,50	10	12	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR95A
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	
150	120	ALD 120	4,15	14,7	105	66,50	10	22	EPZC300N, EPZ300N, GZ300, HRZ300, GU300
185	150	ALD 150	4,35	16,3	125	95,00	10	25	
240	185	ALD 185	5,1	18,3	125	125,00	10	28	
300	240	ALD 240	5,5	21	145	182,82	10	32	
	300	ALD 300	5,35	23,3	145	188,88	5	34	
	400	ALD 400	6,25	26	210	360,00	5	38	GU625
	500	ALD 500	7,5	29	210	490,00	5	44	
	625	ALD 625 *	8,5	35	210	660,00	5	52	

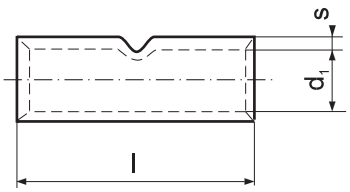
* outside DIN standard.

se- single-strand sector wire
rm – multi-strand round wire
sm – multi-strand sector wire
Terminals of dimensions other than in chart on request.
Connectors with contact paste on request - indicate such. ALD 16-P.

ALC Tubular connector

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





Material: aluminum

Cross section rm/sm [mm²]	Symbol	s [mm]	d_1 [mm]	l [mm]	Weight [g/pce]	Unit [pcs]	Dies discriminant	Crimping tools
16	ALC 16	2	5,2	50	5,95	20	9	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR95A
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	
120	ALC 120	2,7	14,3	105	40,60	10	20	EPZC300N, EPZ300N, GZ300, HRZ300, GU300
150	ALC 150	2,9	16,2	120	55,53	10	22	HRZ300, GU300, GZ300, EPZ300N
185	ALC 185	3,1	17,8	125	68,20	10	24	
240	ALC 240	4	20,2	136	109,45	10	28	

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

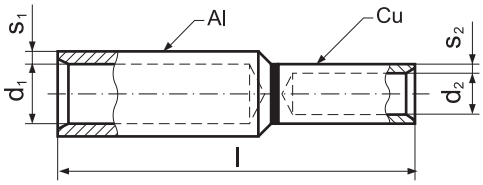
for single- and multi-wire Al and Cu cables

ACL Bi-metallic connector

Material: copper, aluminum

AL and Cu tubular part according to DIN 46267

Thermal resistance 300°C





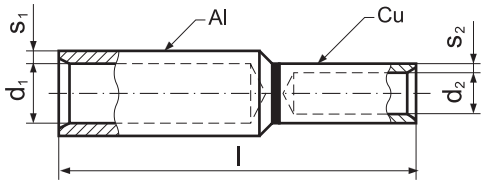
Cross section [mm²] se	Al rm/sm	Cu rm/sm	Symbol	s_1 [mm]	d_1 [mm]	s_2 [mm]	d_2 [mm]	l [mm]	Dies discriminant	Crimping tools
25	16	10	ACL 16-10	3,2	5,6	0,75	4,5	55	12/6	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120-D, PR150-D, PR95A, PR50-D
		16	ACL 16-16			1,5	5,5	61	12/8	
		25	ACL 16-25			1,5	7	61	12/10	
35	25	10	ACL 25-10	2,6	6,8	0,75	4,5	55	12/6	
		16	ACL 25-16			1,5	5,5	61	12/8	
		25	ACL 25-25			1,5	7	61	12/10	
		35	ACL 25-35			2,15	8,2	61	12/12	
50	35	16	ACL 35-16	3	8	1,5	5,5	71	14/8	
		25	ACL 35-25			1,5	7	71	14/10	
		35	ACL 35-35			2,15	8,2	71	14/12	
		50	ACL 35-50			2,25	10	77	14/14	
70	50	16	ACL 50-16	3,1	9,8	1,5	5,5	71,5	16/8	
		25	ACL 50-25			1,5	7	71,5	16/10	
		35	ACL 50-35			2,15	8,2	71,5	16/12	
		50	ACL 50-50			2,25	10	77,5	16/14	
		70	ACL 50-70			2,5	11,5	82	16/16	
95	70	16	ACL 70-16	3,65	11,2	1,5	5,5	79	18/8	
		25	ACL 70-25			1,5	7	79	18/10	
		35	ACL 70-35			2,15	8,2	79	18/12	
		50	ACL 70-50			2,25	10	85	18/14	
		70	ACL 70-70			2,5	11,5	87	18/16	
		95	ACL 70-95			2,75	13,5	95	18/18	
120	95	16	ACL 95-16	4,4	13,2	1,5	5,5	79	22/8	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120-D, PR150-D, PR50-D
		25	ACL 95-25			1,5	7	79	22/10	
		35	ACL 95-35			2,15	8,2	79	22/12	
		50	ACL 95-50			2,25	10	87	22/14	
		70	ACL 95-70			2,5	11,5	89	22/16	
		95	ACL 95-95			2,75	13,5	97	22/18	
		120	ACL 95-120			2,75	15,5	97	22/20	
150	120	16	ACL 120-16	4,15	14,7	1,5	5,5	87	22/8	
		25	ACL 120-25			1,5	7	87	22/10	
		35	ACL 120-35			2,15	8,2	87	22/12	
		50	ACL 120-50			2,25	10	95	22/14	
		70	ACL 120-70			2,5	11,5	95	22/16	
		95	ACL 120-95			2,75	13,5	101	22/18	
		120	ACL 120-120			2,75	15,5	101	22/20	
185	150	16	ACL 150-16	4,35	16,3	1,5	5,5	93	25/8	
		25	ACL 150-25			1,5	7	93	25/10	
		35	ACL 150-35			2,15	8,2	93	25/12	
		50	ACL 150-50			2,25	10	101	25/14	
		70	ACL 150-70			2,5	11,5	101	25/16	
		95	ACL 150-95			2,75	13,5	108	25/18	
		120	ACL 150-120			2,75	15,5	108	25/20	
		150	ACL 150-150			3,25	17	108	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

AL and Cu tubular part according to DIN 46267

Thermal resistance 300°C

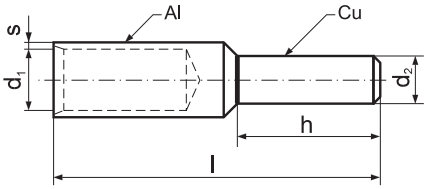
Cross section [mm²] se	Al rm/sm	Cu rm/sm	Symbol	s_1 [mm]	d_1 [mm]	s_2 [mm]	d_2 [mm]	l [mm]	Dies discriminant	Crimping tools
240	185	50	ACL 185-50	5,1	18,3	2,25	10	108	28/14	
		70	ACL 185-70			2,5	11,5	108	28/16	
		95	ACL 185-95			2,75	13,5	111	28/18	
		120	ACL 185-120			2,75	15,5	111	28/20	
		150	ACL 185-150			3,25	17	113	28/22	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR120-D, PR150-D, PR50-D
		185	ACL 185-185			3,25	19	116	28/25	
300	240	50	ACL 240-50	5,5	21	2,25	10	116	32/14	
		70	ACL 240-70			2,5	11,5	116	32/16	
		95	ACL 240-95			2,75	13,5	124	32/18	
		120	ACL 240-120			2,75	15,5	124	32/20	
		150	ACL 240-150			3,25	17	124	32/22	
		185	ACL 240-185			3,25	19	130	32/25	
		240	ACL 240-240			3,75	21,5	130	32/28	
	300	120	ACL 300-120	5,35	23,3	2,75	15,5	127	34/20	
		150	ACL 300-150			3,25	17	127	34/22	
		185	ACL 300-185			3,25	19	134	34/25	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, R120-D, PR150-D
		240	ACL 300-240			3,75	21,5	134	34/28	
		300	ACL 300-300			3,75	24,5	134	34/32	

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 625mm².
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

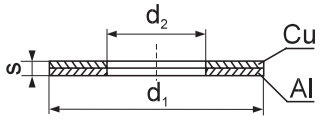
Thermal resistance 300°C

Cross section [mm²] se	rm/sm	Symbol	s [mm]	d_1 [mm]	d_2 [mm]	h [mm]	l [mm]	Dies discriminant	Crimping tools
25	16	ACB 16	3,2	5,6	5	18	58	12	
35	25	ACB 25	2,6	6,8	6	20	58	12	EPZC300N, EPZ300N, GZ300, HRZ300, PRZ240, GU300, PR95A
50	35	ACB 35	3	8	7	22	71	14	
70	50	ACB 50	3,1	9,8	8	25	74	16	
95	70	ACB 70	3,65	11,2	10	30	87	18	PR95A + as below
120	95	ACB 95	4,4	13,2	12	33	91	22	
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 + 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	EPZC300N, EPZ300N,
	300	ACB 300	5,35	23,3	18	46	131	34	GZ300, HRZ300, GU300

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 625mm².
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 M	d_2 [mm]	Symbol	d_1 [mm]	s [mm]	Weight [g/pce]	Standard Unit [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.

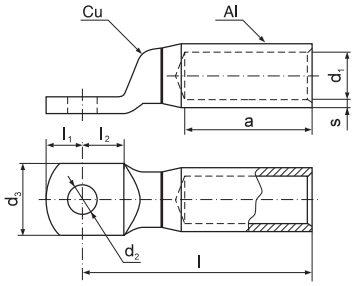
for single- and multi-wire Al cables

ACK Tight bi-metallic terminal

Material: copper, aluminum

AL tubular part according to DIN 46267

Thermal resistance 300°C





Cross section [mm²] se	rm/sm	For screw M	d_2 [mm]	Symbol	s [mm]	d_1 [mm]	d_3 [mm]	l_1 [mm]	l_2 [mm]	l [mm]	a [mm]	Dies discriminant	Crimping tools
25	16	8	8,4	ACK 8-16	3,2	5,6	25	10	15,5	61	30	12	
35	25	10	10,5	ACK 10-25	2,6	6,8	25	12	15,5	61	30	12	
		12	13	ACK 12-25				13		61			
50	35	8	8,4	ACK 8-35	3	8	25	10	15,5	75	42	14	EPZC300N, EPZ300N,
		10	10,5	ACK 10-35				12		75			GZ300, HRZ300,
70	50	8	8,4	ACK 8-50	3,1	9,8	25	10	15,5	75	42	16	PRZ240, GU300,
		10	10,5	ACK 10-50				12		75			PR95A
95	70	10	10,5	ACK 10-70	3,65	11,2	25	12	15,5	85	52	18	
		12	13	ACK 12-70				13		85			
120	95	10	10,5	ACK 10-95	4,4	13,2	25	12	15,5	95	56	22	
150	120	12	13	ACK 12-120	4,15	14,7	30	13	15,5	94	56	22	
185	150	16	17	ACK 16-150	4,35	16,3	30	16	20	104	60	25	
240	185	12	13	ACK 12-185	5,1	18,3	36	13	20	110	60	28	EPZC300N, EPZ300N,
300	240	12	13	ACK 12-240	5,5	21	36	13	20	126	70	32	GZ300, HRZ300,
400	300	16	17	ACK 16-300	5,35	23,3	38	16	24	130	70	34	GU300, GU625
	400	16	17	ACK 16-400	6,25	26	47	24	24	157	73	38	
	500	16	17	ACK 16-500	7,5	29	47	24	24	160	79	44	
	625	16	17	ACK 16-625	8,5	33	52	24	24	164	85	52	

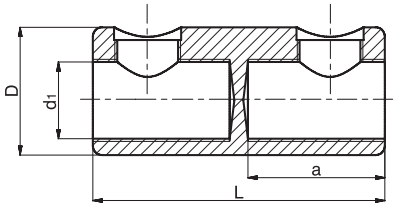
Production on request.
se- single-strand sector wire
rm – multi-strand round wire
sm – multi-strand sector wire
Designed to connect aluminum cables with copper elements. Eliminates formation of cells at Al-Cu contact. Production of terminals of dimensions other than in chart on request. Terminals with securing paste on request – mark 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.

SZN Shear off screw connector

up to 1 kV





Material:
tinned aluminum body
standard tinned brass screws
or of special aluminum alloy

Symbol	Al conductor cross section [mm²] rm	re	sm	se	Cu [mm²] rm	sm	re	d_1 [mm]	D [mm]	L [mm]	a [mm]	Number of screws
SZN 1625-A	16-35	16-35	16-25	16-35	10-25	10-25	10-25	9	16	40	18	2
SZN 1650-A	16-50	16-50	16-50	16-50	16-50	16-50	16-50	11	21	55	25	2
SZN 2595-A	25-95	25-95	25-95	25-95	25-95	25-95	25-95	14	25	55	25	2
SZN 25150-A	25-150	25-150	25-120	25-150	25-150	25-120	25-150	17,5	28	70	32,5	2
SZN 25185-A	35-185	25-185	25-185	25-185	25-185	25-185	25-185	21	32	80	37,5	2
SZN 120240-A	120-240	120-240	120-185	120-240	120-240	120-240	–	23	38	128	60	4
SZNE 120240-A	120-240	120-185	120-240	120-185	120-185	120-185	–	24,5	36	80	37,5	2

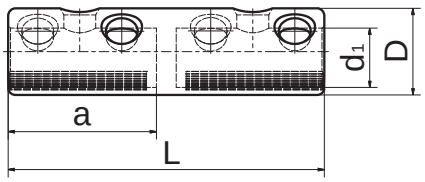
Production of connectors of other parameters on request:
non tinned aluminum screws, symbol e.g. SZN 2595-A
tinned aluminum screws, symbol e.g. SZN 2595-AT
non tinned body, tinned aluminum screws, symbol e.g. SZN 2595-AT-N

ZSNP Shear off screw connector

do 1 kV

NEW





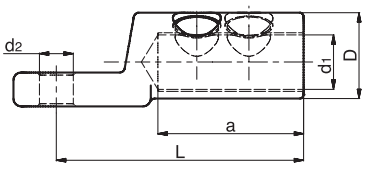
Material:
Connector body - tinned aluminium alloy
Connector bolts - aluminium alloy, with a brass pressing pad
Bolts with semi-conductive material inside

Symbol	Al conductor cross section [mm²] rm	re	sm	se	V klasa	Cu [mm²] rm	sm	re	V klasa	d_1 [mm]	D [mm]	L [mm]	a [mm]
ZSNP 1625	16-35	16-35	16-25	16-35	16-25	10-25	10-25	10-25	16-25	9	16	36	16
ZSNP 1650	16-50	16-50	16-50	16-50	16-50	16-50	16-50	16-50	16-50	11	18	36	16
ZSNP 2595	25-95	25-95	25-95	25-95	25-95	25-95	25-95	25-95	25-95	14	25	55	25
ZSNP 25150	25-150	25-150	25-150	25-150	25-120	25-150	25-120	25-150	25-120	17,5	28	70	32,5
ZSNP 120240	120-240	120-240	120-240	120-240	120-240	120-240	120-240	-	120-240	24	35	128	60

up to 6 kV

SKN Shear off screw terminal

Material:
tinned aluminum body
standard tinned brass screws
or of special aluminum alloy





Symbol	Al conductor cross section [mm²] rm	re	sm	se	Cu [mm²] rm	sm	re	d_1 [mm]	D [mm]	L [mm]	a [mm]	Number of screws
SKN 8-1625-A												
SKN 10-1625-A	16-35	16-35	16-25	16-35	10-25	10-25	10-25	9	18	40	18	1
SKN 12-1625-A												
SKN 8-2595-A												
SKN 10-2595-A	25-95	25-95	25-95	25-95	25-95	25-95	25-95	14	25	60	32,5	1
SKN 12-2595-A												
SKN 8-25185-A												
SKN 10-25185-A	35-185	25-185	25-185	25-185	25-185	25-185	25-185	21	33	95	56	2
SKN 12-25185-A												
SKN 8-120240-A												
SKN 10-120240-A	120-240	120-240	120-185	120-240	120-240	120-240	–	23	38	100	63	2
SKN 12-120240-A												
SKN 16-120240-A												

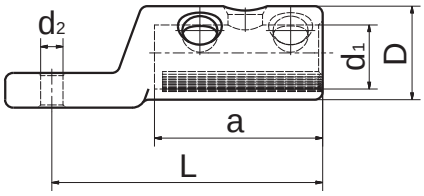
Production of terminals of other parameters on request:
non tinned aluminum screws, symbol e.g. SKN 8-2595-A
tinned aluminum screws, symbol e.g. SKN 8-2595-AT

do 6 kV

KSNP Shear off screw terminal

NEW

Material:
Connector body - tinned aluminium alloy
Connector bolts - aluminium alloy,
with a brass pressing pad.
Bolts with semi-conductive material inside



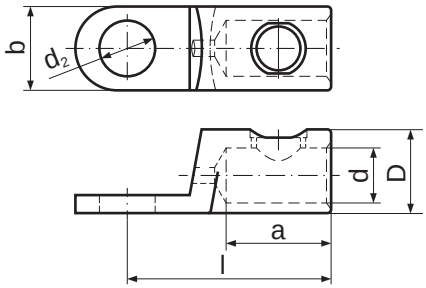


Symbol	Al conductor cross section [mm²] rm	re	sm	se	V klasa	Cu [mm²] rm	sm	re	V klasa	d_1 [mm]	D [mm]	L [mm]	a [mm]
KSNP 8-1625													
KSNP 10-1625	16-35	16-35	16-25	16-35	16-25	10-25	10-25	10-25	16-25	9	18	40	18
KSNP 12-1625													
KSNP 8-2595													
KSNP 10-2595	25-95	25-95	25-95	25-95	25-95	25-95	25-95	25-95	25-95	14,5	25	60	32,5
KSNP 12-2595													
KSNP 8-25150													
KSNP 10-25150	25-150	25-150	25-120	25-120	25-120	25-150	25-120	25-150	25-120	17,5	30	79	35
KSNP 12-25150													
KSNP 8-120240													
KSNP 10-120240	120-240	120-240	120-240	120-240	120-240	120-240	120-240	-	120-240	24	35	100	63
KSNP 12-120240													
KSNP 16-120240													

SKSW Shear off screw terminal

up to 36 kV





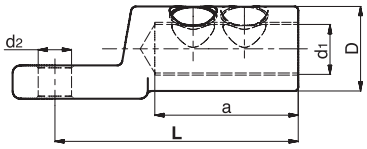
Material:
tinned copper body
standard tinned brass screws

Symbol	Cu [mm²]	Flat Al cable number	Flat Al cable dimension	d_2 [mm]	b [mm]	D [mm]	d [mm]	a [mm]	L [mm]
SKSW 10-1070 Terminal for return conductor	10-50	3-13	1 mm x 5,2 mm	10,5	16	16	10,5	20	39
SKSW 12-1070 Terminal for return conductor	10-50	3-13	1 mm x 5,2 mm	13	19	16	10,5	20	41

SKS Shear off screw terminal

up to 36 kV





Material:
tinned aluminum body
standard tinned brass screws
or of special aluminum alloy

Symbol	Al conductor cross section [mm²] rmv	rm	re	sm	se	Cu [mm²] rmv	rm	sm	d_1 [mm]	D [mm]	L [mm]	a [mm]	Number of screws
SKS 12-1695	16-95	16-95	16-95	25-70	16-95	16-95	16-95	25-70	13	24	60	32	1
SKS 16-1695													
SKS 12-50150	50-150	50-120	50-150	50-120	50-150	50-150	50-120	50-120	15,5	30	79	35	1
SKS 16-50150													
SKS 12-95240	95-240	95-185	95-240	95-185	95-240	95-240	95-185	95-185	20	33	95	56	2
SKS 16-95240													
SKS 12-120300	120-300	120-300	120-300	120-240	120-300	120-300	120-300	120-240	25	38	100	67	2
SKS 16-120300													
SKS 12-185400	185-400	185-400	185-400	185-300	–	185-400	185-400	185-300	26	42	120	82	3
SKS 16-185400													
SKS 12-300500	300-500	300-500	300-500	300-400	–	300-500	300-500	300-400	34	52	130	94	3
SKS 16-300500													
SKS 20-300500													
SKS 12-400630	400-630	400-630	400-630	400-500	–	400-630	400-630	400-500	34	52	130	94	3
SKS 16-400630													
SKS 20-400630													

Production of terminals of other parameters on request:
non tinned aluminum screws, symbol e.g. SKS 12-1695-A
tinned aluminum screws, symbol e.g. SKS 12-1695-AT

do 36 kV

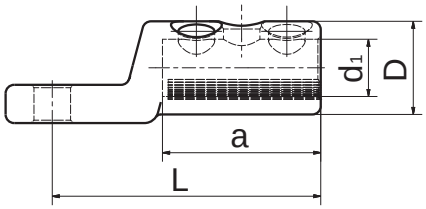
KSSP Shear off screw connector

Material:

Connector body - tinned aluminium alloy

Connector bolts - aluminium alloy, with a brass pressing pad.

Bolts with semi-conductive material inside



NEW



Symbol	Al conductor cross section [mm²] rmv	rm	re	sm	se	V klasa	Cu [mm²] rmv	rm	sm	V klasa	d_1 [mm]	D [mm]	L [mm]	a [mm]
KSSP 12-1695	16-95	16-95	16-95	25-70	16-95	16-70	16-95	16-95	25-70	16-70	13	24	60	32,5
KSSP 16-1695														
KSSP 12-50150	35-150	50-120	50-150	50-120	50-150	50-150	35-150	50-120	50-120	50-150	15,5	30	79	35
KSSP 16-50150														
KSSP 12-95240	95-240	95-185	95-240	95-185	95-240	95-185	95-240	95-185	95-185	95-185	20	33	95	56
KSSP 16-95240														
KSSP 12-120300	120-300	120-300	120-300	120-240	120-300	120-240	120-300	120- 300	120-240	120-240	25	38	100	67
KSSP 16-120300														
KSSP 12-400630														
KSSP 16-400630	400-630	400-630	400-630	400-500	-	400-500	400-630	400-630	400-500	400-500	34	52	130	94
KSSP 20-400630														
KSSP 16-6301000	630-1000	630-1000	630-1000	-	-	630-800	630-1000	-	-	630-800	41	60	165	105
KSSP 20-6301000														

up to 36 kV

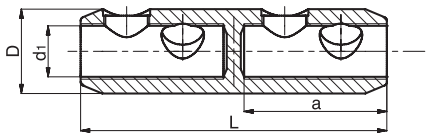
SZS Shear off screw connector

Material:

tinned aluminum body

standard tinned brass screws

or of special aluminum alloy





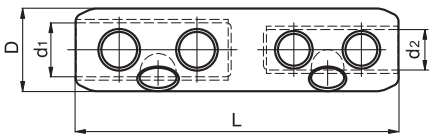
Symbol	Al conductor cross section [mm²] rmv	rm	re	sm	se	Cu [mm²] rmv	rm	sm	d_1 [mm]	D [mm]	L [mm]	a [mm]	Number of screws
SZS 1695	16-95	16-95	16-95	25-70	16-95	16-95	16-95	25-70	13	24	70	32	2
SZS 50150	35-150	50-120	50-150	50-120	50-150	35-150	50-120	50-120	15,5	30	85	35	2
SZS 95240	95-240	95-185	95-240	95-185	95-240	95-240	95-185	95-185	20	33	120	56	4
SZS 120300	120-300	120-300	120-300	120-240	120-300	120-300	120-300	120-240	25	38	142	67	4
SZS 185400	185-400	185-400	185-400	185-300	–	185-400	185-400	185-300	26	42	170	82	6
SZS 300500	300-500	300-500	300-500	300-400	–	300-500	300-500	300-400	34	52	200	94	6
SZS 400630	400-630	400-630	400-630	400-500	–	400-630	400-630	400-500	34	52	200	94	6

Production of connectors of other parameters on request:
non tinned aluminum screws, symbol e.g. SZS 1695-A
tinned aluminum screws, symbol e.g. SZS 1695-AT

SZSR Shear off screw reducing connector

up to 36 kV





Material:
tinned aluminum body
standard tinned brass screws
or of special aluminum alloy

Symbol	Al conductor cross section [mm²] rm (v)	re	sm	Cu [mm²] rm (v)	sm	D [mm]	d_1 [mm]	d_2 [mm]	L [mm]	Number of screws
SZSR 120300-1695	120-300/ 16-95	120-300/ 16-95	120-240/ 25-70	120-300/ 16-70	120-240/ 25-70	38	25	13	140	2/1
SZSR 185400-95240	185-400/ 95-240	185-400/ 95-240	185-300/ 95-185	185-400/ 95-240	185-300/ 95-185	42	26	20	170	3/2
SZSR 185400-300500	185-400/ 300-500	185-400/ 300-500	185-300/ 300-400	185-400/ 300-500	185-300/ 300-400	52	26	34	200	3/3
SZSR 185400-400630	185-400/ 400-630	185-400/ 400-630	185-300/ 400-500	185-400/ 400-630	185-300/ 400-500	52	26	34	200	3/3

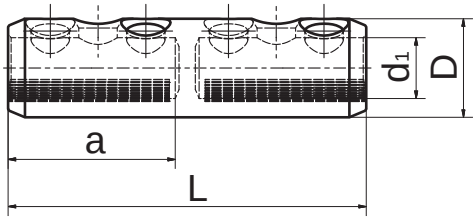
Production of connectors of other parameters on request:
non tinned aluminum screws, symbol e.g. SZSR 120300-1695-A
tinned aluminum screws, symbol e.g. SZSR 120300-1695-AT

ZSSP Shear off screw connector

do 36 kV

NEW



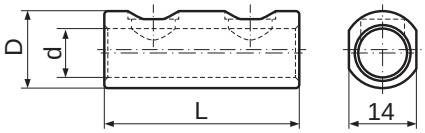


Material:
Connector body - tinned aluminium alloy
Connector bolts - aluminium alloy, with a brass pressing pad.
Bolts with semi-conductive material inside

Symbol	Al conductor cross section [mm²] rmv	rm	re	sm	se	V klasa	Cu [mm²] rmv	Rm	sm	V klasa	d_1 [mm]	D [mm]	L [mm]	a [mm]
ZSSP 1695	16-95	16-95	16-95	25-70	16-95	16-70	16-95	16-95	25-70	16-70	13	24	70	32
ZSSP 50150	35-150	50-120	50-150	50-120	50-150	50-120	35-150	50-120	50-120	50-120	15,5	30	85	39
ZSSP 95240	95-240	95-185	95-240	95-185	95-240	95-185	95-240	95-185	95-185	95-185	20,4	33	120	56
ZSSP 120300	120-300	120-300	120-300	120-240	120-240	120-300	120-300	120-300	120-240	120-240	25	38	142	67
ZSSP 400630	400-630	400-630	400-630	400-500	-	400-500	400-630	400-630	400-500	400-500	34	52	200	94
ZSSP 6301000	630-1000	630-1000	630-1000	-	-	630-800	630-1000	-	-	630-800	41	60	220	105

SZSW Shear off screw connector

Material:
tinned copper body
standard tinned brass screws





Symbol	Cu [mm²]	Flat Al cable number	Flat Al cable dimension	D [mm]	d [mm]	L [mm]
SZSW 1070 Connector for return conductor	10-50	3-13	1 mm x 5,2 mm	16	10,5	40

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

Lenght: 260 mm; Weight: 0,65 kg

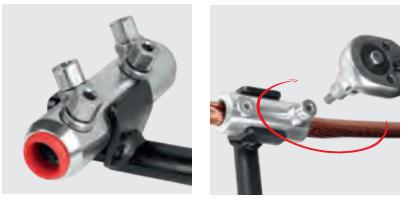




NAS J6 NAS J8 NAS S10

UZS 1 Holder for shear off screw terminals and connectors

Tool for holding terminals and connectors during mounting (tightening the screws).
Lenght: 265 mm; Weight: 0,65 kg

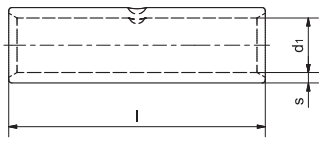




KLN-S Tubular Cu connector

up to 10kV



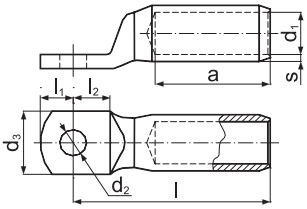


Diameter of tubular part as for KLN
Range 16 ÷ 625 mm²

KCM-F Tight Cu terminal

10 ÷ 36kV



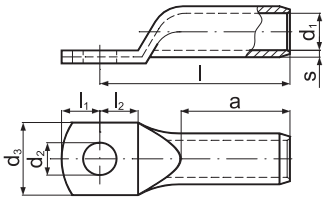


Dimensions as for KCM
Range 25 ÷ 625 mm²

KCR-F Tubular Cu terminal

10 ÷ 36kV



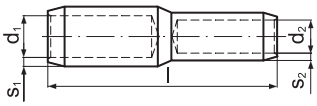


Dimensions as for KCR
Range 25 ÷ 625 mm²

KLS-F Tubular Cu connectors

10 ÷ 36kV



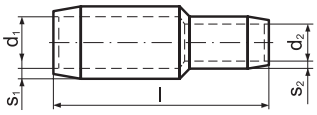


Tubular part dimensions as for KLS
Range 25 ÷ 300 mm²

KLR-F Tubular Cu connectors

10 ÷ 36kV



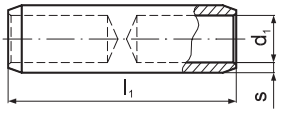


Tubular part dimensions as for KLR
Range 25 ÷ 300 mm²

KLP-F Tight Cu connectors

10 ÷ 36kV



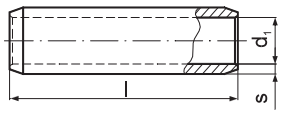


Tubular part dimensions as for KLP
Range 25 ÷ 625 mm²

10 ÷ 36kV

KLN-F Tubular Cu connectors

Tubular part dimensions as for KLN
Range 16 ÷ 625 mm²



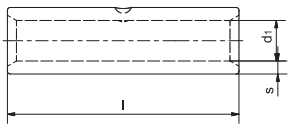


Symbol	l [mm]	s [mm]	d_1 [mm]
KLN-F_16	60	1,5	5,5
KLN-F_25	60	1,5	7
KLN-F_35	60	2,15	8,2
KLN-F_50	65	2,25	10
KLN-F_70	65	2,5	11,5
KLN-F_95	90	2,75	13,5
KLN-F_120	90	2,75	15,5
KLN-F_150	105	3,25	17
KLN-F_185	105	3,25	19
KLN-F_240	125	3,75	21,5
KLN-F_300	125	3,75	24,5
KLN-F_400	160	5,5	27,5
KLN-F_500	175	5,5	31
KLN-F_625	190	4,75	34,5

for single- and multi-wire Al cables up to 10kV

ALD-S Al connector

Material: aluminum
Range 16 ÷ 625 mm²



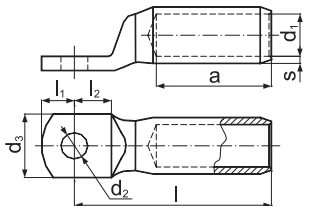


Symbol	l [mm]	s [mm]	d_1 [mm]
ALD-S_16	55	3,2	5,6
ALD-S_25	70	2,6	6,8
ALD-S_35	85	3	8
ALD-S_50	85	3,1	9,8
ALD-S_70	105	3,65	11,2
ALD-S_95	105	4,4	13,2
ALD-S_120	105	4,15	14,7
ALD-S_150	125	4,35	16,3
ALD-S_185	125	5,1	18,3
ALD_S_240	145	5,5	21
ALD-S_300	145	5,35	23,3
ALD-S_400	210	6,25	26
ALD-S_500	210	7,5	29
ALD-S_625	210	8,5	35

AS-F Tight Al terminal

up to 36kV



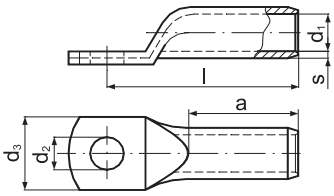


According to DIN 46329 as for AS terminals
Range 25 ÷ 625 mm²

AR-F Tubular Al terminal

up to 36kV



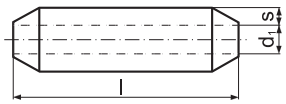


According to DIN 46267 part 2 as for AR terminals
Range 25 ÷ 625 mm²

ALD-F Al connector

for single- and multi-wire Al cables up to 36kV



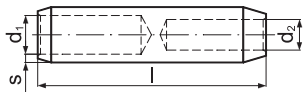


Material: Al aluminum
Range 25 ÷ 625 mm²

ALS-F Tubular Al connector

up to 36kV



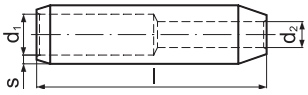


Tubular part dimensions as for ALS
Range 25 ÷ 625 mm²

ALR-F Reducing Al connector

do 36kV



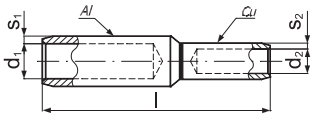


Tubular part dimensions as for ALR
Range 25 ÷ 625 mm²

ACL-F Al-Cu connector

up to 36kV



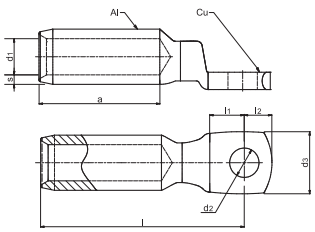


Tubular part diameters according to DIN46267
(Cu-part 1, Al- part2) as for ACL
Range 25 ÷ 625 mm²

ACK-F Al-Cu terminal

up to 36kV

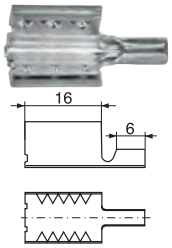




Al tubular part diameters according
to DIN46329 as for ACK
Range 25 ÷ 625 mm²

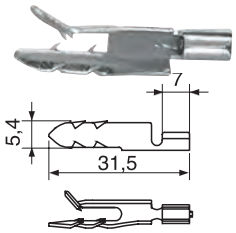
Telecommunication cable shielding terminals

TEL 2,5 Terminal
(for O shielding connectors)



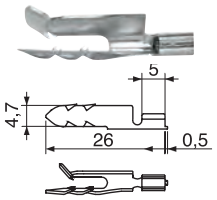
For multi-pair cables at 2,5 mm² cable section.

EL 2,5 Terminal
(for N shielding connectors)



For low-pair cables at 2,5 mm² cable section.

EL 1,5 Terminal
(for A shielding connectors)



For low-pair cables at 1,5 mm² cable section.

Shielding connectors

Shielding connectors for telecommunication cables connecting (e.g. for streight-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 mm²
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 mm² SC-A.. Connectors
- 2,5 mm² SC-N.. Connectors

Do not require armoring splitting during mounting.

LK Shielding connectors

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

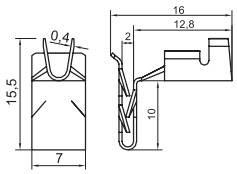


LK-LK.. Connector

LK-KOA.. Connector

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



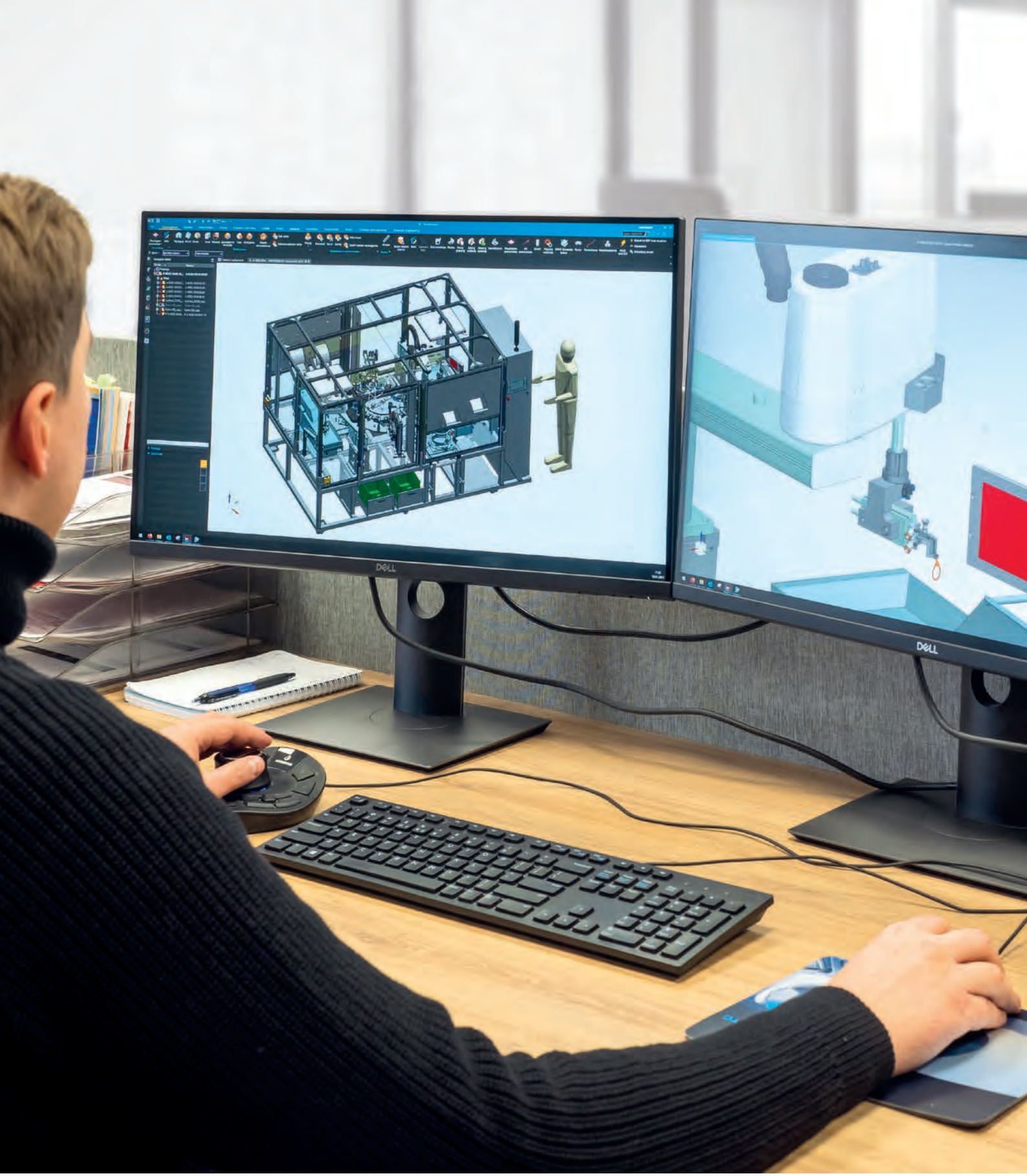
Our experience in the electrotechnical industry and extensive technological and construction facilities, allow to meet expectations of the most demanding customers. In addition to standard products, we offer design and production of special connectors and terminals:

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









AUTOMATION OF PRODUCTION PROCESSES
DESIGN AND IMPLEMENTATION

Automation and robotisation

Changing the manufacturing method speeds up the entire process, eliminates errors and ensures greater safety. Observing the great advancement in this sector, we are intensively developing the ROBOTICS division. Our extensive expertise gives our Clients the confidence that we can successfully execute any project, no matter how demanding and complex it may be from an engineering and technological perspective. Our experienced team of engineers, supported by modern tools and technology, enables us to meet our clients' needs and ensure the safe implementation of their investments.

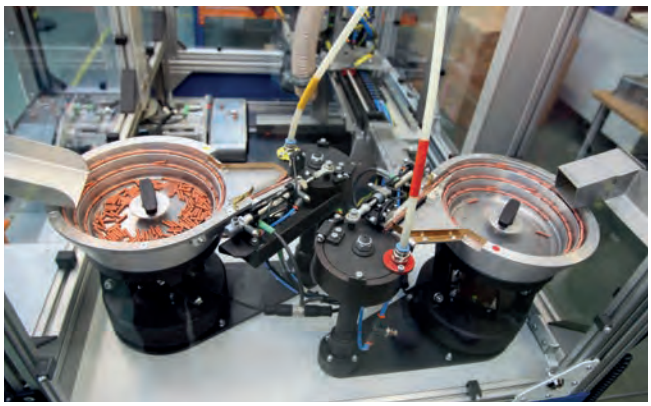


We offer:

- Advisory
- Individual solutions
- Implementation of projects
- Testing
- Service
- Professional support

We provide modern and innovative solutions that guarantee a quick return on investment. We offer a non-standard and flexible approach to the requirements and needs of our Clients. We have implemented the most projects in electrotechnical, automotive, and aviation industries, as well as in the production of sheet metal components for the natural gas distribution industry.





Range of services offered

Automation is designed to streamline work and improve efficiency. That is why it is so important that it is designed and launched considering the individual needs of the client.

The implementation of automation in production is a complex and multi-stage process:

Design and services

- design and implementation of automated production cells and complete production lines.
- modernisations, repairs, commissioning, assembly and maintenance of production lines

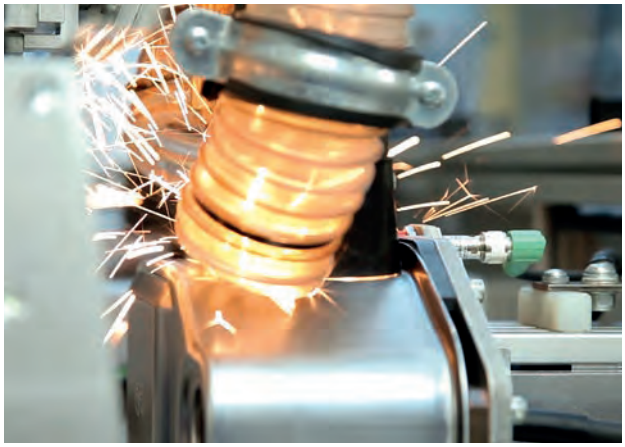
Production

- the production of equipment and production lines is conducted based on modern machinery and advanced methods of production process management
- the manufactured elements are subject to rigorous quality control conducted on advanced measuring machines

Documentation

- development of technological documentation, production of component parts, devices, and complete automated assembly and production cells and lines based on documentation provided by the customer





We automate production processes

- assembly, folding, moving, feeding elements
- soldering and welding
- packaging
- metalworking: twisting, bending, drilling, cutting, pressing
- hardening
- pressing
- taking measurements (quality control / 2D and 3D vision systems)
- cleaning
- bonding
- labelling and barcode reading
- testing



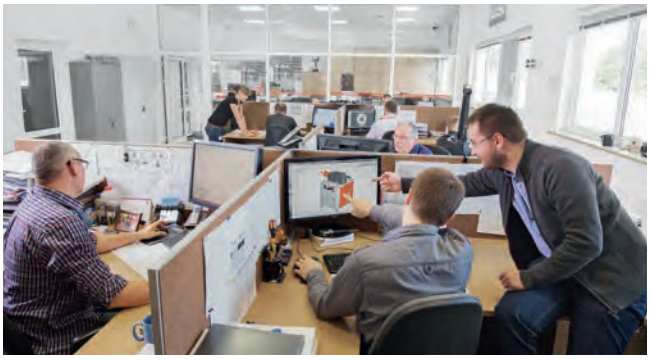
Our offer:

- single and multi-socket assembly machines customised to individual needs
- production and testing machines
- improvement of current technological processes
- minimisation of machine cycle through full automation of the process
- automation of stations and technological lines with the use of robots from leading brands, e.g.: Fanuc, Kuka, Mitsubishi, and vision systems using 2D and 3D cameras
- automatic systems for feeding components to the production line
- projects executed in CAD-CAM software programs (Inventor, Unigraphics, EdgeCam, NX)
- PLC controlled machines: Siemens, Mitsubishi, OMRON
- designing electrical documentation based on the E-Plan programme



Project stages

Thanks to a large team of specialised and experienced engineers, we can offer comprehensive project services, starting from the identification of needs, through design, and production, all the way to implementation at the customer's premises.





Stages of automation implementation:

1

Identification of needs
- defining the Client's needs
- specification of detailed requirements
- estimating the project budget

2

Presentation of a solution
- initial concept
- vision of the solution
- modifications
- optimisation
- offer
- agreement

3

Design
- concept testing
- project execution
- presentation of the 3D project for approval by the Client
- preparation of an executive project
- preparation of technical and operational documentation

4

Production
- prefabrication of details
- assembly of subcomponents
- final assembly of the machine
- production of technological components
- execution of technological assembly

5

Tests at the contractor and acceptance with the Client
- drawing up the machine qualification report
- initial acceptance with the Client

6

Implementation at the customer's premises and service
- assembly
- start-up and operation training
- final acceptance
- service support

ERKO®
AERO



PRODUCTION OF COMPONENTS AND INSTRUMENTATION
FOR AVIATION AND OTHER INDUSTRIES

We specialise in the manufacturing of aircraft parts with the use of metal forming and machining We are also a manufacturer of technological tooling used in production support, assembly, and measurements.
We have a modern machine park that allows us to meet the expectations of the demanding aviation industry.
We manufacture parts made of difficult-to-machine metal alloys. We supply the engine components to such world giants as Boeing and Airbus. Thanks to highly-qualified personnel and an advanced machinery, we are able to meet the highest requirements of customers from the aerospace industry. Thereby, we provide the highest quality at the stage of designing, technological supervision, manufacturing, and sales, while meeting the requirements of aviation standards.
At our plant in the city of Czeluśnica in the Subcarpathian region, we produce components for tubular assemblies of turbofan engines – machined and cold formed components.

Membership in the Aviation Valley in Podkarpackie region

AVIATION VALLEY

We have been a member of the Aviation Valley of the Association of Aviation Industry Entrepreneurs since 2010.

We produce for Aero, Medical, and Defence industries

Aero
We manufacture precise parts for the latest aircraft engines, including PW800 engines used in the business aviation, innovative PW1000 PurePower® engines powering large passenger airliners, and PW2000 powering military aircraft. We also manufacture tooling for assembly of aviation components.

Medical
We manufacture medical components with the use of machining and cold forming. They are used, i.a., in doctor's surgeries' equipment for hysterectomy procedures.

Defence industry
We have the Ministry of the Interior and Administration licence for production for the military industry. We are authorised to manufacture and trade products for military and police purposes.

Cooperation with us means:

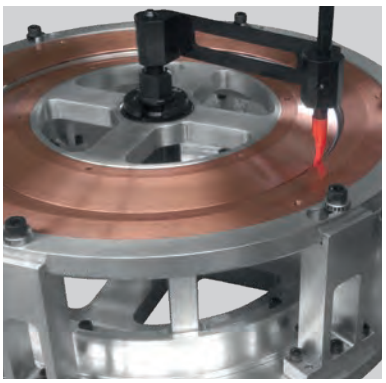
- Precision and timeliness
- Advisory and professional service
- Experience and knowledge
- Own design and technological office
- Prompt implementation of a project
- Automated production
- Repeatable quality of products
- Minimising the number of complaints
- Ensuring security in the supply chain
- Specialist measurement chamber
- Certificates and licences
- Support at each stage of production"
  design, technological supervision, manufacturing, quality control, and sales service

Range of services

We manufacture aviation components with use of metal forming and machining.
Most often we make parts of such materials as stainless steel, nickel alloys, copper, aluminium, and brass.







Production of aviation parts, instrumentation, and tooling:



Processed materials

- stainless steel
- nickel alloys
- titanium alloys
- copper
- aluminum
- sintered metals

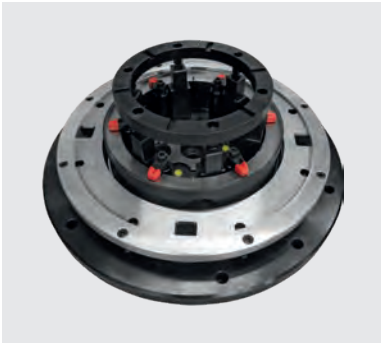
Technological processes

- turning
- milling
- grinding
- cold working of sheet metal
- wet blasting
- electrical discharge machining
- welding
- injection moulding

Software

- EdgeCAM
- NX CAM
- Inventor
- Unigraphics
- AutoCAD
- PC DMIS CAD +++
- PC DMIS VISIO
- Q-DAS q-stat





Certified processes:

AS 9100

- machining:
  - CNC milling
  - CNC turning
- deburring of aviation components
- marking of aviation components:
  - dot peen marking
  - electrochemical marking
- cold working of metal parts:
  - dimensions up to 500×600 mm
  - accuracy 0.2 mm
  - max. press pressure 230 t
  - made of austenitic steels
  - aluminised steel
  - Inconel alloys

ISO 9001

- machining:
  - CNC milling
  - CNC turning
- wire EDM machining
- plastic injection moulding machines
- friction welding
- cold working of metal parts:
  - aluminium
  - copper
- cutting materials
- grinding:
  - flat
  - round

Machine park

The Aviation Manufacturing Division in Czeluśnica machine park comprises the following:

- 4-axis turning/milling centres
- 3-axis turning centres
- CNC lathes
- CNC vertical milling machines
- Wire EDM machines
- Die-sinking EDM machines
- EDM drilling machines
- Jig drilling machines
- Conventional lathes
- Conventional milling machines
- Shaft and hole grinders
- Surface grinders
- Automatic injection moulding machines
- Friction welders
- Hydraulic presses
- Eccentric presses
- Hardening furnaces
- CM contact optical machines
- CM contact frame machines



Quality and timeliness of production

In recognition of the exemplary implementation of the security strategy in the NGPF supply chain, we have received a distinction for ensuring a 100% buffer level of finished parts. It is a confirmation of meeting the requirements in terms of timeliness, quality and competence required from suppliers for the aviation industry from UTC Polska.



Development, research, and analysis

We cooperate with universities to implement new technologies and improve the competences of our employees.

Our Company provides support to employees studying technical faculties. We develop their interests and support related activities, e.g. through student scientific associations.

We undertake technical projects and conduct technical research and analyses in cooperation with academic staff.

AGH
Akademia Górniczo-Hutnicza im. Stanisława Staszica w Krakowie

Państwowa Wyższa Szkoła Zawodowa im. Stanisława Pigonia w Krośnie

Certificates


Bureau Veritas Certification

Certificate of Approval

This is to certify that the Quality Management System of:

ERKO spółka z ograniczoną odpowiedzialnością spółka komandytowa

Czeluśnica 80, 38-204 Tarnowiec, Poland

has been audited in accordance with the requirements of EN 9104-001:2013 by Bureau Veritas Certification and conforms to the following Quality Management Systems Standards detailed below

Standards

BS EN ISO 9001:2015
EN 9100 : 2016
(Technically equivalent to AS9100D)

Scope of certification

Machining and metal forming of parts and assemblies of components for civilian and military purposes used in aviation production.

Certification Structure: Single Site

This certificate forms part of the approval identified by certificate number: PL011883

Original ASCS Approval: 13-12-2014
Certificate Issue Date: 12-12-2020
Certificate Expiry Date: 11-12-2023

Trevor William Douce
Authorised Signatory

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.

Certification Body: Bureau Veritas Certification Holding SAS UK Branch 5th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom

1/1

BV: AS/EN 9100
BV: EN ISO 9001


PRS

CERTYFIKAT

Nr Certyfikatu NC-0001

ERKO

ERKO spółka z ograniczoną odpowiedzialnością spółka komandytowa

ul. ks. Jana Hanowskiego 7
11-042 Jonkowo

ul. ks. Jana Hanowskiego 7
11-042 Jonkowo

Czeluśnica 80
38-204 Tarnowiec

ISO 9001:2015
ISO 14001:2015

Zakres certyfikacji:
PROJEKTOWANIE, PRODUKCJA I SPRZEDAŻ:
- OSPRZĘTU ELEKTROINSTALACYJNEGO, NARZĘDZI I URZĄDZEŃ DO PRAC ELEKTRYCZNYCH,
- OPRZYRZĄDOWANIA ORAZ CZĘŚCI DLA PRZEMYSŁU,
W TYM LOTNICZEGO I MOTORYZACYJNEGO,
- MASZYN AUTOMATYZUJĄCYCH PROCESY PRODUKCYJNE

Pierwsze wydanie Certyfikatu: 07.06.1994
Certyfikat jest ważny do: 01.07.2024

Gdańsk, 04.07.2021

Dyrektor Prac Certyfikacji
Michał Dudziak

www.prs.pl

PRS: ISO 9001
PRS: ISO 14001


MINISTER SPRAW WEWNĘTRZNYCH I ADMINISTRACJI

KONCESJA

Nr B-095/2018

udziela

ERKO SPÓŁKA Z OGRANICZONĄ ODPOWIEDZIALNOŚCIĄ SPÓŁKA KOMANDYTOWA
z siedzibą: 11-042 Jonkowo, ul. ks. Jana Hanowskiego 7
KRS 0000692932, NIP 7390204693

Komplementariusz:
ERKO SPÓŁKA Z OGRANICZONĄ ODPOWIEDZIALNOŚCIĄ
z siedzibą: 11-042 Jonkowo, ul. ks. Jana Hanowskiego 7
KRS 0000665522, NIP 7811942521

Prezes Zarządu Komplementariusza: Pan Piotr Artur PĘTLAK

Członkowie Zarządu Komplementariusza: Pan Maciej Piotr PĘTLAK

- uprawnionej do kierowania działalnością gospodarczą objętą zakresem koncesji

Pan Michał Roman PĘTLAK
Pan Marcin Jan PĘTLAK
Pani Grażyna JANOWICZ

Pełnomocnik uprawniony do kierowania działalnością gospodarczą objętą zakresem koncesji:

Pani Elżbieta Urszula BOJEK

koncesji na wykonywanie działalności gospodarczej w zakresie:

- wytwarzania (elementy) i obrotu wyrobami o przeznaczeniu wojskowym lub policyjnym określonymi w pozycjach WT V i WT XIII ust. 1 i ust. 2 Załącznika Nr 2 Wykaz wyrobów i technologii o przeznaczeniu wojskowym lub policyjnym – WT – do rozporządzenia Rady Ministrów z dnia 3 grudnia 2001 r. w sprawie rodzajów broni i amunicji oraz wykazu wyrobów i technologii o przeznaczeniu wojskowym lub policyjnym, na których wytwarzanie lub obrót jest wymagana koncesja (Dz. U. Nr 145, poz. 1625, z późn. zm.).

0000443

Military production permit

Cooperation with the largest corporations

Pratt & Whitney
A United Technologies Company

SAFRAN

MTU Aero Engines

Collins Aerospace

EME AERO
ENGINE MAINTENANCE EUROPE

GKN AEROSPACE

MB AEROSPACE



Advertising materials



Board
100 x 65 cm (WxS)



Board
100 x 65 cm (WxS)



Display glass-cabinet
202 x 90 x 46 cm (WxSxG)



Display glass-cabinet
202 x 50 x 46 cm (WxSxG)



Display stand
210 x 100 x 47 cm (WxSxG)



Thinking about our customers

WE CREATED ERKO DEMO CAR



We are ready for the presentation of tools and devices of our offer in any place. With a properly equipped DEMO CAR we can present new products, make training at the time and place indicated by the Customer. Our mobile showroom has been equipped with a wide range of devices, and the possibility of professional demonstrations, where customers want it.

Direct checking of solutions by ours Customers enable a deeper understanding of how they work, as well as getting full information about offered products and services .

WE PRESENT innovative solutions. WE WILL SHOW what technical possibilities the tools and devices, we offer, have. WE ADVISE which assortment will be best for your work. WE WILL COME and make a professional presentation.

ERKO

ul. Lipowa 24
11-042 Jonkowo

☎/🖷 +48 89 512 92 73
✉ eksport: export@erko.pl
✉ marketing: marketing@erko.pl
www.erko.pl

Download the catalogue
in pdf format

ERKO company reserves the right to make changes without notice. ERKO trademark is protected by law. All rights reserved.