

# Product Catalogue

## OVERHEAD LINE TECHNIQUE



**ARCUS ELEKTROTECHNIK**  
ALOIS SCHIFFMANN GMBH

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## Dear reader !

Although overhead lines in the course of past years have more and more lost importance due to extension of underground cable networks, they are still an important part of our transmission and distribution networks.

Also the origin of the brandname ARCUS (latin: *arcus*, the arch) is founded in the overhead line technology.

The “arch” was created when the first clamp for a range of copper overhead line cross sections was developed. As a result of the arch-shaped profiles of the clamp parts it became possible to combine different cross sections of overhead lines, and to connect them safely.

Today there is a large variety of overhead lines. Beside pure bronze, copper, or aluminium conductors there are combinations of different materials. One of the most common is the ACSR conductor. The steel core takes care of the necessary mechanical tensile strength, whilst the aluminium wires transmit the current.

For connection of overhead lines, taps, and anchoring, different clamps are available, suitable for different conductor types. As these clamps are exposed to environmental influences over decades, and at the same time have to be reliable in their electric and mechanic function, special requirements have to be met as far as design, choice of material, and surface treatment are concerned. In particular the subject of protection against corrosion plays a major role.



Overhead line clamps are shaped not to damage conductor strands.

Materials and surface treatments are selected to prevent electrochemical corrosion as far as possible. Parts of the clamp body are designed in an open shape to prevent buildup of water.

Furthermore, locking elements on fastening bolts guarantee a permanently stable contact pressure, even if vibration or temperature variations cause flow and setting within the clamp connection.

Electric connections on overhead lines should be carried out only on non-tension conductor sections. Otherwise conductor vibrations may cause a negative influence on the electric contacts. There may also be a possibility that a faulty clamp causes wear-out and rupture of the tensioned conductor.

For this reason one generally distinguishes between full-tension clamps for dead-ends and anchoring, as well as non-tension clamps for connections and tap-offs.

In addition, multi-purpose clamps are available which cover both requirements. The reason is that in a number of applications, the electric connection also needs to transmit appearing tensile forces.

Another advantage of such multi-purpose clamps is simplified storage.

Beside clamps for connection, tap-off and dead-ends of overhead lines, we also offer different earth connection clamps, surge arresters for protection of electric equipment against overvoltage, short-circuiting devices, as well as current-tapping devices. In addition, suitable tools and other installation accessories are available.

This catalogue will give you an overview about our product range for overhead lines, and accessories.

We have arranged these products in different groups to facilitate identification. All important details are listed in a table and are supported by pictures.

In case of uncertainties how to find a product or how to select a suitable one, please contact us. You will find contact details on the backside of this catalogue.

ARCUS offers you not only a vast range of products for overhead lines, and accessories, but furthermore will be pleased to support you in selecting the suitable products.

**This service is a matter of course for us !**



# Aluminium Tap-Off Clamps

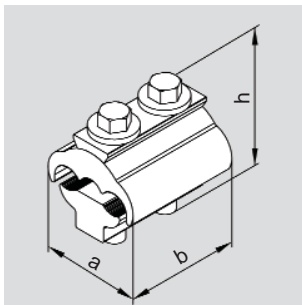
Picture shows 201 042



Picture shows 201 043



Picture shows 201 044



suitable for Aluminium conductors and Aldrey conductors to DIN 48201 and ACSR conductors to DIN 48204

Material	
Body	Aluminium alloy
Screws	Steel, hot-dip galvanised
Pressure plate	Aluminium alloy
Discs	Spring-steel, galvanised

Conductor		Clamp							Packed	Type No.
Cross section [mm <sup>2</sup> ]	Diameter [mm]	Dimensions [mm]			Screw				Pieces	
		a	b	h	KS DIN 475	Thread DIN 13	Number	Grade DIN 267		
10-50		32.8	39.5	45	13	M 8	2	8.8	30	201 002
10-50 (Al) 16/2.5-50/8 (ACSR)	4.1-9.0 (Al) 5.4-9.6 (ACSR)	32.8	39.5	45	13	M 8	2	8.8	30	201 042
16-70		35	43.5	50	13	M 8	2	8.8	25	201 003
16-95		40.5	48.5	55	13	M 8	2	8.8	20	201 004
16-95 (Al) 16/2.5-95/15 (ACSR)	5.1-12.5 (Al) 5.4-13.6 (ACSR)	40.5	48.5	55	13	M 8	2	8.8	25	201 043
35-150 (Al) 35/6-120/20 (ACSR)	7.5-15.7 (Al) 8.1-15.5 (ACSR)	52	60.5	67	17	M 10	2	8.8	12	201 044
35-150		52	60.5	67	17	M 10	2	8.8	12	201 005



# Copper Tap-off Clamps

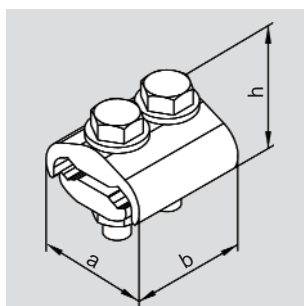
Picture shows 101 001



Picture shows 101 015



Picture shows 101 029



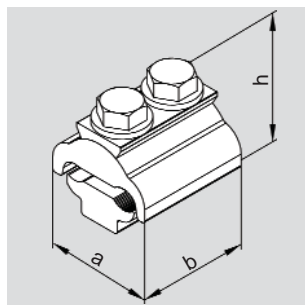
suitable for copper conductors to DIN 48201

Material	
Body	Copper alloy
Screws	Copper alloy
Nuts	Copper alloy
Discs	Copper alloy

Conductor		Clamp							Packed	Type No.
Cross section [mm <sup>2</sup> ]	Diameter [mm]	Dimensions [mm]			Screw				Pieces	
		a	b	h	KS DIN 475	Thread DIN 13	Number	Grade DIN 267		
2.5-16	1.8-5.1	19.5	14	24	8	M 5	1	Bz 60	100	101 001
2.5-16	1.8-5.1	19.5	22.5	24	8	M 5	2	Bz 60	50	101 002
2.5-25	1.8-6.3	24.5	18.5	35	11	M 7	1	Bz 60	100	101 003
2.5-25	1.8-6.3	24.5	29.5	35	11	M 7	2	Bz 60	50	101 005
6-50	2.75-9.0	31.5	20	35	11	M 7	1	Bz 60	50	101 015
6-50	2.75-9.0	31.5	35.5	35	11	M 7	2	Bz 60	25	101 019
6-50	2.75-9.0	32.2	19	40	13	M 8	1	Bz 60	50	101 017
6-50	2.75-9.0	32.2	36.5	40	13	M 8	2	Bz 60	25	101 021
10-70	4.1-10.5	36.5	38.5	40	13	M 8	2	Bz 60	25	101 025
16-95	5.1-12.5	42	40.5	50	13	M 8	2	Bz 60	15	101 029

# Al/Cu Bimetal Tap-off Clamps

Picture shows 301 015



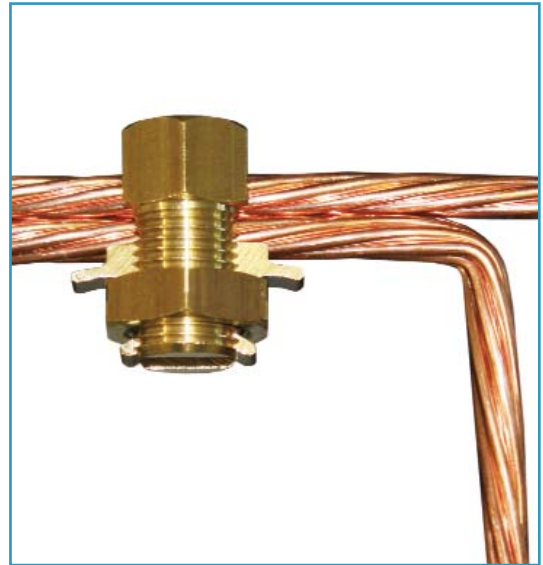
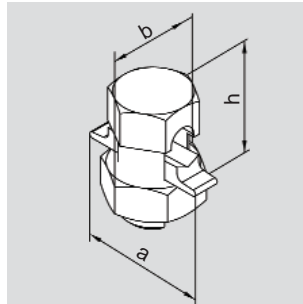
suitable for Aluminium conductors and Aldrey conductors to DIN 48201, ACSR conductors to DIN 48204 and copper branch conductors to DIN 48201

Material	
Body	Aluminium alloy with compressed copper sheet
Pressure plate	Aluminium alloy
Screws	Steel, hot-dip galvanised
Conical spring washer	Spring-steel, galvanised

Conductor				Clamp						Packed	Type No.	
Aluminium, ACSR		Copper		Dimensions [mm]			Screw			Pieces		
Cross section [mm <sup>2</sup> ]	Diameter [mm]	Cross section [mm <sup>2</sup> ]	Diameter [mm]	a	b	h	KS DIN 475	Thread DIN 13	Number			Grade DIN 267
16-70 (Al) 25/4-50/8 (ACSR)	5.1-10.5 (Al) 6.8-9.6 (ACSR)	6-50 (Cu)	2.75-9.0 (Cu)	37.6	39.5	43	13	M 8	2	8.8	35	301 015
16-150 (Al) 16/2.5-120/20 (ACSR)	5.1-15.7 (Al) 5.4-15.5 (ACSR)	10-95 (Cu)	4.1-12.5 (Cu)	41.7	50	55	13	M 8	2	8.8	20	301 016

# Brass Split Bolt Connectors

Picture shows 115 005



Overhead line clamps

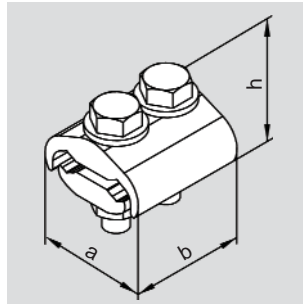
suitable for copper conductors to DIN 48201

Material	
Screw	Copper-zinc alloy
Nut	Copper-zinc alloy
Pressure piece	Copper-zinc alloy

Conductor			Clamp							Packed	Type No.
Cross section [mm <sup>2</sup> ]	Diameter [mm]	AWG Size <sup>1)</sup>	Dimensions [mm]			Screw				Pieces	
			a	b	h	KS Screw	KS Nut	Thread DIN 13	Grade DIN 267		
10	4.1	6 sol	20	14.7	20	11	12.7	M 9.5x1	Cu 3	200	115 001
16	5.1	4 sol 5 str	25	20.2	24	12.7	17.5	M 12.5x1.25	Cu 3	100	115 002
25	6.3	2 sol 3 str	28	22	29	14.3	19	M 14x1.25	Cu 3	100	115 003
35	7.5	2	32	25.6	33	17.5	22.2	M 17x1.5	Cu 3	100	115 004
50	9.0	1/0	35	29.3	39	19	25.4	M 19x1.5	Cu 3	50	115 005
70	10.5	2/0	39	32.6	44	22.2	28.2	M 22x2	Cu 3	40	115 006
95	12.5	3/0	46	38.5	49	25.4	33.3	M 25x2	Cu 3	30	115 007

1) AWG=American Wire Gauge.  
Explanation AWG size: sol= solid conductor, str= stranded conductor

# Aluminium Multi-Purpose Clamps



suitable for Aluminium conductors and Aldrey conductors to DIN 48201 and ACSR conductors to DIN 48204

Material	
Body	Aluminium alloy
Screws	Steel, hot-dip galvanised
Discs	Spring steel, galvanised

Conductor		Clamp							Packed	Type No.
Cross section [mm <sup>2</sup> ]	Diameter [mm]	Dimensions [mm]			Screw				Pieces	
		a	b	h	KS DIN 475	Thread DIN 13	Number	Grade DIN 267		
16-95 (Al) 16/2.5-70/12 (ACSR)	5.1-12.5 (Al) 5.4-11.7 (ACSR)	39	40	45	13	M 8	2	8.8	30	203 041

# Aluminium Dead-End Clamps

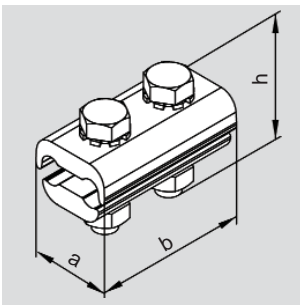
Picture shows 203 023



Picture shows 203 024



Picture shows 203 032



suitable for Aluminium conductors and Aldrey conductors to DIN 48201 and ACSR conductors to DIN 48204

Material	
Body	Aluminium alloy
Screws	Steel, hot-dip galvanised
Discs	Spring-steel, tin-plated

Conductor		Clamp							Packed	Type No.
Cross section [mm <sup>2</sup> ]	Diameter [mm]	Dimensions [mm]			Screw				Pieces	
		a	b	h	KS DIN 475	Thread DIN 13	Number	Grade DIN 267		
16-35 (Al) 16/2.5-25/4 (ACSR)	5.1-7.5 (Al) 5.4-6.8 (ACSR)	31	54	35	13	M 8	2	8.8	25	203 023
35-70 (Al) 35/6-70/12 (ACSR)	7.5-10.5 (Al) 8.1-11.7 (ACSR)	41	74	44	17	M 10	2	8.8	15	203 024
70-120 (Al) 50/8-95/15 (ACSR)	10.5-14 (Al) 9.6-13.6 (ACSR)	52.8	58	53	19	M 12	2	8.8	15	203 032

# Copper Dead-End Clamps

Picture shows 103 022



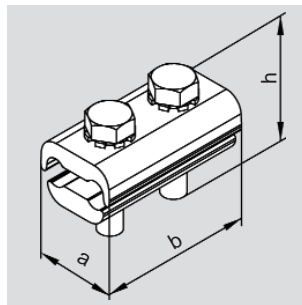
Picture shows 103 023



Picture shows 103 024



Picture shows 103 025



suitable for copper conductors to DIN 48201

Material	
Body	Copper alloy
Screws	Copper alloy
Discs	Copper alloy

Conductor		Clamp							Packed	Type No.
Cross section [mm <sup>2</sup> ]	Diameter [mm]	Dimensions [mm]			Screw				Pieces	
		a	b	h	KS DIN 475	Thread DIN 13	Number	Grade DIN 267		
10-16	4.1-5.1	23	28	28	11	M 7	2	Bz 60	50	103 022
10-35	4.1-7.5	31.5	37	30	13	M 8	2	Bz 60	30	103 023
35-50	7.5-9.0	38	42	40	13	M 8	2	Bz 60	30	103 024
50-70	9.0-10.5	41	48	37	17	M 10	2	Bz 60	20	103 025

# Steel Dead-End Clamps

Picture shows 403 001



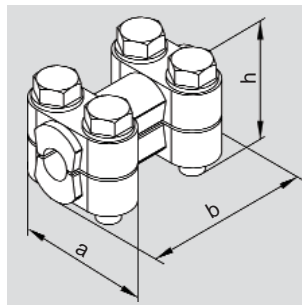
Picture shows 403 002



Picture shows 403 003



Picture shows 403 004



suitable for steel conductors to DIN 48201

Material	
Body	Malleable cast iron, hot-dip galvanised
Screws	Steel, hot-dip galvanised
Discs	Spring-steel, galvanised

Conductor		Clamp							Packed	Type No.
Cross section [mm <sup>2</sup> ]	Diameter [mm]	Dimensions [mm]			Screw				Pieces	
		a	b	h	KS DIN 475	Thread DIN 13	Number	Grade DIN 267		
10-16	4.1-5.1	37	36	35	13	M 8	2	8.8	50	403 001
25-35	6.3-7.5	40	53	35	13	M 8	4	8.8	20	403 002
35-50	7.5-9.0	42	60	41	13	M 8	4	8.8	15	403 004
50-70	9.0-10.5	45	65	42	17	M 10	4	8.8	10	403 003

# Steel Earth Wire Clamps and Steel Earth Strip Clamps

Picture shows 413 022



for connection of earth conductors

Picture shows 413 012



for connection to roof battens, poles, roof poles, brickwork

Picture shows 413 017



Picture shows 413 010



for connection of earth conductors and for connection to poles and brickwork

Picture shows 413 015



Material	
Body	Steel, hot-dip galvanised
Screws	Steel, hot-dip galvanised
Nuts	Steel, hot-dip galvanised
Discs	Stainless steel

Conductor	Flat up to [mm]	KS DIN 475	Screw			Packed Pieces	Type No.
			Thread DIN 13	Number	Grade DIN 267		
2x16 RM	3.5 x 30	17	M 10	2	8.8	10	413 010
16-35 RM	3.5 x 30						
25-50 RE	3.5 x 30						
2x 10-35 RM / 50 RE	3.5 x 30	13	M 8	1	8.8	25	413 012
6-25	3.5 x 30	17	M 10	2	5.6	100	413 015
25-50	3.5 x 30	---	M 8	2	5.6	100	413 017
25-50 RM	---	11	M 8	2	8.8	20	413 022
25-70 RE							

Explanation cross-sections: R=round, E=solid, M=stranded

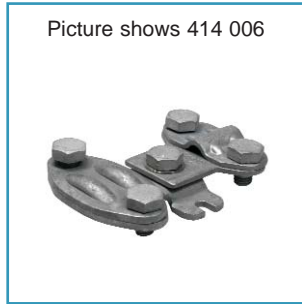


# Steel Earth-Wire Clamps with Test Option

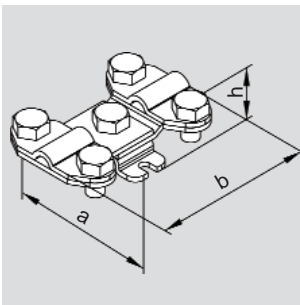
Picture shows 414 003



Picture shows 414 006



Picture shows 414 007



Material	
Body	Steel, hot-dip galvanised
Screws	Steel, hot-dip galvanised
Nuts	Steel, hot-dip galvanised
Discs	Stainless steel
Insulated part <sup>1)</sup>	Synthetic material

Conductor		Screw				Packed	Type No.
Cross section [mm <sup>2</sup> ]	Flat up to [mm]	KS DIN 475	Thread DIN 13	Number	Grade DIN 267	Pieces	
						---	
25-50 RM / RE	---	17	M 10	5	8.8	8	414 006
---	4.0 x 45	17	M 10	5	8.8	8	414 006
25-50 RM / RE	---	17	M 10	4	8.8	15	414 007 <sup>1)</sup>
---	3.5 x 30	17	M 10	4			
25-50	---	19	M 12	1	8.8	15	414 007 <sup>1)</sup>

Explanation cross-sections: R=round, E=solid, M=stranded

1) Measurement of earth potential possible after removal of the centre nut without disconnection of earth conductors or separation of the central connection point.

Picture shows 498 003



**Suitable for aluminium and copper overhead lines**

## Surge arresters for low voltage overhead lines

In order to protect electric equipment against external or internal overvoltage it is recommended to install surge arresters to transformers, transition points from cable to overhead line, cable bushings, neutral, and lengthy run-out lines.

### Construction of the surge arrester:

Surge Arresters System KATHREIN for direct suspension to the conductor have proven its value for more than 50 years. They consist of a weatherproof high-insulating plastic housing into which the components are installed ventily. Problems with damages from condensation or bursting of the devices do not arise. The surge arresters meet the requirements of class A of draft DIN VDE 0675-6:11/89 and amendments A1:03/96 and A2:10/96. They are rated for outdoor use, are protected against direct contact, and may be overloaded and destroyed in case of direct lightning strikes. The white signal disc for the overload cut-off device is fixed against loss and will not be knocked off completely.

### Technical data:

- Requirement class A of draft DIN VDE 0675-6:11/89 and changes A1:03/96 and A2:10/96
- Rated voltage:  $U_r=280\text{ V} / 50\text{ Hz}$
- Nominal discharge current:  $I_{sn}=5\text{ kA}$
- Cut-off device: with 16 A after 5-6 seconds
- Earthing cable: insulated, cross section  $6\text{ mm}^2$
- Clamp data:  
Clamping range:  $\varnothing 4-12\text{ mm}$ , threaded bolt: M8x27 mm
- Material:  
Terminal clamp: stainless steel  
Housing: weatherproof synthetic material
- Surge arresters are maintenance-free.

Description	Type No.
Surge arrester with earthing cable $6\text{ mm}^2$ , 600 mm long	416 005
Surge arrester with earthing cable $6\text{ mm}^2$ , 600 mm long, bolt shortened to 10 mm	498 017
Surge arrester with earthing cable $6\text{ mm}^2$ , 750 mm long	498 003
Surge arrester with earthing cable $6\text{ mm}^2$ , 750 mm long, excluding clamp	498 015
Surge arrester with earthing cable $6\text{ mm}^2$ , 750 mm long, excluding clamp and bolt shortened to 10 mm	498 018

Picture shows 512 212



## Short-circuiting devices with rods and spring-type clamps for low voltage overhead lines

### Device suitable for:

Urban networks with neutral conductor at top or bottom.

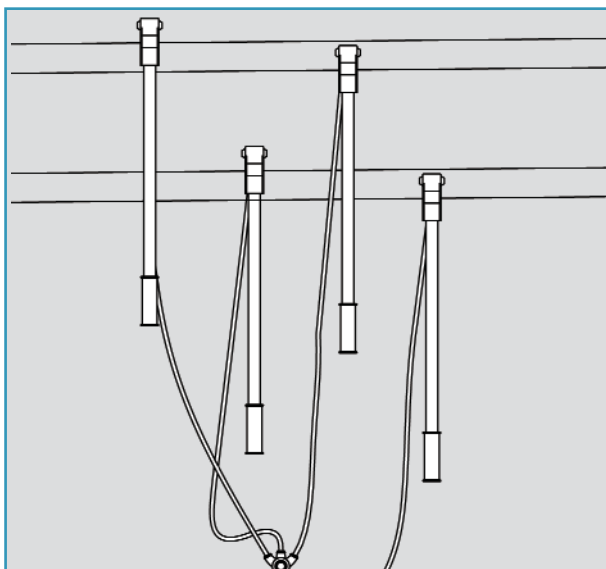
Aluminium and copper conductors:  
 $\varnothing$  3-14 mm, 6 RE-120 RM mm<sup>2</sup>

### Electric short-circuit current capacity:

Rated current and time ( $I_r/t_r$ ): 4.5 kA / 0.5 s

### Construction of the device:

- Touch-proof insulation by covered contact parts.
- Stable contact behaviour with spring elements at the clamp.
- Connection rods and covers made of impact-proof synthetic material.
- Short-circuiting cables are manufactured under observation of the tension forces specified in EN 61230.
- The connection cluster is compressed, bolted, and moulded with a watertight and transparent protection cover.
- Transitions from connection cluster or cable lug towards the lead insulation are enclosed by a stabilised tenacious elastic and transparent sleeve. This mechanical kinking protection guarantees a reliable sealing against ingress of moisture.



Number of Connection Rods	Description	Type No.
4	3x connection rod (length 600 mm), short-circuiting cable 16 mm <sup>2</sup> , 600 mm long 1x connection rod (length 900 mm), short-circuiting cable 16 mm <sup>2</sup> , 600 mm long	512 210
4	4x connection rod (length 600 mm), short-circuiting cable 16 mm <sup>2</sup> , 600 mm long	512 212
4	4x connection rod (length 600 mm), short-circuiting cable 25 mm <sup>2</sup> , 600 mm long	597 030 <sup>1)</sup>

1) Suitable for aluminium and copper conductors:  $\varnothing$  3-12 mm, 6 RE-70 RM mm<sup>2</sup>

Picture shows 512 104



## Short-circuiting devices with rods and screw-type clamps for low voltage overhead lines

### Device suitable for:

Urban networks with neutral conductor at top or bottom.

Aluminium and copper conductors:  
 $\varnothing$  5-14 mm, 16 RE-120 RM mm<sup>2</sup>

### Electric short-circuit current capacity:

Rated current and time ( $I_r/t_r$ ): 7 kA / 0.5 s

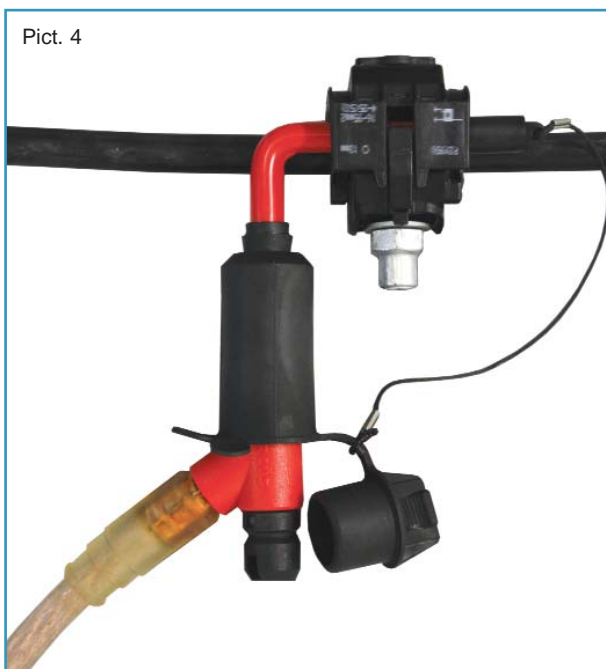
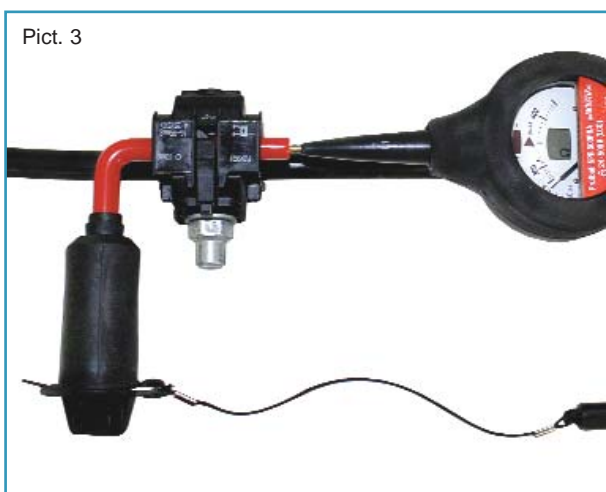
### Construction of the device:

- Screw-type clamps made of tin-plated high-quality copper alloy. Contact areas of the clamps are provided with cross and longitudinal grooves to cut through layers of foreign matter and oxide on the conductor.
- Connection rods made of impact-proof synthetic material.
- Short-circuiting cables are manufactured under observation of the tension forces specified in EN 61230.
- Transitions from connection cluster or cable lug towards the lead insulation are enclosed by a stabilised tenacious elastic and transparent sleeve. This mechanical kinking protection guarantees a reliable sealing against ingress of moisture.

Number of connection rods	Description	Type No.
4	4x connection rod (length 500 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long	512 103
5	5x connection rod (length 500 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long	512 104
6	6x connection rod (length 500 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long	512 105
4	3x connection rod (length 500 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long 1x connection rod (length 900 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long	512 106
5	4x connection rod (length 500 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long 1x connection rod (length 900 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long	512 107
6	5x connection rod (length 500 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long 1x connection rod (length 900 mm), short-circuiting cable 25 mm <sup>2</sup> *), 600 mm long	512 108

\*) Upon request also available with short-circuiting cables 16 mm<sup>2</sup>, 35 mm<sup>2</sup>, 50 mm<sup>2</sup>, and 70 mm<sup>2</sup>

# Adaptor for Fully-Insulated Earthing and Short-Circuiting Devices



## Adaptor for insulated low voltage overhead lines

This adaptor is suitable for connection of a fully-insulated earthing and short-circuiting device to an insulated overhead line. The adaptor is weather-resistant and suitable as a permanent connection for the purpose of earthing and short-circuiting, and for voltage testing.

### Construction of the adaptor:

#### Connection for voltage testing:

The small cap which is secured against loss by means of a cord, is removable to enable a voltage test (pict.1). The connection for voltage testing is shaped to be touchproof (pict.3).

#### Threaded connection:

With anti-twist connection for fully-insulated earthing and short-circuiting devices, for instance type no. 512 257 (pict.2).

Both connections are protected against soiling, ingress of moisture, and mechanical damages by plug-on caps.

Small undetachable flags for phase and neutral conductor (pict.2).

### Material:

Contact parts: Copper alloy (tin-plated)

Insulation (red): Protefan-coated

Caps (black): thermally highly resistant and weatherproof rubber

### Electric short-circuit current capacity:

Rated current and time ( $I_p/t_p$ ):

max. 10 kA/ 0.5 s

Temperature range: -25 °C up to +70 °C

**Type No. 597 642**

Further information about our fully-insulated earthing and short-circuiting devices for low voltage applications can be found in our product catalogue "Fully-insulated and part-insulated earthing and short-circuiting devices for low voltage applications".



## Current tapping rods for portable connections to low voltage overhead lines

### Current tapping rods for:

Live urban networks, for current supply of construction sites. These rods are suitable for long-term installation.

By means of our tension-relief bracket (type no. 517 036 → page 23) it is possible to attach the outgoing cables tension-free to the pole.

Aluminium and copper conductor:  
 $\varnothing$  5-15 mm, 16 RE-120 RM mm<sup>2</sup>

### Construction of the current tapping rods:

- Touchproof design with 1 m long insulating rod to safely reach through between conductors.
- The phase contact parts are made of tin-plated aluminium alloy.
- Connection of the rubber-sheath cable clamps down conductor and insulation separately from each other.
- Threaded fuse and connection point are placed in the threaded housing with protection class IP54.

One-polar current tapping: Connections for rubber-sheath cables H07RN-F and AD7RN-F according to DIN VDE 0282 part 810 with cross sections 10-25 mm<sup>2</sup> and 4x35 mm<sup>2</sup>.

### Type No. 517 035, 517 043 and 517 041:

suitable for separately fused construction site distribution boards with max. 100 A and connections for neutral conductors.

### Type No. 517 042:

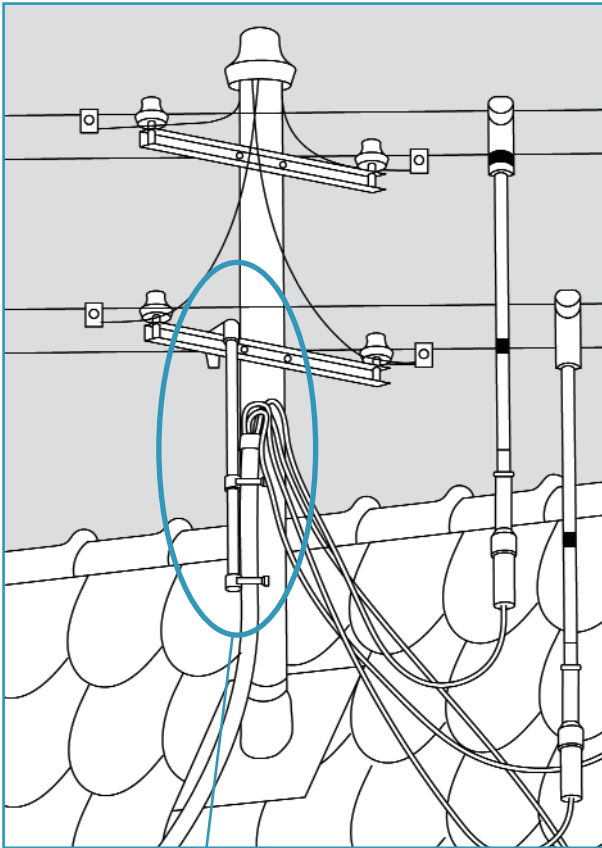
for non-fused construction site distribution boards (max. 63 A Diazed threaded fuses).



Max. Current [A]	Fuse element	Use on	Marking	Type No.
63	inside the current tapping rod <sup>1)</sup>	phase	black	517 042
100	inside the construction site distribution board	phase	black	517 035
100	excluded	neutral conductor	green/yellow	517 043
100	excluded	neutral conductor	blue	517 041

1) 63 A Diazed threaded fuse not included.

# Strain Relief Bracket



## Strain relief bracket for connection lines on current tapping devices

### Strain relief bracket for:

- Construction site connections from overhead lines according to the Bulletin of the VBEW (Association of Bavarian Energy and Water Industry) for equipment with temporary connection.
- Suitable for cables up to max.  $\varnothing$  42 mm.

### Construction of the strain relief bracket:

- Very robust and fully-insulated construction made of high-quality and UV-resistant synthetic material.
- Robust cable guidance with two clamps.
- Fastening hook for attachment to crossbars (e.g. angular or U-shaped bars or hooks).
- Maximum tensile load 1000 N.
- Additional possibility to tie the bracket to the lateral side of the pole by means of the attached nylon cord.

**Type No. 517 036**



# Cleaning Brushes for Overhead Lines



Cleaning brushes for overhead lines support a professional removal of dirt and oxidation on overhead lines, before clamp installation.

They consist of 2 interlocked half-shells with wire brush segments at the inner side. The half-shell arrangement guarantees fast and even all-over cleaning of conductors.

Picture shows 613 001



suitable for aluminium conductors

Picture shows 613 002



suitable for copper conductors

Conductor		Brush dimensions		Type No.
Material	Diameter [mm]	Outer diameter [mm]	Length [mm]	
Aluminium	10-40 mm	60	120	613 001
Copper	10-40 mm	60	120	613 002



Picture shows 620 034



## T-box wrench to DIN 7440

for hexagon head screws

- Length of cross grip: 160 mm.
- Made of seamless cold-drawn precision steel tube.
- Material 25 CrMo4 tempered to 110-150 kg/mm<sup>2</sup> strength.
- Multiple layer dip-coating.



Hexagon head [KS]	Description	Type No.
10	200 mm long	620 031
11	200 mm long	620 032
12	200 mm long	620 033
13	200 mm long	620 034
14	200 mm long	620 035
17	200 mm long	620 036
19	300 mm long	620 037
20	300 mm long	620 038
22	300 mm long	620 039
24	300 mm long	620 040
27	300 mm long	620 041
28	300 mm long	620 042
30	300 mm long	620 043
32	300 mm long	620 044





**Phone**  
General  
+49 (0) 89 / 4 36 04 - 0

**Fax**  
General  
+49 (0) 89 / 4 31 68 88

**Fax**  
Sales Department  
+49 (0) 89 / 4 36 04 - 73

**Internet**  
[www.ARCUS-Schiffmann.com](http://www.ARCUS-Schiffmann.com)  
[info@ARCUS-Schiffmann.com](mailto:info@ARCUS-Schiffmann.com)

**Seat of the Company**  
Truderinger Str. 199  
D-81673 Munich