

High Voltage Cable Accessories



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HV Terminations

GIS/Transformer plug in terminations type TFD

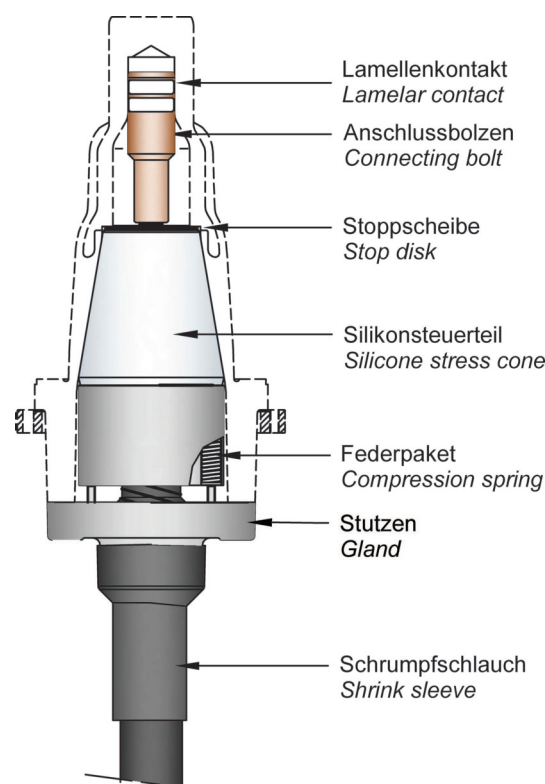
Dry type plug-in terminations For polymeric cables up to 550 kV

Brugg dry type plug-in terminations offer highest quality and application flexibility as GIS or Transformer cable termination for system voltages up to 550 kV. Based on the outstanding properties of the prefabricated and electrically tested slip on stress cones, the reliable modular construction of the TFD terminations allow its application to all types of polymeric insulated cables independently of the cable manufacturer. Thanks to the dry type insulation the cable terminations can be easily installed in any position.

All Brugg dry type plug in terminations are type tested according to the international standards IEC 60840 (≤ 170 kV) and IEC 62067 (> 170 kV). For the long-term reliability of the termination plug in part, each unit of stress cones produced are electrically routine tested in our factory.

Product main features

- For all polymeric cables
- Easy installation in any position
- Adjustable spring tension force
- Application range per stress cone up to 6 mm
- Factory tested silicone rubber stress cone
- Cable screen connection without plumbing



Technical data

Type	Drawing	Max. operating voltage U_m kV	Max. operating current A	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	for sockets size
TFD 1.72-11	S2048	72.5	2500	34 - 86	150 - 2000	0 / 0L
TFD 1.145-10	S2047	145.0	2500	34 - 86	150 - 1600	1 / 1L
TFD 1.170-11	S1867-4	170.0	4000	45 - 106	240 - 2500	2 / 2L
TFD 1.245-11	S1870-4	245.0	4000	70 - 130	400 - 2500	3 / 3L
TFD 1.300-11	S1897-4	300.0	4000	70 - 130	400 - 2500	3 / 3L
TFD 1.420-11	S2021	420.0	4000	70 - 130	400 - 2500	4 / 4L
TFD 1.550-11	S2022	550.0	4000	70 - 130	400 - 2500	4 / 4L

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

Note: Insulator not scope of delivery. Insulator sets to be ordered separately.

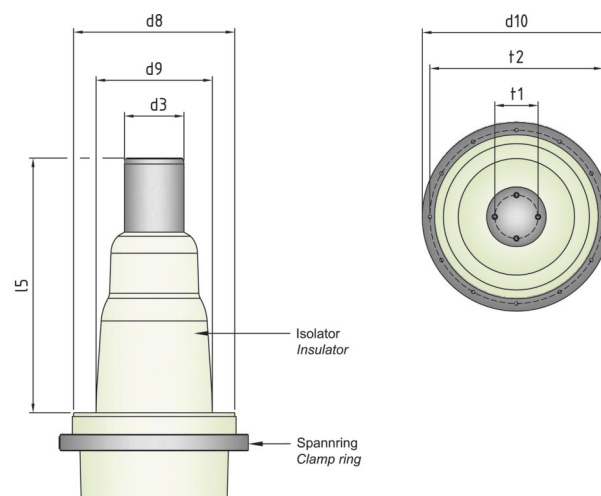
GIS Sockets type TFD

Sockets up to 550 kV

Brugg dry type sockets offer high flexibility to SF6 insulated switchgears for system voltages up to 550 kV. Regardless of whether the required dimensions of the cable compartment are for a dry type or a fluid filled type termination as per IEC 62271-209, each socket is provided with all necessary elements for the fast and easy installation to any switchgear independently of the manufacturer. For the long-term reliability all sockets are factory tested as per EN 50089 requirements. All materials used are UV and corrosion resistant thus allowing the terminations to be applicable for both indoors and outdoors installations.

Product main features

- Designs according to IEC 62271-209
- Factory tests according EN 50089
- Complete set ready for installation
- Easy adaptation to all GIS
- Operating current 4000 A
- Short circuit current up to 50 kA, 3 sec



Main dimensions according to IEC 62271-209

Type	l5 mm	d3 mm	d8 mm	d9 mm	d10 mm	t1 mm	t2 mm
TFD 72.5 kV	310	110	259	195	299	80	270
TFD 72.5 kV ext.	583	110	259	195	299	80	270
TFD 145 kV	470	110	298	195	350	80	320
TFD 145 kV ext.	757	110	298	195	350	80	320
TFD 145/170 kV	470	110	298	215	348	80	320
TFD 145/170 kV ext.	757	110	298	215	348	80	320
TFD 245/300 kV	620	150	454	331	500	110	475
TFD 245/300 kV ext.	960	150	559	331	500	110	582
TFD 420/550 kV	960	150	617	385	690	110	640
TFD 420/550 kV ext.	1400	150	617	385	690	110	640

Technical data

Type	Insulator size	Drawing	Part no	Description	l5 mm
TFD 72.5 kV	G0	S2034	80156	dry type, fixing ring cylindrical	310
TFD 72.5 kV ext.	G0-L	S2036	80158	dry type, fixing ring cylindrical	583
TFD 145 kV	G1	S2035	80157	dry type, fixing ring cylindrical	470
TFD 145 kV ext.	G1-L	S2037	80159	dry type, fixing ring cylindrical	757
TFD 145/170 kV	G2	S1779-4	89385	dry type, fixing ring cylindrical	470
TFD 145/170 kV	G2	S1779-4	89387	dry type, fixing ring V-shaped	470
TFD 145/170 kV ext.	G2-L	S1938-4	89446	dry type, fixing ring cylindrical	757
TFD 145/170 kV ext.	G2-L	S1938-4	89447	dry type, fixing ring V-shaped	757
TFD 245/300 kV	G3	S1843-4	89386	dry type, fixing ring cylindrical	620
TFD 245/300 kV ext.	G3-L	S1908-4	89395	dry type, fixing ring cylindrical	960
TFD 420/550 kV	G4	S2023	80074	dry type, fixing ring cylindrical	960
TFD 420/550 kV ext.	G4-L	S2024	80118	dry type, fixing ring cylindrical	1400

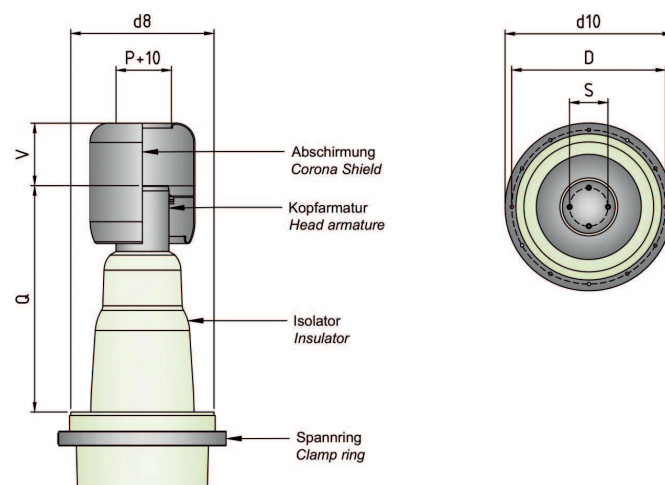
Transformer Sockets type TTD

Sockets up to 550 kV

Brugg dry type sockets offer high flexibility to oil insulated transformers for system voltages up to 550 kV. Regardless of whether the required dimensions of the cable compartment are for dry type terminations according to EN 50299-2 or fluid filled terminations according to EN 50299-1, each socket is provided with all necessary elements for the fast and easy installation to any transformer independently of the manufacturer. For the long-term reliability all sockets are in addition factory tested as per EN 50089 requirements. All materials used are UV and corrosion resistant thus allowing the terminations to be applicable for both indoors and outdoors installations.

Product main features

- Designs according to EN 50299-1/-2
- Factory tests according EN 50089
- Complete set ready for installation
- Easy adaptation to all transformers
- Operating current 4000 A
- Short circuit current up to 50 kA, 3 sec



Main dimensions according to EN 50299-1 / -2

Type	Q mm	V mm	d8 mm	P+10 mm	d10 mm	S mm	D mm
TTD 72.5 kV	310	120	259	120	299	80	270
TTD 72.5 kV ext.	583	120	259	120	299	80	270
TTD 145 kV	470	120	298	120	350	80	320
TTD 145 kV ext.	757	120	298	110	350	80	320
TTD 145/170 kV	470	120	298	110	348	80	320
TTD 145/170 kV ext.	757	120	298	110	348	80	320
TTD 245/300 kV	620	160	451	160	500	110	475
TTD 245/300 kV ext.	960	160	559	150	500	110	582
TTD 420/550 kV	960	160	617	160	690	110	640
TTD 420/550 kV ext.	1400	160	617	160	690	110	640

Technical data

Type	Insulator size	Drawing	Part no	Description	Q mm
TTD 72.5 kV	T0	S2038	80168	dry type, fixing ring cylindrical	310
TTD 72.5 kV ext	T0-L	S2041	80166	dry type, fixing ring cylindrical	583
TTD 145 kV	T1	S2039	80167	dry type, fixing ring cylindrical	470
TTD 145 kV ext	T1-L	S2040	80169	dry type, fixing ring cylindrical	757
TTD 145/170 kV	T2	S1940-4	89448	dry type, fixing ring cylindrical	470
TTD 145/170 kV ext.	T2-L	S1939-4	89449	dry type, fixing ring cylindrical	757
TTD 245/300 kV	T3	S2043	89451	dry type, fixing ring cylindrical	620
TTD 245/300 kV ext.	T3-L	S1909-4	89396	dry type, fixing ring cylindrical	960
TTD 420/550 kV	T4	S2025	80072	dry type, fixing ring cylindrical	960
TTD 420/550 kV ext.	T4-L	S2026	80070	dry type, fixing ring cylindrical	1400

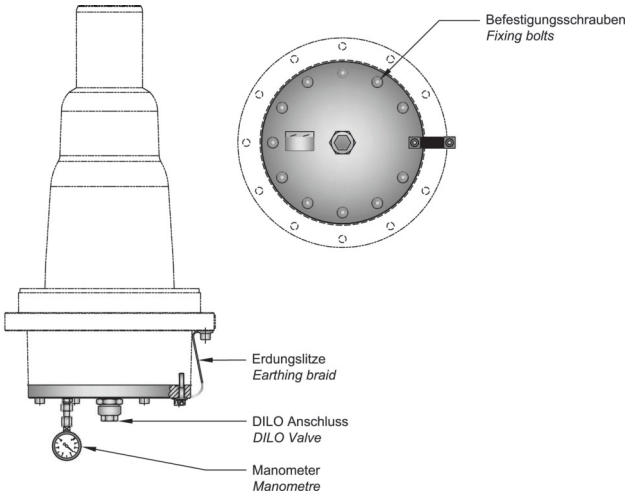
Testing-plate set type TFD / TTD

For Insulators up to 550 kV

The testing-plates allow the performance of electrical tests onto pre-installed female sockets type TFD onto SF6 gas-insulated switchgears or TTD onto oil-immersed transformers up to 550 kV. In addition the testing-plate can be used as a blind cover until male plug in cable terminations are connected to the equipment.

Product main features

- Complete set ready for installation
- Manometer indication -1 bar to 8 bar
- For SF6 or N2 insulating gas
- Compatible to all TFD and TTD sockets
- Free of grease
- Fully reusable



Electrical data

Type	AC withstand voltage kV / 1 min	Partial discharge pC / kV	BIL kV	SIL kV
TFD/TTD 72.5/145kV	275	< 5 / 114	650	-
TFD/TTD 145/170 kV	325	< 5 / 114	750	-
TFD/TTD 245/300 kV	460	< 5 / 240	1050	850
TFD/TTD 420/550 kV	680	< 5 / 435	1550	1175

Technical data

Type	Drawing	Part no	for sockets
TFD/TTD 72/145 kV	S2050	80119	G0 / G0L / G1 / G1L / T1 / T1L
TFD/TTD 145/170 kV	S1879-4	89444	G2 / G2L / T2 / T2L
TFD/TTD 245/300 kV	S1842-4	89438	G3 / G3L / T3 / T3L
TFD/TTD 420/550 kV	S2027	89441	G4 / G4L / T4 / T4L

Note: Insulating gas not scope of delivery.

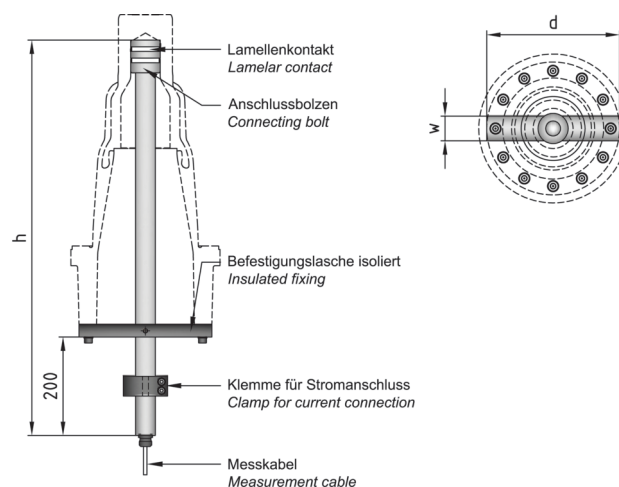
Contact resistance-meter type TFD / TTD

For female Sockets up to 550 kV

The contact resistance-meter allows determining the correct contact resistance between female sockets type TFD or TTD and SF6 gas-insulated switchgears or oil-immersed transformers up to 550 kV. Each set is provided with all necessary material for a fast installation.

Product main features

- Complete set ready for installation
- With measurement cable
- Easy adaptation to all sockets TFD and TTD
- Max. operating current up to 1000 A



Dimensions

Type	h mm	d mm	w mm
TFD/TTD 72/145 kV	580	230	50
TFD/TTD 145/170 kV	803	270	50
TFD/TTD 245-550 kV	986	364	50

Technical data

Type	Drawing	Part no	for sockets
TFD/TTD 72/145 kV	S2051	89452	0 / 0L / 1 / 1L
TFD/TTD 145/170 kV	S1937-4	89450	2 / 2L
TFD/TTD 245-550 kV	S1941-4	89440	3 / 3L / 4 / 4L

Spare parts

Part no	Type	for sockets
89442	Connecting bolt Ø 60 mm	3 / 3L / 4 / 4L
89443	Connecting bolt Ø 70 mm	2 / 2L
60287	Connecting bolt Ø 90 mm	0 / 0L / 1 / 1L
60385	Contact blade	0 / 0L / 1 / 1L

Note: Measurement equipment (e.g. voltmeter) not scope of delivery.

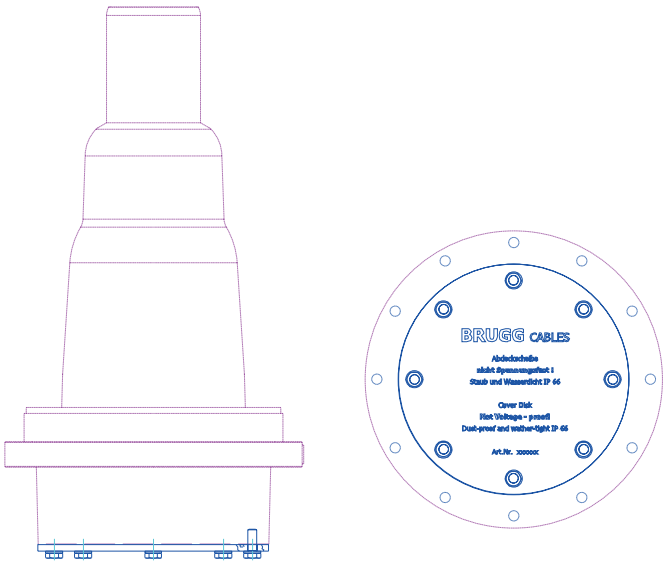
Cover plate type TFD / TTD

For Sockets up to 550 kV

The cover plate protects open sockets of dry type terminations type TFD and TTD. It protects against dust or humidity during transportation.

Product main features

- Complete set ready for installation
- Material hard PVC with 8 mm wall thickness
- Easy adaptation to all sockets TFD and TTD
- Recommended as transport protection
- Not voltage proof



Technical data

Type	Drawing	Part no	for insulators
TFD/TTD 72/145 kV	S2008	60135	G0, G1, T0, T1
TFD/TTD 145/170 kV	S2009	60136	G2, T2
TFD/TTD 245-550 kV	S2010	60137	G3, G4, T3, T4

GIS Terminations type TF

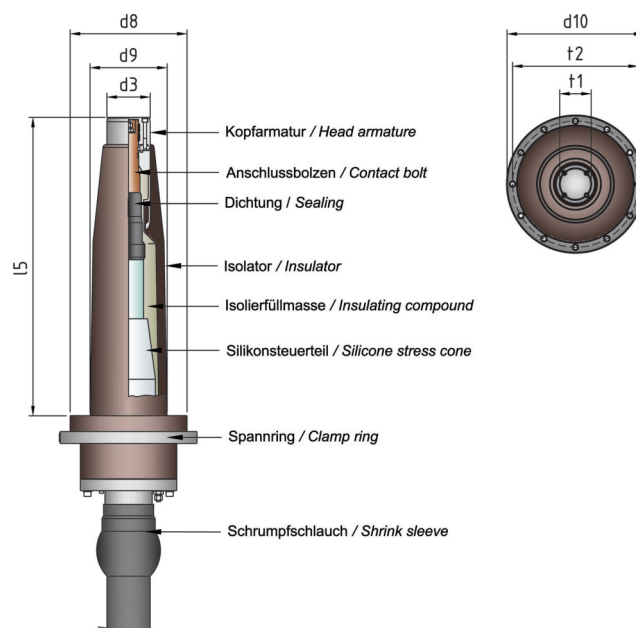
Fluid filled terminations

For polymeric cables up to 550 kV

Brugg offers a complete range of fluid filled terminations for gas-insulated switchgears (GIS) for voltage systems up to 550 kV and cross sections up to 2500 mm². Based on the outstanding properties of the prefabricated and electrically tested slip on stress cones, the reliable modular construction of the TF terminations allow its application to all types of polymeric insulated cables independently of the cable manufacturer. The insulators are designed according to IEC 62271-209 allowing its installation to all switchgears independently from the manufacturer. All materials used are UV and corrosion resistant thus allowing the terminations to be applicable for both indoors and outdoors installations. All terminations are type tested according to the international standards IEC 60840 (≤ 170 kV) and IEC 62067 (> 170 kV).

Product main features

- For all types of polymeric insulated cables
- Wide application range
- Pre-fabricated and factory tested silicon rubber stress cone
- Insulators tested according EN 50089
- Cold pouring silicone oil
- Cable screen connection without plumbing



Main dimensions according to IEC 62271-209

Type	l5 mm	d3 mm	d8 mm	d9 mm	d10 mm	t1 mm	t2 mm
TF 1.72-11	583	110	245	196	300	80	270
TF 1.170-11	757	110	298	196	348	80	320
TF 1.170-12	757	110	298	229	348	80	320
TF 1.245-11	960	150	558	360	620	110	582
TF 1.300-11	960	150	558	360	620	110	582
TF 1.420-11	1400	150	616	435	690	110	640
TF 1.550-11	1400	150	616	435	690	110	640

Technical data

Type	Drawing	Max. operating voltage U _m kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable dia- l5 meter mm	
TF 1.72-11	S1942-4	72.5	35 - 71	240 - 1200	115	583
TF 1.170-11	S1917-4	170.0	57 - 80	240 - 1200	115	757
TF 1.170-12	S1916-4	170.0	80 - 115	1000 - 2500	150	757
TF 1.245-11	S1943-4	245.0	58 - 115	240 - 2500	150	960
TF 1.300-11	S1576-4	300.0	76 - 115	400 - 2500	150	960
TF 1.420-11	S1640-4	420.0	76 - 129	400 - 2500	170	1400
TF 1.550-11	S1491-4	550.0	90 - 129	400 - 2500	170	1400

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

Note: for installations $> 45^\circ$ oil expansion tanks type ET-2 are required. For 420 kV and 550 kV ET-2 tanks are necessary.

Transformer terminations type TT

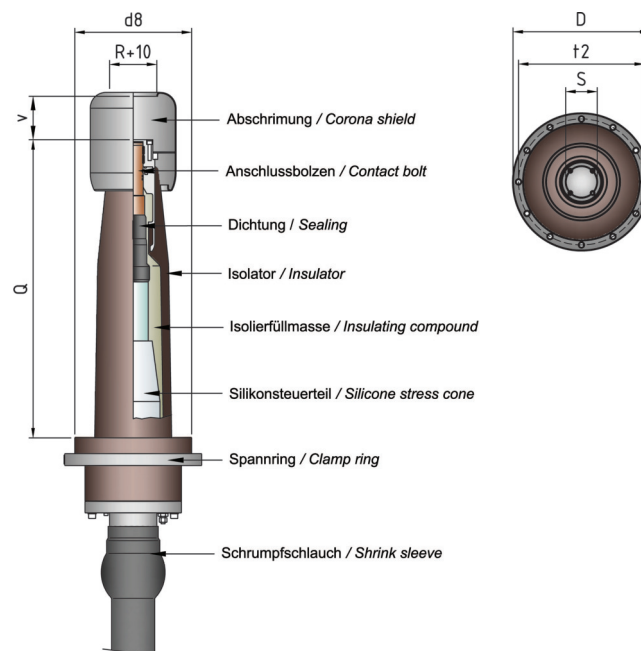
Fluid filled terminations For polymeric cables up to 550 kV

Brugg offers a complete range of conventional fluid filled terminations for oil-immersed transformers for voltage systems up to 550 kV and cross sections up to 2500 mm². Based on the outstanding properties of the prefabricated and electrically tested slip on stress cones, the reliable modular construction of the TT terminations allow its application to all types of polymeric insulated cables independently of the cable manufacturer. The insulators and corona shields are designed according to EN 50299-1 thus allowing its installation to all transformers independently from the manufacturer. All materials used are UV and corrosion resistant thus allowing the terminations to be applicable for both indoors and outdoors installations.

All terminations are type tested according to the international standards IEC 60840 (≤ 170 kV) and IEC 62067 (> 170 kV).

Product main features

- For all types of polymeric insulated cables
- Wide application range
- Sliding contact system for Cu and Al conductors
- Pre-fabricated and factory tested silicone rubber stress cone
- Insulators tested according EN 50089
- Cold pouring silicone oil
- Cable screen connection without plumbing



Main dimensions according to EN 50299-1

Type	Q mm	V mm	d8 mm	R+10 mm	D mm	S mm	t2 mm
TT 1.72-11	583		245		300	80	270
TT 1.170-11	757	120	297	110	348	80	320
TT 1.170-12	757	120	297	110	348	80	320
TT 1.245-11	960	160	558	150	620	110	582
TT 1.300-11	960	160	558	150	620	110	582
TT 1.420-11	1400	160	616	150	690	110	640
TT 1.550-11	1400	160	616	150	690	110	640

Technical data

Type	Drawing	Max. operating voltage U _m kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable dia- Q meter mm mm	
TT 1.72-11	S1944-4	72.5	35 - 71	240 - 1200	115	583
TT 1.170-11	S1929-4	170.0	57 - 80	240 - 1200	115	757
TT 1.170-12	S1928-4	170.0	80 - 115	1000 - 2500	150	757
TT 1.245-11	S1945-4	245.0	58 - 115	240 - 2500	150	960
TT 1.300-11	S1685-4	300.0	76 - 129	400 - 2500	150	960
TT 1.420-11	S1687-4	420.0	76 - 129	400 - 2500	170	1400
TT 1.550-11	S1750-4	550.0	90 - 129	400 - 2500	170	1400

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

Note: for installations $> 45^\circ$ oil expansion tanks type ET-2 are required. For 420 kV and 550 kV ET-2 tanks are necessary.

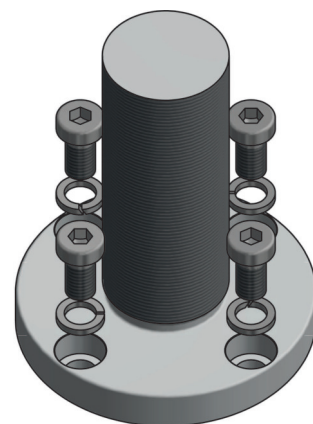
Contact terminals type TT / TTD

For insulators up to 170 kV

Product main features

- Material aluminum silver coated
- Complete set ready for installation
- Easy installation on the insulators

The contact terminals allow the interconnection between the head armature of terminations type TT or TTD to power transformers according to EN50299 up to 170 kV.



Technical data

Type	Drawing	Part no	Dimension mm	Equivalent cable cross-section (Cu/Al) mm ²
TT/TTD 72-170 kV	S2015	80052	Ø 30	300 / 700
TT/TTD 72-170 kV	S2015	80053	Ø 42	630 / 1380
TT/TTD 72-170 kV	S2015	80054	Ø 52	960 / 2100
TT/TTD 72-170 kV	S2011	80055	53 x 15	355 / 780

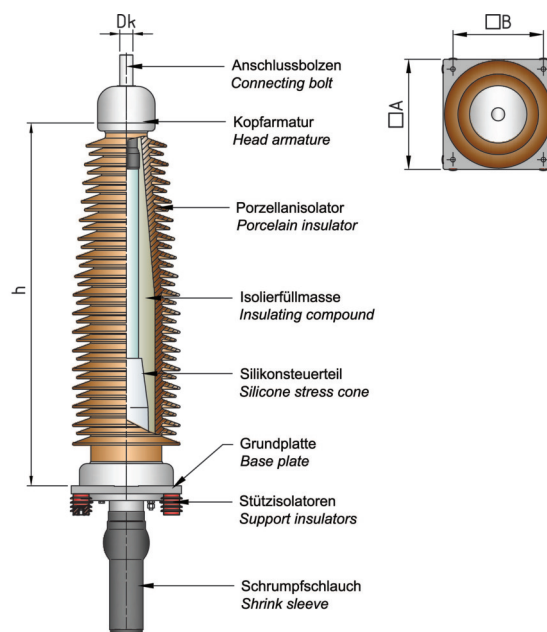
Outdoor terminations type TE

Fluid filled with porcelain insulator For polymeric cables up to 550 kV

Brugg offers a complete range of solutions for voltage systems up to 550 kV and cross-sections up to 2500 mm². Based on the outstanding properties of the prefabricated and electrically tested one-piece slip on stress cones, the reliable modular construction of the TE termination allow its application to all types of polymeric insulated cables independently of the cable manufacturer. The porcelain insulator offers excellent mechanical resistance towards birds and rodent attacks. The insulator creepage distances are conceived for pollution severity class E according to IEC 60815-1. In addition all insulators design were conceived according to IEC 60815-2 regulations. All terminations are type tested according to the international standards IEC 60840 as well as IEC 62067 and fulfill also the requirements of American standards IEEE 48.

Product main features

- Outstanding UV, tracking and erosion resistance
- Resistant to birds and rodent attacks
- For all types of polymeric insulated cables
- Configurable base plate and bolt dimensions
- Factory tested silicone rubber stress cone
- Self supported type
- Cold pouring silicone oil
- Screen cable connection without plumbing



Dimensions

Type	h mm	Creepage distance mm	A / B mm	DK mm
TE 1.72-11	950	2900	320 / 270, 420 / 345	30 / 35 / 38 / 50
TE 1.145-11	1553	4700	420 / 345	30 / 35 / 38 / 50
TE 1.145-12	1700	5950	420 / 345	30 / 35 / 38 / 50
TE 1.145-13	2060	7290	420 / 345	30 / 35 / 38 / 50
TE 1.170-11	1700	5950	420 / 345	30 / 35 / 38 / 50
TE 1.170-12	2060	7290	420 / 345	30 / 35 / 38 / 50
TE 1.245-11	2710	8800	620 / 560	30 / 35 / 38 / 50
TE 1.245-12	3040	10000	620 / 560	30 / 35 / 38 / 50
TE 1.245-13	4270	13020	620 / 560	30 / 35 / 38 / 50
TE 1.300-01	2710	8800	620 / 560	50 / 60
TE 1.420-01	4270	13020	620 / 560	50 / 60
TE 1.420-02	5485	17500	620 / 560	50 / 60
TE 1.420-03	6465	21000	620 / 560	50 / 60
TE 1.550-01	5485	17500	620 / 560	50 / 60

Technical data

Type	Drawing	Max. operating voltage U _m kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable diameter mm	Creepage distance mm
TE 1.72-11	S1918-4	72.5	35 - 114	240 - 2000	150	2900
TE 1.145-11	S1919-4	145.0	45 - 115	240 - 2500	150	4700
TE 1.145-12	S1920-4	145.0	45 - 115	240 - 2500	150	5950
TE 1.145-13	S1921-4	145.0	45 - 115	240 - 2500	150	7290
TE 1.170-11	S1922-4	170.0	57 - 115	400 - 2500	150	5950
TE 1.170-12	S1927-4	170.0	57 - 115	400 - 2500	150	7290
TE 1.245-11	S1947-4	245.0	58 - 115	240 - 2500	150	8800
TE 1.245-12	S1948-4	245.0	58 - 115	240 - 2500	150	10000
TE 1.245-13	S1949-4	245.0	58 - 115	240 - 2500	150	13020
TE 1.300-01	S1447-4	300.0	76 - 115	240 - 2500	150	8800
TE 1.420-01	S1296-4	420.0	76 - 129	400 - 2500	150	13020
TE 1.420-02	S1718-4	420.0	76 - 129	400 - 2500	150	17500
TE 1.420-03	S1624-4	420.0	76 - 129	400 - 2500	150	21000
TE 1.550-01	S1674-4	550.0	90 - 129	400 - 2500	170	17500

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

Note: for installations > 45° oil expansion tanks type ET-2 or ET-12 are required.

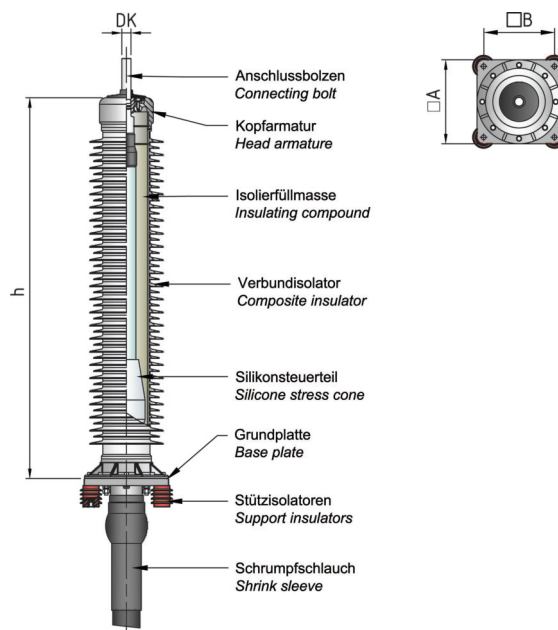
Outdoor terminations type FR

Fluid filled with composite insulator For polymeric cables up to 550 kV

Brugg offers a complete range of solutions for voltage systems up to 550 kV and cross-sections up to 2500 mm². Based on the outstanding properties of the prefabricated and electrically tested one-piece slip on stress cones, the reliable modular construction of the FR termination allow it's application to all types of polymeric insulated cables independently of the cable manufacturer. The composite insulator offers excellent resistance to ultra violet radiation as well as tracking and erosion proven in numerous climate zones with outstanding results. Due to the inherent hydrophobic properties of the silicone rubber, washing periods of the insulator can be extended thus allowing a considerable maintenance cost reduction. The insulators creepage distances are conceived for pollution severity class E according to IEC 60815-1. In addition all insulators design were conceived according to IEC 60815-3 regulations.

Product main features

- Light weight and easy to handle
- Outstanding UV, tracking and erosion resistance
- Excellent hydrophobic properties
- For all types of polymeric insulated cables
- Configurable base plate and bolt dimensions
- Factory tested silicone stress cone
- Self supported type
- Cold pouring silicone oil
- Cable screen connection without plumbing



Dimensions

Type	h mm	Creepage distance mm	A / B mm	DK mm
FR 1.72-11	865	2400	320 / 270, 420 / 345	30 / 35 / 38 / 50
FR 1.145-11	1480	4790	320 / 270, 420 / 345	30 / 35 / 38 / 50
FR 1.145-12	1730	5750	320 / 270, 420 / 345	50 / 60
FR 1.145-13	2130	7250	320 / 270, 420 / 345	30 / 35 / 38 / 50 / 60
FR 1.170-11	1730	5750	320 / 270, 420 / 345	30 / 35 / 38 / 50 / 60
FR 1.170-12	2130	7250	320 / 270, 420 / 345	30 / 35 / 38 / 50 / 60
FR 1.245-11	2464	7820	620 / 560	30 / 35 / 38 / 50 / 60
FR 1.245-12	2966	12500	620 / 560	30 / 35 / 38 / 50 / 60
FR 1.300-01	3045	9800	620 / 560	50 / 60
FR 1.420-11	4553	15917	620 / 560	50 / 60
FR 1.550-11	5273	18815	620 / 560	50 / 60

Technical data

Type	Drawing	Max. operating voltage U _m kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable diameter mm	Creepage distance mm
FR 1.72-11	S1923-4	72.5	35 - 80	240 - 2000	115	2400
FR 1.145-11	S1924-4	145.0	45 - 80	240 - 1200	115	4790
FR 1.145-12	S1925-4	145.0	80 - 115	1000 - 2500	150	5750
FR 1.145-13	S1997	145.0	45 - 115	240 - 2500	150	7250
FR 1.170-11	S1926-4	170.0	57 - 115	240 - 2500	150	5750
FR 1.170-12	S1998	170.0	57 - 115	240 - 2500	150	7250
FR 1.245-11	S1946-4	245.0	58 - 115	240 - 2500	150	7820
FR 1.245-12	S1999	245.0	58 - 115	240 - 2500	150	12500
FR 1.300-01	S1394-4	300.0	76 - 115	400 - 2500	150	9800
FR 1.420-11	S2033	420.0	76 - 129	400 - 2500	190	15917
FR 1.550-11	S2032	550.0	76 - 129	400 - 2500	190	18815

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

Note: for installations > 45° oil expansion tanks type ET-2 or ET-12 are required.

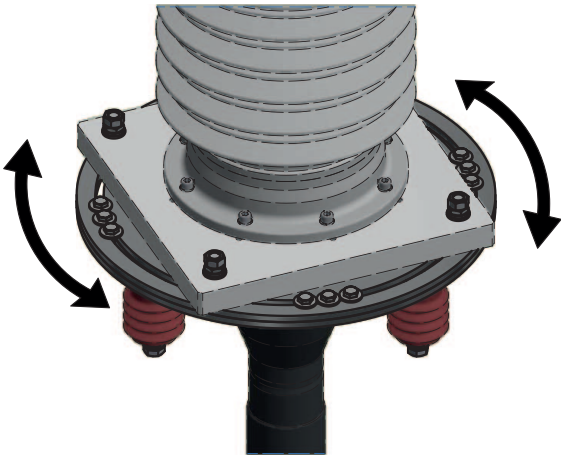
Base plate adapter sets TE/FR

For outdoor terminations up to 245 kV

Product main features

- Complete set ready for assembly
- For TE and FR terminations up to 245 kV
- Easy adaptation of support distances
- Recommended for high positioned installation sites
- Made of lightweight Aluminium

The base plate adapter sets are designed to provide a comfortable and safe fixing of outdoor terminations type TE and FR up to 245 kV previously assembled on the ground. Thanks to the rotational concept an easier and faster alignment of the termination during lifting to high positioned installations is granted.



Technical data

Type	Drawing	Part no	Description
320 / 420 mm	S2016	80068	72-170 kV
620 mm	S2017	80067	245 kV

Oil expansion tanks type ET2 and ET2-H

For high voltage cable terminations up to 550 kV

Brugg oil expansion tanks type ET2 and ET2H are easy to install and have been specifically designed for the secure oil expansion compensation for fluid-filled high voltage cable terminations up to 550 kV. The stainless steel housing provides excellent mechanical protection for all types of installation. The "H" version has a special protective coating and allows its use in applications with corrosive environments, such as salty air. For the assurance of a long-term continuous operation in service, the integrated compartment membrane cell is carefully pressurized under controlled conditions during manufacturing. Both sets contain a 3 contact manometer with an IP66 protection rating with 2 meters signal cable. A 10 meter oil connection tube with integrated valve terminals is also provided.

Product main features

- Robust stainless steel V2A housing
- Manometer with V4A housing, 3 contacts and IP66 protection class
- Signal cable 2 meters
- Oil supply tube 10 meters, can be shortened on site
- For indoor and outdoor applications
- Compact dimensions
- Oil operating temperature from -30 °C up to +80 °C
- Pressure gauge types
 - Type 232.30.063 without contacts, range -1 to 10 bar
 - Type 821.1.12 with contacts, range -1 to 5 bar normally open / normally open / normally closed
 - Type 821.2.21 with contacts, range -1 to 5 bar normally closed / normally closed / normally open



Ordering information

Type	Description	Application	Drawing	Pressure gauge type	Part no
ET2	Oil expansion tank for fluid filled HV cable terminations - standard	Standard Corrosion coating, colour grey	S1865-4	232.30.063	89380
ET2	Oil expansion tank for fluid filled HV cable terminations - standard	Standard Corrosion coating, colour grey	S1984-4	821.1.12	83329
ET2	Oil expansion tank for fluid filled HV cable terminations - standard	Standard Corrosion coating, colour grey	S1984-4	821.2.21	83559
ET2-H	Oil expansion tank for fluid filled HV cable terminations - heavy duty	Heavy duty special corrosion coating, colour white	S1985-4	821.1.12	83330
ET2-H	Oil expansion tank for fluid filled HV cable terminations - heavy duty	Heavy duty special corrosion coating, colour white	S1985-4	821.2.21	83560

Additional products (to be ordered separately)

Type	Description	Protection class	W x H x D mm	Part no
Junction box	Junction box for connection of up to 3 manometer signal cables	IP66	180 x 130 x 77	76406

Oil expansion tanks type ET12 and ET12-H

For high voltage cable terminations up to 550 kV

Product main features

- Robust stainless steel V2A housing
- Pressure gauge with V4A housing and IP66 protection class
- Signal cable 2 meters
- Oil connection tube 10 meters, can be shortened on site
- For indoor and outdoor applications
- Oil operating temperature from -30 °C up to + 80 °C
- Pressure gauge types
 - Type 232.30.063 without contacts, range -1 to 10 bar
 - Type 821.1.12 with contacts, range -1 to 5 bar
normally open / normally open / normally closed
 - Type 821.2.21 with contacts, range -1 to 5 bar
normally closed / normally closed / normally open

Brugg oil expansion tanks type ET12 and ET12H are easy to install and have been specifically designed for the secure oil expansion compensation for fluid-filled high voltage cable outdoor terminations from 245 kV up to 550 kV. The stainless steel housing provides excellent mechanical protection for all types of installation. The "H" version has a special protective coating and allows its use in applications with corrosive environments, such as salty air. For the assurance of a long-term continues operation in service, the integrated compartment membrane cell is carefully pressurized under controlled conditions during manufacturing. The sets contain a pressure gauge with an IP66 protection rating. A 10 meter oil connection tube with integrated valve terminals is also provided.



Ordering information

Type	Description	Application	Drawing	Pressure gauge type	Part no
ET12	Oil expansion tank for fluid filled HV cable terminations - standard	Standard Corrosion coating, colour grey	S1988-4	232.30.063	76899
ET12	Oil expansion tank for fluid filled HV cable terminations - standard	Standard Corrosion coating, colour grey	S1886-4	821.1.12	76895
ET12	Oil expansion tank for fluid filled HV cable terminations - standard	Standard Corrosion coating, colour grey	S1886-4	821.1.21	76896
ET12-H	Oil expansion tank for fluid filled HV cable terminations - heavy duty	Heavy duty special corrosion coating, colour white	S1987-4	821.1.12	76897
ET12-H	Oil expansion tank for fluid filled HV cable terminations - heavy duty	Heavy duty special corrosion coating, colour white	S1987-4	821.1.21	76898

Additional products (to be ordered separately)

Type	Description	Protection class	W x H x D mm	Part no
Junction box	Junction box for connection of up to 3 manometer signal cables	IP66	180 x 130 x 77	76406

HV Joints

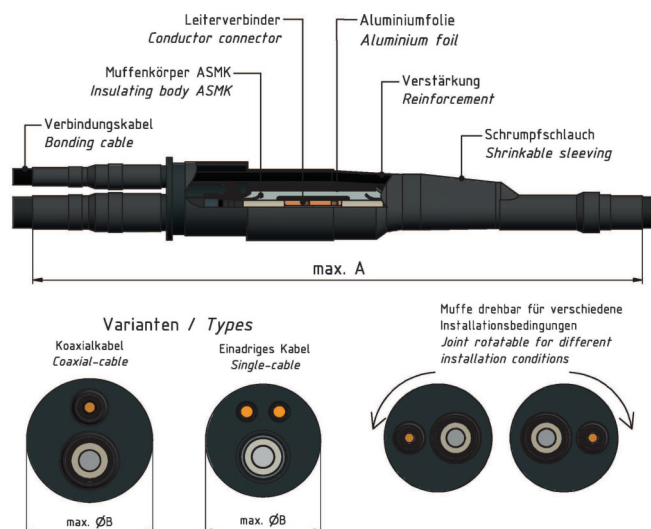
Joint type MPFH

With metallic radial moisture barrier and heat shrinkable outer protection
For polymeric cables up to 245 kV

Fast and easy to install the MPFH is particularly conceived for the reliable straight through connection of polymeric cables up to 245 kV. Thanks to its compact and lightweight construction the MPFH is the ideal cost-effective solution for installations sites with limited installation spaces such as tunnels or concrete manholes without permanent flooding. The joints are type tested according to the international standards IEC 60840 (≤ 170 kV) and IEC 62067 (> 170 kV). For the long-term reliability each unit of silicone body produced are electrically routine tested in our factory.

Product main features

- Pre-molded one piece joint body electrically tested at factory
- Available with bolted or DIN compression connectors
- Compact dimensions & lightweight
- Easy and safe to install
- Cable screen connection without plumbing or soldering
- Radial moisture metallic barrier
- Heavy duty heat shrink outer protection



Technical data of straight through joints

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable diameter mm	Joint dimensions A x B mm
MPFH 1.72-21	S1904-4	72.5	35 - 57	240 - 800	120	1650 x 180
MPFH 1.72-22	S1914-4	72.5	57 - 88	400 - 2500	140	1650 x 200
MPFH 1.145-21	S1905-4	145.0	46 - 78	240 - 1200	120	1650 x 200
MPFH 1.145-22	S1906-4	145.0	78 - 115	630 - 2500	140	1650 x 230
MPFH 1.170-21	S1884-4	170.0	56 - 115	240 - 2500	155	2000 x 240
MPFH 1.245-21	S1885-4	245.0	67 - 120	400 - 2500	155	2000 x 290

Technical data of cross bonding joints

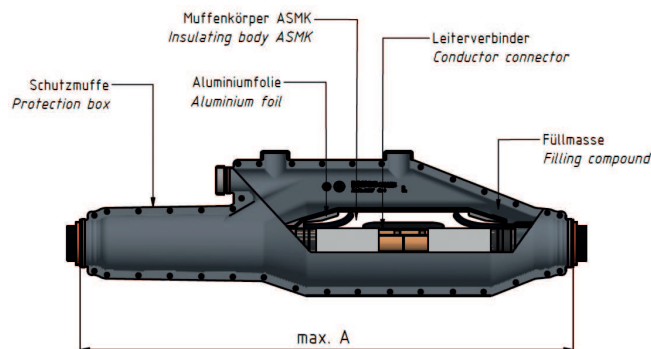
Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable diameter mm	Joint dimensions A x B mm
MPFH 1.72-31	S2095	72.5	35 - 57	240 - 800	120	2150 x 290
MPFH 1.72-32	S2094	72.5	57 - 88	400 - 2500	140	2250 x 355
MPFH 1.145-31	S2079	145.0	46 - 78	240 - 1200	120	2250 x 290
MPFH 1.145-32	S2078	145.0	78 - 115	630 - 2500	140	2250 x 355
MPFH 1.170-31	S2093	170.0	56 - 115	240 - 2500	150	2250 x 355

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

Joint type MPFP

**With metallic radial moisture barrier and glass fiber reinforced outer protection
For polymeric cables up to 245 kV**

Fast and easy to install the MPFP is particularly conceived for the reliable connection of polymeric cables up to 245 kV. The two part sectionalized outer protection can be easily installed without parking position and admits all types of cable screen connection. Thanks to the glass fiber reinforced outer protection filled with resin compound the MPFP is ideal for all kind of installations including directly buried. The joints are type tested according to the international standards IEC 60840 (≤ 170 kV) and IEC 62067 (> 170 kV). For the long-term reliability each unit of silicone body produced are electrically routine tested in our factory.



Product main features

- Pre-molded one piece joint body electrically tested at factory
- Available with bolted or DIN compression connectors
- Compact dimensions & lightweight
- Easy and safe to install
- Cable screen connection without plumbing or soldering
- Radial moisture metallic barrier
- HDPE protection box filled with PU-resin compound

Technical data of straight through joints

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) mm ²	Max. cable diameter mm	Joint dimensions A x B mm
MPFP 1.72-21	S1936-4	72.5	35 - 88	240 - 1600	120	1530 x 433
MPFP 1.145-21	S1934-4	145.0	47 - 78	240 - 1600	120	1530 x 433
MPFP 1.145-22	S1952-4	145.0	78 - 115	1000 - 2500	130	1760 x 477
MPFP 1.170-21	S1932-4	170.0	56 - 69	240 - 2000	130	1760 x 477
MPFP 1.170-22	S1954-4	170.0	69 - 115	1600 - 2500	150	1860 x 498
MPFP 1.245-21	S1931-4	245.0	67 - 120	400 - 2500	150	1960 x 575

Technical data of cross bonding joints

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) mm ²	Max. cable diameter mm	Joint dimensions A x B mm
MPFP 1.72-31	S1935-4	72.5	35 - 88	240 - 1600	120	1530 x 433
MPFP 1.145-31	S1915-4	145.0	47 - 78	240 - 1600	120	1530 x 433
MPFP 1.145-32	S1953-4	145.0	78 - 115	1000 - 2500	130	1760 x 477
MPFP 1.170-31	S1933-4	170.0	56 - 69	240 - 2000	130	1760 x 477
MPFP 1.170-32	S1955-4	170.0	69 - 115	1600 - 2500	150	1860 x 498
MPFP 1.245-31	S 1913-4	245.0	67 - 120	400 - 2500	150	1960 x 575

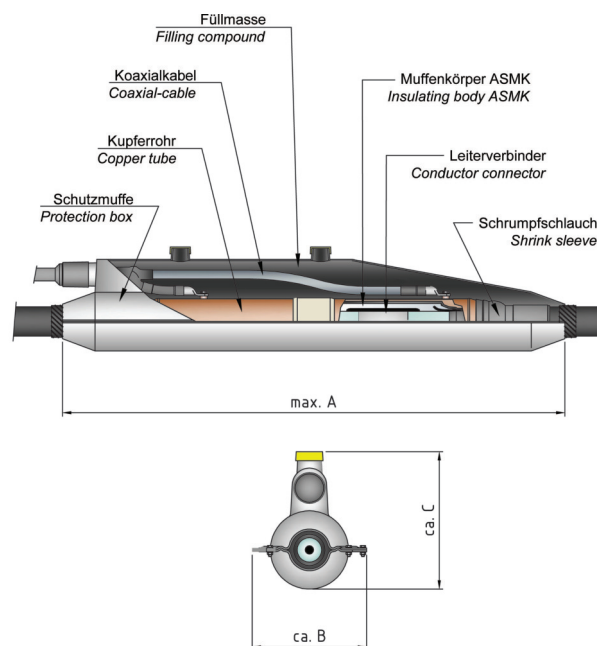
Joint type MPCP

With copper casing radial moisture barrier and coffin box as outer protection
For polymeric cables up to 245 kV

Offering excellent mechanical strength and water tightness the MPCP is particularly conceived for the reliable connection of all types of polymeric insulated cables up to 245 kV. Particularly conceived for long cable transmission systems, the two part sectionalized copper casing admits all types of cable screen connection with the same solution. Thanks to the glass fiber reinforced outer protection filled with resin compound the MPCP is ideal for all kind of installations including directly buried. The joints are type tested according to the international standards IEC 60840 (≤ 170 kV) and IEC 62067 (> 170 kV). For the long-term reliability each unit of silicone body produced are electrically routine tested in our factory

Product main features

- Pre-molded one piece joint body electrically tested at factory
- Available with bolted or DIN compression connectors
- Highest degree of mechanical and moisture protection
- Universal cable screen grounding configuration
- Radial moisture metallic barrier made of copper casing
- Glass fiber reinforced protection filled with PU-resin compound



Technical data of straight through joints

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) mm ²	Max. cable diameter mm	Joint dimensions A x C mm
MPCP 1.72-21	S1969-4	72.5	34 - 77	240 - 1600	110	1950 x 380
MPCP 1.72-22	S1971-4	72.5	77 - 88	1200 - 2500	125	1950 x 410
MPCP 1.145-21	S1963-4	145.0	45 - 77	240 - 1200	110	1950 x 380
MPCP 1.145-22	S1965-4	145.0	77 - 90	800 - 2000	125	1950 x 410
MPCP 1.145-23	S1967-4	145.0	90 - 115	1200 - 2500	155	2150 x 430
MPCP 1.170-21	S2007	170.0	55 - 115	240 - 2500	140	2100 x 500
MPCP 1.245-21	S2005	245.0	66 - 120	240 - 2500	150	2330 x 540

Technical data of cross bonding joints

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) mm ²	Max. cable diameter mm	Joint dimensions A x C mm
MPCP 1.72-31	S1968-4	72.5	34 - 77	240 - 1600	110	1950 x 380
MPCP 1.72-32	S1970-4	72.5	77 - 88	1200 - 2500	125	1950 x 410
MPCP 1.145-31	S1962-4	145.0	45 - 77	240 - 1200	110	1950 x 380
MPCP 1.145-32	S1964-4	145.0	77 - 90	800 - 2000	125	1950 x 410
MPCP 1.145-33	S1966-4	145.0	90 - 115	1200 - 2500	155	2150 x 430
MPCP 1.170-31	S2006	170.0	55 - 115	240 - 2500	140	2100 x 500
MPCP 1.245-31	S2004	245.0	66 - 120	240 - 2500	150	2330 x 540

Extended Repair Joint – Type ERJ MPCP

Product main features

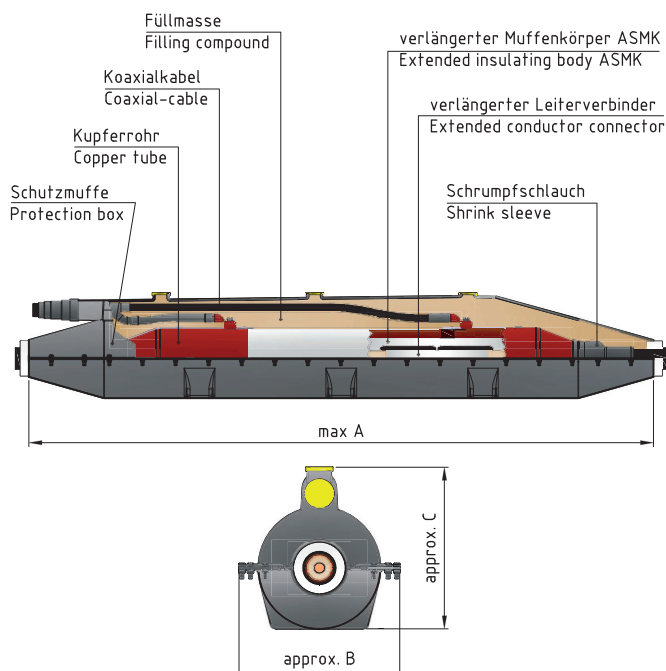
- Bridges defective cables for a fast, space-saving and cost-saving solution
- A proactive and more affordable way of avoiding faults by replacing 'risky' joints
- Up to 70% cost and time savings compared to the standard repair approach
- Can be used for all polymer cable constructions
- Preformed, one-piece silicone body electrically pre-tested
- Maximum mechanical protection and moisture protection
- Radial moisture metallic barrier made of copper casing
- External protection made of glass fiber reinforced protection filled with PU casting resin
- Rated voltage level from 60 kV to 150 kV

Due to the extended conductor connector and the extended insulating body this ERJ (Extended Repair Joint) can bridge longer lengths of faults in defective conductors and insulation parts of the cable. A damaged conductor can be replaced with just a single joint quickly, efficiently and in a space-saving way. Defective or high-risk joints can be replaced by this ERJ joint as well.

With the metallic water protection made of copper tube and the glass fiber reinforced housing providing external protection, this ERJ MPCP type meets the highest requirements for polymer cables up to 170 kV.

The ERJ MPCP joint offers the unique solution of using it to directly repair defective polymer cables, without any need to install an additional cable. Due to the greatly extended conductor connector and the extended insulating body ASMK, this ERJ joint enables bridging of the defective part of the cable. This joint can be used to connect all types of polymer cable design. There's no need of a cable, the construction work can be carried out in the smallest possible space, and the time required for procurement and assembly is substantially shorter. This ERJ joint can also be used to proactively replace defective or high-risk joints. This includes all common joints available on the market. So the ERJ is a much faster and cheaper solution than the standard repair method.

Thanks to the glass fibre reinforced external protection, the ERJ MPCP is suitable for all installations, including direct burial. The ERJ MPCP is type-tested according to the international standard IEC 60840 (≤ 170 kV). The one-piece silicone bodies' long-term reliability is ensured by routine test conducted during the manufacturing process.



Technical data of straight through joints

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) mm²	Max. cable diameter mm	Joint dimensions A x C mm
ERJ MPCP 1.170-31	S2057	170.0	55 - 115	240 - 2000	140	2645 x 445

Technical data of cross bonding joints

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) mm²	Max. cable diameter mm	Joint dimensions A x C mm
ERJ MPCP 1.170-21	S2063	170.0	55 - 115	240 - 2000	140	2645 x 445

Subject to change without notice

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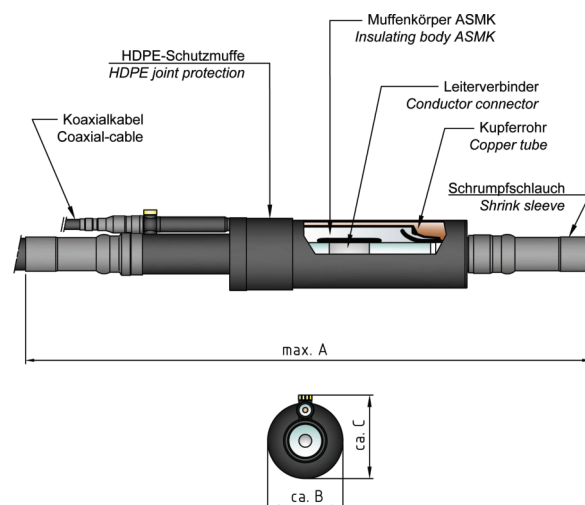
Joint type MPCC

With copper casing radial moisture barrier and intergrated HDPE outer protection
For polymeric cables up to 550 kV

Compact and light weight the MPCC is particularly conceived for the reliable connection of polymeric cables from 170 kV up to 550 kV. Thanks to its robust construction the MPCC is the ideal solution for installations sites with limited installation spaces such as tunnels or concrete manholes including directly buried. The joints are type tested according to the international standards IEC 60840 (≤ 170 kV) and IEC 62067 (> 170 kV). For the long-term reliability each unit of silicone body produced are electrically routine tested in our factory.

Product main features

- Pre-molded one piece joint body eletrically tested at factory
- Available with bolted or DIN compression connectors
- Compact dimensions & lightweight
- Easy and safe to install
- Universal cable screen grounding configuration
- Copper casing radial moisture metallic barrier
- Heavy duty high density polyethylene (HDPE) protection



Technical data of straight through joints

Type	Drawing	Max. operating voltage U_m kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable diameter mm	Joint dimensions A x C mm
MPCC 1.245-21	S1733-4	245	66 - 119	400 - 2500	150	2722 x 370
MPCC 1.420-21	S1890-4	420	81 - 129	400 - 2500	150	2730 x 410
MPCC 1.550-21	S1892-4	550	99 - 129	400 - 2500	150	2730 x 410

Technical data of cross bonding joints

Type	Drawing	Max. operating voltage U_m kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable diameter mm	Joint dimensions A x C mm
MPCC 1.245-31	S1642-4	245	66 - 119	400 - 2500	150	2722 x 370
MPCC 1.420-31	S1891-4	420	81 - 129	400 - 2500	150	2730 x 410
MPCC 1.550-31	S1893-4	550	99 - 129	400 - 2500	150	2730 x 410

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

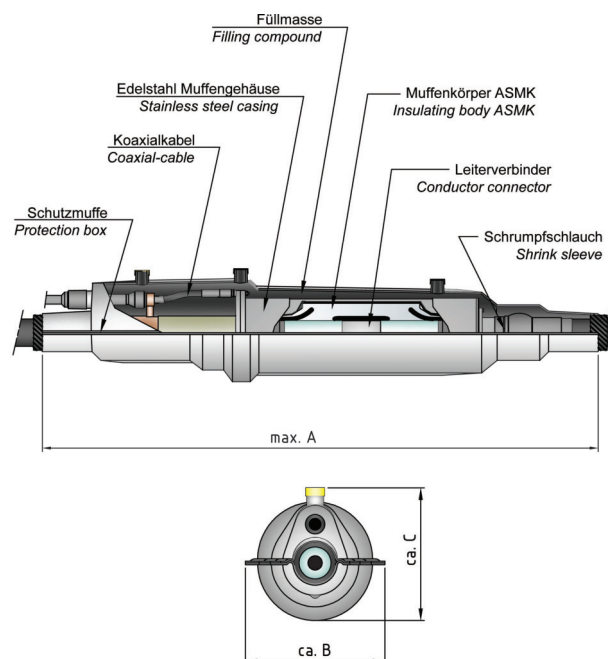
Joint type MPSP

With stainless casing radial moisture barrier and coffin box as outer protection
For polymeric cables from 245 kV up to 550 kV

Offering excellent mechanical strength and water tightness the MPSP is particularly conceived for the reliable connection of all types of polymeric insulated cables from 245 kV up to 550 kV. Particularly conceived for long cable transmission systems, the sectionalized stainless steel casing admits all types of cable screen connection with the same solution. Thanks to the glass fiber reinforced outer protection filled with resin compound the MPSP is ideal for all kind of installations including directly buried. The joints are type tested according to the international standards IEC 62067. For the long-term reliability each unit of silicone body produced are electrically routine tested in our factory.

Product main features

- Pre-molded one piece joint body electrically tested at factory
- Available with bolted or DIN compression connectors
- Highest degree of mechanical and moisture protection
- Universal cable screen grounding configuration
- Radial moisture metallic barrier made of stainless steel casing
- Glass fiber reinforced protection filled with PU-resin compound



Technical data of straight through joints

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable- Ø mm	Joint dimensions A x B mm
MPSP 1.245-21	S1329-4	245	67 - 120	400 - 2500	150	2800 x 550
MPSP 1.300-21	S1334-4	300	67 - 120	400 - 2500	150	2870 x 615
MPSP 1.420-21	S1377-4	420	81 - 129	400 - 2500	150	2870 x 615
MPSP 1.550-21	S1738-4	550	99 - 129	400 - 2500	150	2870 x 615

Technical data of cross bonding joints

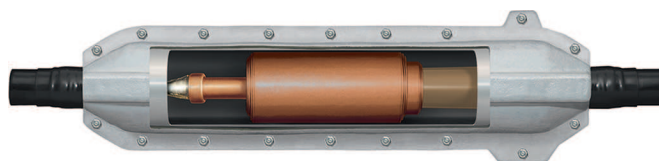
Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable- Ø mm	Joint dimensions A x B mm
MPSP 1.245-31	S1557-4	245	67 - 120	400 - 2500	150	2800 x 550
MPSP 1.300-31	S1347-4	300	67 - 120	400 - 2500	150	2870 x 615
MPSP 1.420-31	S1458-4	420	81 - 129	400 - 2500	150	2870 x 615
MPSP 1.550-31	S1737-4	550	99 - 129	400 - 2500	150	2870 x 615

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

Transition joint type TOS

For low-pressure oil insulated paper cables on polymeric cables up to 300 kV

Brugg offers a complete range of transition joint solutions for voltage systems from 145 kV up to 300 kV. The joint is particularly conceived for the interconnection between single core low-pressure oil filled cables with design pressure up to 10 bar with all types of polymeric cables. Solutions for three core cables are possible under special request. For easier assembly on site paper insulation main components are being prefabricated in our factory. Thanks to its robust construction of the outer protection with stainless steel water diffusion barrier and protection box with filling compound the TOS joint is adequate to all kind of installation conditions including directly buried. The joints are type tested according to the international standards IEC 660141-1. For the long-term reliability each unit of silicone body for the polymeric cable side are electrically routine tested in our factory.



Product main features

- Pre-molded one piece joint body electrically tested at factory
- Universal cable screen grounding configuration
- Stainless steel casing radial moisture metallic barrier
- Cold pouring filling compound
- Oil stop barrier up to 10 bar

Technical data

Type	Drawing	Max. operating voltage Um kV	Range of diameter over prepared cable insulation, min. - max. mm	Equivalent cable cross-section (Cu/Al) ¹ mm ²	Max. cable diameter mm	Joint dimensions A x C mm
TOS 1.145-31	S1528-4	145	58 - 80	240 - 1200	115	2860 x 480
TOS 1.145-32	S1531-4	145	80 - 115	1000 - 2000	150	2860 x 480
TOS 1.170-31	S1748-4	170	58 - 80	240 - 1000	115	2860 x 480
TOS 1.170-32	S1484-4	170	80 - 115	1000 - 2000	150	2860 x 480
TOS 1.245-31	S1461-4	245	58 - 115	400 - 2000	150	4750 x 630
TOS 1.300-31	S1553-4	300	67 - 115	400 - 2000	150	4750 x 630

¹ Values for reference only. The exact application depend on the diameter over the prepared cable insulation.

Note: for the installation an oil expansion tank type ET-2 is required. To be ordered separately.

HV Grounding Accessories

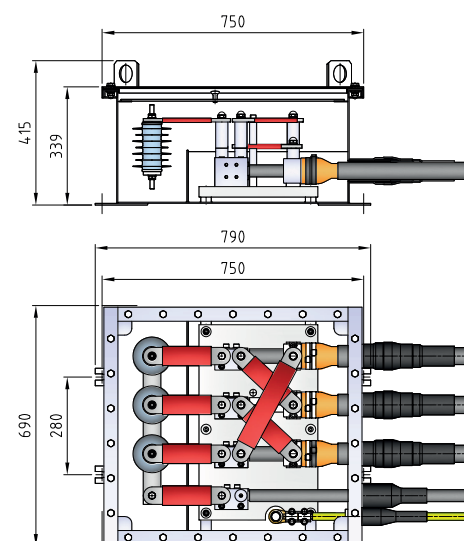
Link boxes LB 68

For High voltage joints

Fast and easy to install, Brugg link boxes have been particularly design to assure an easy access to direct grounded or cross bonded HV cable screen configurations. Fully submersible up to 1 m of water depth, the stainless steel enclosure provides excellent water and mechanical protection. In addition the dust proof design fulfills the requirements of IP68 class protection according to the international standard IEC 60529. The box design allows the installation in pits or vaults and on structures or poles. According to the desirable grounding scheme the boxes are available with or without SVL for single core or coaxial bonding cables from 95 mm² up to 300 mm².

Product main features

- Heavy duty stainless steel casing
- IP68 protection class acc. IEC 60529
- Horizontal or wall mounted installation
- For single core or coaxial bonding cables
- Compact dimensions
- Sheath voltage limiters (SVL)
- Easy and safe to install



Ordering information

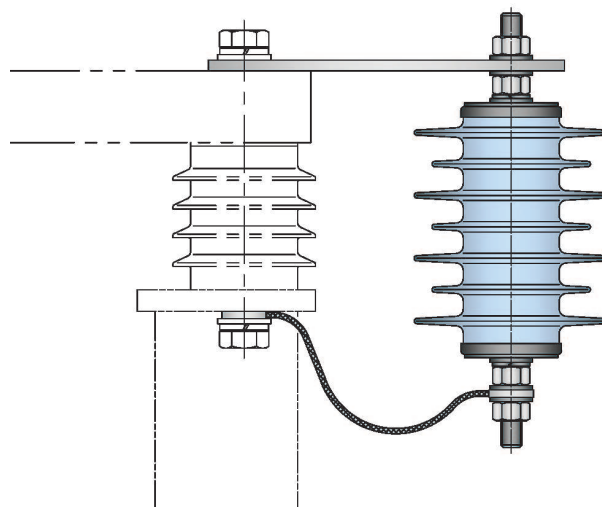
Type	Groundig type	Drawing	Bonding cable type	SVL kV (Ur)	Part no	Groundig scheme
LB68 E3.GKN	Direct grounding	S1600-4	Coaxial		89437	
LB68 E3.GN	Direct grounding	S1667-4	Single core		89436	
LB68 E3.GKN SVL	Single bonding with SVL	S1601-4	Coaxial	3	89428	
LB68 E3.GKN SVL	Single bonding with SVL	S1601-4	Coaxial	6	89429	
LB68 E3.GKN SVL	Single bonding with SVL	S1601-4	Coaxial	9	89430	
LB68 E3.GKN SVL	Single bonding with SVL	S1601-4	Coaxial	10	89431	
LB68 E3.GN SVL	Single bonding with SVL	S1668-4	Single core	3	89424	
LB68 E3.GN SVL	Single bonding with SVL	S1668-4	Single core	6	89425	
LB68 E3.GN SVL	Single bonding with SVL	S1668-4	Single core	9	89426	
LB68 E3.GN SVL	Single bonding with SVL	S1668-4	Single core	10	89427	
LB68 C3.GKN SVL	Cross bonding	S1599-4	Coaxial	3	89432	
LB68 C3.GKN SVL	Cross bonding	S1599-4	Coaxial	6	89433	
LB68 C3.GKN SVL	Cross bonding	S1599-4	Coaxial	9	89434	
LB68 C3.GKN SVL	Cross bonding	S1599-4	Coaxial	10	89435	

Grounding sets for outdoor terminations

According to the desirable grounding scheme of HV cable systems Brugg offers a complete range of standard solutions applicable to all terminations from 72.5 kV up to 550 kV. Each set is provided with all necessary support elements for an easy and fast installation on site.

Product main features

- Compact dimensions
- Sheath voltage limiters (SVL) up to 10 kV
Class I acc. IEC 60099-4
- Easy and fast to install
- For indoor and outdoor application



Ordering information

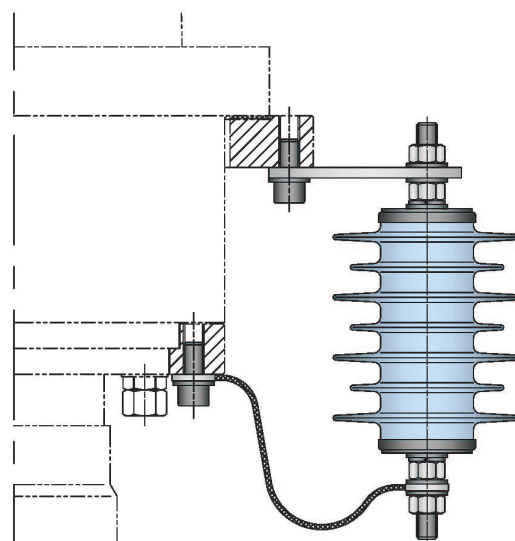
Type	Grounding type	Drawing	SVL kV (Ur)	Part no
Blade disconnecting link	Direct grounding	S1903-4		87893
Strap disconnecting link	Direct grounding	S1899-4		89402
SVL set for outdoor terminations up to 550 kV	Single bonding with SVL	S1901-4	3	89420
SVL set for outdoor terminations up to 550 kV	Single bonding with SVL	S1901-4	6	89421
SVL set for outdoor terminations up to 550 kV	Single bonding with SVL	S1901-4	9	89422
SVL set for outdoor terminations up to 550 kV	Single bonding with SVL	S1901-4	10	89423

Grounding sets for GIS and Transformer terminations

According to the desirable grounding scheme of HV cable systems Brugg offers a complete range of standard solutions applicable to all terminations from 72.5 kV up to 550 kV. Each set is provided with all necessary support elements for an easy and fast installation on site.

Product main features

- Compact dimensions
- Sheath voltage limiters (SVL) up to 10 kV
Class I acc. IEC 60099-4
- Easy and fast to install
- For indoor and outdoor application



Ordering information

Type	Grounding type	Drawing	SVL kV (Ur)	Part no
Flexible braids set for TFD from 72 kV up to 145 kV	Direct grounding	S2055		60366
Flexible braids set for terminations up to 170 kV	Direct grounding	S1907-4		89418
Flexible braids set for terminations from 245 kV up to 550 kV	Direct grounding	S1907-4		89419
SVL set for terminations TFD from 72 kV up to 145 kV	Single bonding with SVL	S2056	3	80191
SVL set for terminations TFD from 72 kV up to 145 kV	Single bonding with SVL	S2056	6	80192
SVL set for terminations TFD from 72 kV up to 145 kV	Single bonding with SVL	S2056	9	80193
SVL set for terminations TFD from 72 kV up to 145 kV	Single bonding with SVL	S2056	10	80194
SVL set for terminations up to 170 kV	Single bonding with SVL	S1902-4	3	89410
SVL set for terminations up to 170 kV	Single bonding with SVL	S1902-4	6	89411
SVL set for terminations up to 170 kV	Single bonding with SVL	S1902-4	9	89412
SVL set for terminations up to 170 kV	Single bonding with SVL	S1902-4	10	89413
SVL set for terminations from 245 kV up to 550 kV	Single bonding with SVL	S1902-4	3	89414
SVL set for terminations from 245 kV up to 550 kV	Single bonding with SVL	S1902-4	6	89415
SVL set for terminations from 245 kV up to 550 kV	Single bonding with SVL	S1902-4	9	89416
SVL set for terminations from 245 kV up to 550 kV	Single bonding with SVL	S1902-4	10	89417

HV Cable Clamps

Fastening clamp type BCT

Composed of

Body made of synthetic rubber with stainless steel A2 bolts

To provide with PO's

Type of fixing

Cable diameter

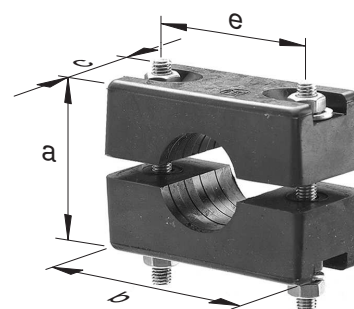
Cable type

To order separately:

Supporting cross type STKR

Profile rail type PS

Slot nut type PSVN



Type	a	b	c	e	Cable Ø	Screws	Max. fastening base thickness
	mm	mm	mm	mm	mm	mm	mm
BCT 1-25-2	53	72	36	51	20 - 25	M 8 x 70	10
BCT 1-30-2	53	72	36	51	26 - 30	M 8 x 70	10
BCT 1-35-2	53	72	36	51	31 - 35	M 8 x 70	10
BCT 1-40-2	64	95	45	70	36 - 40	M 8 x 90	10
BCT 1-45-2	64	95	45	70	41 - 45	M 8 x 90	10
BCT 1-52-2	64	95	45	70	46 - 52	M 8 x 90	10
BCT 1-65-2	114	148	66	115	53 - 65	M 10 x 140	13
BCT 1-77-2	114	148	66	115	66 - 77	M 10 x 140	13
BCT 1-89-2	114	148	66	115	78 - 89	M 10 x 140	13
BCT 1-103-2	114	148	66	115	90 - 103	M 10 x 140	13

Part no	Type	Cable Ø mm	Packaging unit piece	Weight kg/piece
86570	BCT 1-25-2	20 - 25	20	0.21
86515	BCT 1-30-2	26 - 30	20	0.21
86516	BCT 1-35-2	31 - 35	20	0.20
86517	BCT 1-40-2	36 - 40	10	0.37
86518	BCT 1-45-2	41 - 45	10	0.35
86519	BCT 1-52-2	46 - 52	10	0.32
86520	BCT 1-65-2	53 - 65	-	1.40
86521	BCT 1-77-2	66 - 77	-	1.28
86522	BCT 1-89-2	78 - 89	-	1.15
86523	BCT 1-103-2	90 - 103	-	1.00

Clamp type BFB 1

Composed of

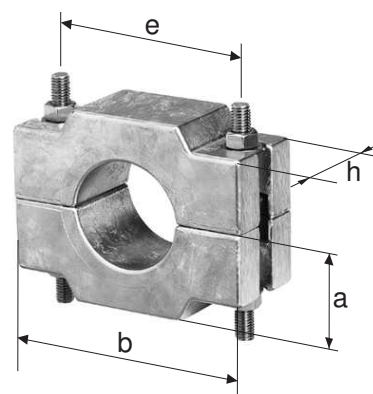
Body made of cast aluminium with stainless steel A2 bolts, including fastening bolts

To provide with PO's

Type of fixing
Cable diameter
Cable type

To order separately:

Supporting cross type STKR
Profile rail type PS
Slot nut type PSVN



Dimension	a mm	b mm	e mm	h mm	Screws mm	Drawing
1053 - 1085	60	160	130	60	M 12 x 160	S1474-4
2080 - 2100	65	175	145	60	M 12 x 170	S1475-4
3095 - 3120	75	200	170	60	M 12 x 190	S1476-4
4115 - 4145	90	245	210	80	M 16 x 220	S1477-4
5140 - 5160	100	255	220	100	M 16 x 240	S1478-4

Part no	Type	Cable Ø mm	Part no	Type	Cable Ø mm
88830	BFB1-1053	50.1 - 52.5	88323	BFB1-3108	105.1 - 107.5
88831	BFB1-1055	52.6 - 55.0	88324	BFB1-3110	107.6 - 110.0
88832	BFB1-1058	55.1 - 57.5	88325	BFB1-3113	110.1 - 112.5
88833	BFB1-1060	57.6 - 60.0	88326	BFB1-3115	112.6 - 115.0
88834	BFB1-1063	60.1 - 62.5	88327	BFB1-3118	115.1 - 117.5
88300	BFB1-1065	62.6 - 65.0	88328	BFB1-3120	117.6 - 120.0
88301	BFB1-1068	65.1 - 67.5	88329	BFB1-4115	112.6 - 115.0
88302	BFB1-1070	67.6 - 70.0	88330	BFB1-4118	115.1 - 117.5
88303	BFB1-1073	70.1 - 72.5	88331	BFB1-4120	117.6 - 120.0
88304	BFB1-1075	72.6 - 75.0	88332	BFB1-4123	120.1 - 122.5
88305	BFB1-1078	75.1 - 77.5	88333	BFB1-4125	122.6 - 125.0
88306	BFB1-1080	77.6 - 80.0	88334	BFB1-4128	125.1 - 127.5
88307	BFB1-1083	80.1 - 82.5	88335	BFB1-4130	127.6 - 130.0
88308	BFB1-1085	82.6 - 85.0	88336	BFB1-4133	130.1 - 132.5
88309	BFB1-2080	77.6 - 80.0	88337	BFB1-4135	132.6 - 135.0
88310	BFB1-2083	80.1 - 82.5	88338	BFB1-4138	135.1 - 137.5
88311	BFB1-2085	82.6 - 85.0	88339	BFB1-4140	137.6 - 140.0
88312	BFB1-2088	85.1 - 87.5	88340	BFB1-4143	140.1 - 142.5
88313	BFB1-2090	87.6 - 90.0	88341	BFB1-4145	142.6 - 145.0
88314	BFB1-2093	90.1 - 92.5	88342	BFB1-5140	137.6 - 140.0
88315	BFB1-2095	92.6 - 95.0	88343	BFB1-5143	140.1 - 142.5
88316	BFB1-2098	95.1 - 97.5	88344	BFB1-5145	142.6 - 145.0
88317	BFB1-2100	97.6 - 100.0	88345	BFB1-5148	145.1 - 147.5
88318	BFB1-3095	92.6 - 95.0	88346	BFB1-5150	147.6 - 150.0
88319	BFB1-3098	95.1 - 97.5	88347	BFB1-5153	150.1 - 152.5
88320	BFB1-3100	97.6 - 100.0	88348	BFB1-5155	152.6 - 155.0
88321	BFB1-3103	100.1 - 102.5	88349	BFB1-5158	155.1 - 157.5
88322	BFB1-3105	102.6 - 105.0	88350	BFB1-5160	157.6 - 160.0

Clamp type BFBT 1

Composed of

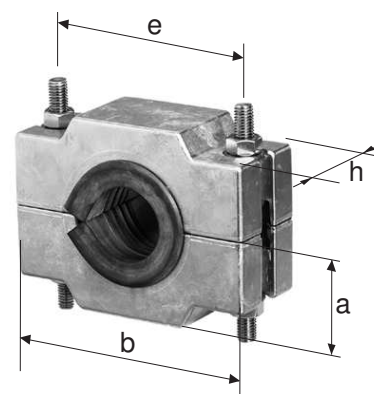
Body made of cast aluminium with stainless steel A2 bolts and rubber insert, including fastening bolts

To provide with PO's

Type of fixing
Cable diameter
Cable type

To order separately:

Supporting cross type STKR
Profile rail type PS
Slot nut type PSVN



Dimension	a mm	b mm	e mm	h mm	Screws mm	Drawing
1040 - 1073	60	160	130	60	M 12 x 160	S1467-4
2068 - 2088	65	175	145	60	M 12 x 170	S1468-4
3083 - 3108	75	200	170	60	M 12 x 190	S1469-4
4103 - 4133	90	245	210	80	M 16 x 220	S1470-4
5128 - 5148	100	255	220	100	M 16 x 240	S1471-4

Part no	Type	Cable Ø mm	Part no	Type	Cable Ø mm
88850	BFBT1-1040	37.6 - 40.0	88723	BFBT1-3095	92.6 - 95.0
88851	BFBT1-1043	40.1 - 42.5	88724	BFBT1-3098	95.1 - 97.5
88852	BFBT1-1045	42.6 - 45.0	88725	BFBT1-3100	97.6 - 100.0
88853	BFBT1-1048	45.1 - 47.5	88726	BFBT1-3103	100.1 - 102.5
88854	BFBT1-1050	47.6 - 50.0	88727	BFBT1-3105	102.6 - 105.0
88700	BFBT1-1053	50.0 - 52.5	88728	BFBT1-3108	105.1 - 107.5
88701	BFBT1-1055	52.6 - 55.0	88729	BFBT1-4103	100.1 - 102.5
88702	BFBT1-1058	55.1 - 57.5	88730	BFBT1-4105	102.6 - 105.0
88703	BFBT1-1060	57.6 - 60.0	88731	BFBT1-4108	105.1 - 107.5
88704	BFBT1-1063	60.1 - 62.5	88732	BFBT1-4110	107.6 - 110.0
88705	BFBT1-1065	62.6 - 65.0	88733	BFBT1-4113	110.1 - 112.5
88706	BFBT1-1068	65.1 - 67.5	88734	BFBT1-4115	112.6 - 115.0
88707	BFBT1-1070	67.6 - 70.0	88735	BFBT1-4118	115.1 - 117.5
88708	BFBT1-1073	70.1 - 72.5	88736	BFBT1-4120	117.6 - 120.0
88709	BFBT1-2068	65.1 - 67.5	88737	BFBT1-4123	120.1 - 122.5
88710	BFBT1-2070	67.6 - 70.0	88738	BFBT1-4125	122.6 - 125.0
88711	BFBT1-2073	70.1 - 72.5	88739	BFBT1-4128	125.1 - 127.5
88712	BFBT1-2075	72.6 - 75.0	88740	BFBT1-4130	127.6 - 130.0
88713	BFBT1-2078	75.1 - 77.5	88741	BFBT1-4133	130.1 - 132.5
88714	BFBT1-2080	77.6 - 80.0	88742	BFBT1-5128	125.1 - 127.5
88715	BFBT1-2083	80.1 - 82.5	88743	BFBT1-5130	127.6 - 130.0
88716	BFBT1-2085	82.6 - 85.0	88744	BFBT1-5133	130.1 - 132.5
88717	BFBT1-2088	85.1 - 87.5	88745	BFBT1-5135	132.6 - 135.0
88718	BFBT1-3083	80.1 - 82.5	88746	BFBT1-5138	135.1 - 137.5
88719	BFBT1-3085	82.6 - 85.0	88747	BFBT1-5140	137.6 - 140.0
88720	BFBT1-3088	85.1 - 87.5	88748	BFBT1-5143	140.1 - 142.5
88721	BFBT1-3090	87.6 - 90.0	88749	BFBT1-5145	142.6 - 145.0
88722	BFBT1-3093	90.1 - 92.5	88750	BFBT1-5148	145.1 - 147.5

Supporting cross type STKR

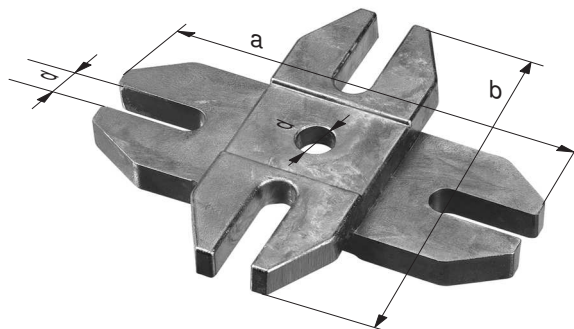
for fixing of BFB/BCT clamps

Cast aluminium

To order separately:

Fixing clamp type BCT

Fixing clamp type BFBT 1



Type	d mm	a mm	b mm
STKR	14	175	145

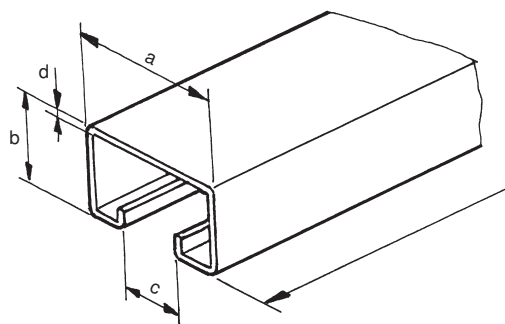
Allocation table

	installed on side	additional U-washer	Part No. U-washer
BCT 1-40-2 - 1-52-2	a	M 8 x 24	65264
BCT 1-65-2 - 1-103-2	a	M 10 x 30	58777
BFB1 1065 - 1085, BFBT1 1053 - 1073	b		
BFB1 2080 - 2100, BFBT1 2068 - 2088	a		

Part no	Type	Weight kg/piece
30320	STKR	0.50

Profile rail type PS

Customized cutting length upon request



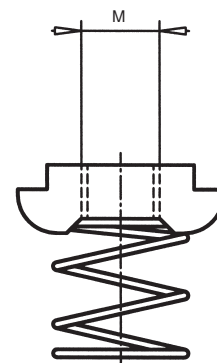
Part no	Type	a mm	b mm	c mm	d mm	Length m		Weight kg/m
28670	PSA 32	32	18	15.4	3	3.0	aluminium	0.56
31633	PSA 50	50	30	22.0	3	6.5	aluminium	1.00
48357	PSV 50	50	30	22.0	3	6.0	Steel hot dip galvanized	3.10

Slot nut type PSVN

Steel tin plated

Packaging unit

Standard pack of 100 pieces



Part no	Type	Profile	Thread
28696	PSVN 32 - 8	PSA 32	M 8
28695	PSVN 32 - 10	PSA 32	M 10

Anchoring clamp type BAF

Composed of

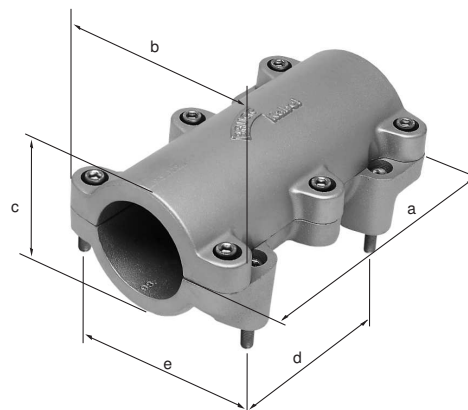
Body made of cast aluminium with stainless steel A2 bolts, including fastening bolts

To provide with PO's

Type of fixing
Cable diameter
Cable type

To order separately:

Jig type ML
Dowel type MLS
Dowel type MLD



Type	a mm	b mm	c mm	d mm	e mm	Drawing
BAF 40	180	106	64	90	70	S1544-4
BAF 80	250	146	104	140	110	S1545-4
BAF 110	300	186	140	185	150	S1546-4
BAF 130	316	220	170	184	180	S1547-4
BAF 160	300	270	205	185	230	S2002

Part no	Type	Cable Ø mm	Part no	Type	Cable Ø mm
89606	BAF 40 24/26	24 - 26	89628	BAF 110 83/86	83 - 86
89607	BAF 40 26/28	26 - 28	89629	BAF 110 86/89	86 - 89
89608	BAF 40 28/30	28 - 30	89630	BAF 110 89/92	89 - 92
89609	BAF 40 30/32	30 - 32	89631	BAF 110 92/95	92 - 95
89610	BAF 40 32/34	32 - 34	89632	BAF 110 95/98	95 - 98
89611	BAF 40 34/36	34 - 36	89633	BAF 110 98/101	98 - 101
89612	BAF 40 36/38	36 - 38	89634	BAF 110 101/104	101 - 104
89613	BAF 40 38/40	38 - 40	89635	BAF 110 104/107	104 - 107
89614	BAF 80 41/44	41 - 44	89636	BAF 110 107/110	107 - 110
89615	BAF 80 44/47	44 - 47	89637	BAF 130 110/114	110 - 114
89616	BAF 80 47/50	47 - 50	89638	BAF 130 114/118	114 - 118
89617	BAF 80 50/53	50 - 53	89639	BAF 130 118/122	118 - 122
89618	BAF 80 53/56	53 - 56	89640	BAF 130 122/126	122 - 126
89619	BAF 80 56/59	56 - 59	89641	BAF 130 126/130	126 - 130
89620	BAF 80 59/62	59 - 62	60115	BAF 160 130/134	130 - 134
89621	BAF 80 62/65	62 - 65	60116	BAF 160 134/138	134 - 138
89622	BAF 80 65/68	65 - 68	60117	BAF 160 138/142	138 - 142
89623	BAF 80 68/71	68 - 71	60118	BAF 160 142/146	142 - 146
89624	BAF 80 71/74	71 - 74	60119	BAF 160 146/150	146 - 150
89625	BAF 80 74/77	74 - 77	60120	BAF 160 150/154	150 - 154
89626	BAF 80 77/80	77 - 80	60121	BAF 160 154/158	154 - 158
89627	BAF 110 80/83	80 - 83	60122	BAF 160 158/162	158 - 162

Anchoring clamp type BAFT

Composed of

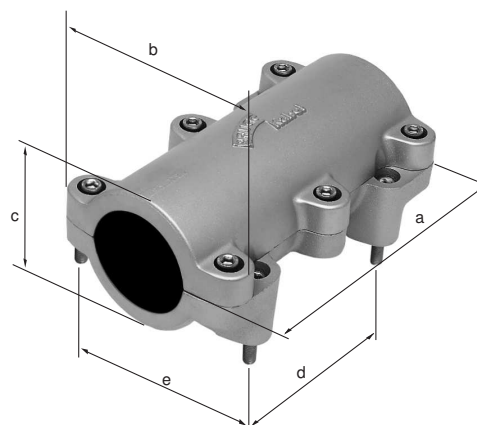
Body made of cast aluminium with stainless steel A2 bolts and rubber insert, including fastening bolts

To provide with PO's

Type of fixing
Cable diameter
Cable type

To order separately:

Jig type ML
Dowel type MLS
Dowel type MLD



Type	a mm	b mm	c mm	d mm	e mm	Drawing
BAFT 40	180	106	64	90	70	S1548-4
BAFT 80	250	146	104	140	110	S1549-4
BAFT 110	300	186	140	185	150	S1550-4
BAFT 130	316	220	170	184	180	S1551-4
BAFT 160	300	270	205	185	230	S2003

Part no	Type	Cable Ø mm	Part no	Type	Cable Ø mm
89510	BAFT 40 23/25	23 - 25	89531	BAFT 110 82/85	82 - 85
89511	BAFT 40 25/27	25 - 27	89532	BAFT 110 85/88	85 - 88
89512	BAFT 40 27/29	27 - 29	89533	BAFT 110 88/91	88 - 91
89513	BAFT 40 29/31	29 - 31	89534	BAFT 110 91/94	91 - 94
89514	BAFT 40 31/33	31 - 33	89535	BAFT 110 94/97	94 - 97
89515	BAFT 80 34/37	34 - 37	89536	BAFT 110 97/100	97 - 100
89516	BAFT 80 37/40	37 - 40	89537	BAFT 110 100/103	100 - 103
89517	BAFT 80 40/43	40 - 43	89538	BAFT 130 103/107	103 - 107
89518	BAFT 80 43/46	43 - 46	89539	BAFT 130 107/111	107 - 111
89519	BAFT 80 46/49	46 - 49	89540	BAFT 130 111/115	111 - 115
89520	BAFT 80 49/52	49 - 52	89541	BAFT 130 115/119	115 - 119
89521	BAFT 80 52/55	52 - 55	89542	BAFT 130 119/123	119 - 123
89522	BAFT 80 55/58	55 - 58	60123	BAFT 160 123/127	123 - 127
89523	BAFT 80 58/61	58 - 61	60124	BAFT 160 127/131	127 - 131
89524	BAFT 80 61/64	61 - 64	60125	BAFT 160 131/135	131 - 135
89525	BAFT 80 64/67	64 - 67	60126	BAFT 160 135/139	135 - 139
89526	BAFT 80 67/70	67 - 70	60127	BAFT 160 139/143	139 - 143
89527	BAFT 80 70/73	70 - 73	60128	BAFT 160 143/147	143 - 147
89528	BAFT 110 73/76	73 - 76	60129	BAFT 160 147/151	147 - 151
89529	BAFT 110 76/79	76 - 79	60130	BAFT 160 151/155	151 - 155
89530	BAFT 110 79/82	79 - 82			

Anchoring clamp type BA

Composed of

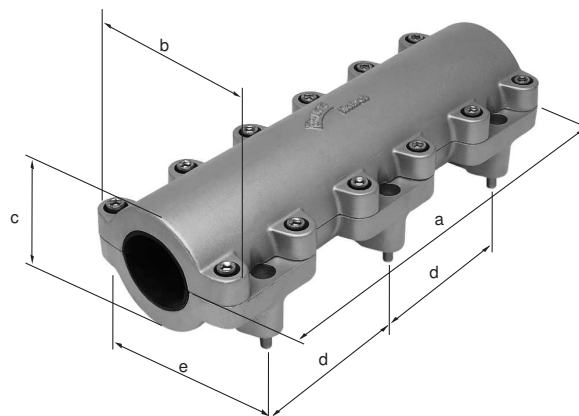
Body made of cast aluminium with stainless steel A2 bolts, including fastening bolts

To provide with PO's

Type of fixing
Cable diameter
Cable type

To order separately:

Jig type ML
Dowel type MLS
Dowel type MLD



Type	a mm	b mm	c mm	d mm	e mm	Drawing
BA 40	300	106	64	180	70	S1539-4
BA 80	400	146	104	240	110	S1540-4
BA 110	500	186	140	185	150	S1541-4
BA 130	500	220	170	185	185	S1542-4
BA 160	600	270	205	220	230	S1543-4

Part no	Type	Cable Ø mm	Part no	Type	Cable Ø mm
89570	BA 40 24/26	24 - 26	89592	BA 110 83/86	83 - 86
89571	BA 40 26/28	26 - 28	89593	BA 110 86/89	86 - 89
89572	BA 40 28/30	28 - 30	89594	BA 110 89/92	89 - 92
89573	BA 40 30/32	30 - 32	89595	BA 110 92/95	92 - 95
89574	BA 40 32/34	32 - 34	89596	BA 110 95/98	95 - 98
89575	BA 40 34/36	34 - 36	89597	BA 110 98/101	98 - 101
89576	BA 40 36/38	36 - 38	89598	BA 110 101/104	101 - 104
89577	BA 40 38/40	38 - 40	89599	BA 110 104/107	104 - 107
89578	BA 80 41/44	41 - 44	89600	BA 110 107/110	107 - 110
89579	BA 80 44/47	44 - 47	89601	BA 130 110/114	110 - 114
89580	BA 80 47/50	47 - 50	89602	BA 130 114/118	114 - 118
89581	BA 80 50/53	50 - 53	89603	BA 130 118/122	118 - 122
89582	BA 80 53/56	53 - 56	89604	BA 130 122/126	122 - 126
89583	BA 80 56/59	56 - 59	89605	BA 130 126/130	126 - 130
89584	BA 80 59/62	59 - 62	88450	BA 160 130/134	130 - 134
89585	BA 80 62/65	62 - 65	88451	BA 160 134/138	134 - 138
89586	BA 80 65/68	65 - 68	88452	BA 160 138/142	138 - 142
89587	BA 80 68/71	68 - 71	88453	BA 160 142/146	142 - 146
89588	BA 80 71/74	71 - 74	88454	BA 160 146/150	146 - 150
89589	BA 80 74/77	74 - 77	88455	BA 160 150/154	150 - 154
89590	BA 80 77/80	77 - 80	88456	BA 160 154/158	154 - 158
89591	BA 110 80/83	80 - 83	88457	BA 160 158/162	158 - 162

Anchoring clamp type BAT

Composed of

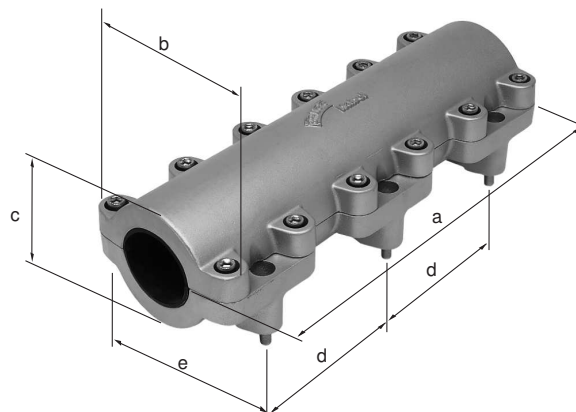
Body made of cast aluminium with stainless steel A2 bolts and rubber insert, including fastening bolts

To provide with PO's

Type of fixing
Cable diameter
Cable type

To order separately:

Jig type ML
Dowel type MLS
Dowel type MLD



Type	a mm	b mm	c mm	d mm	e mm	Drawing
BAT 40	300	106	64	180	70	S1534-4
BAT 80	400	146	104	240	110	S1535-4
BAT 110	500	186	140	185	150	S1536-4
BAT 130	500	220	170	185	185	S1533-4
BAT 160	600	270	205	220	230	S1537-4

Part no	Type	Cable Ø mm	Part no	Type	Cable Ø mm
89477	BAT 40 23/25	23 - 25	89498	BAT 110 82/85	82 - 85
89478	BAT 40 25/27	25 - 27	89499	BAT 110 85/88	85 - 88
89479	BAT 40 27/29	27 - 29	89500	BAT 110 88/91	88 - 91
89480	BAT 40 29/31	29 - 31	89501	BAT 110 91/94	91 - 94
89481	BAT 40 31/33	31 - 33	89502	BAT 110 94/97	94 - 97
89482	BAT 80 34/37	34 - 37	89503	BAT 110 97/100	97 - 100
89483	BAT 80 37/40	37 - 40	89504	BAT 110 100/103	100 - 103
89484	BAT 80 40/43	40 - 43	89505	BAT 130 103/107	103 - 107
89485	BAT 80 43/46	43 - 46	89506	BAT 130 107/111	107 - 111
89486	BAT 80 46/49	46 - 49	89507	BAT 130 111/115	111 - 115
89487	BAT 80 49/52	49 - 52	89508	BAT 130 115/119	115 - 119
89488	BAT 80 52/55	52 - 55	89509	BAT 130 119/123	119 - 123
89489	BAT 80 55/58	55 - 58	88460	BAT 160 123/127	123 - 127
89490	BAT 80 58/61	58 - 61	88461	BAT 160 127/131	127 - 131
89491	BAT 80 61/64	61 - 64	88462	BAT 160 131/135	131 - 135
89492	BAT 80 64/67	64 - 67	88463	BAT 160 135/139	135 - 139
89493	BAT 80 67/70	67 - 70	88464	BAT 160 139/143	139 - 143
89494	BAT 80 70/73	70 - 73	88465	BAT 160 143/147	143 - 147
89495	BAT 110 73/76	73 - 76	88466	BAT 160 147/151	147 - 151
89496	BAT 110 76/79	76 - 79	88467	BAT 160 151/155	151 - 155
89497	BAT 110 79/82	79 - 82			

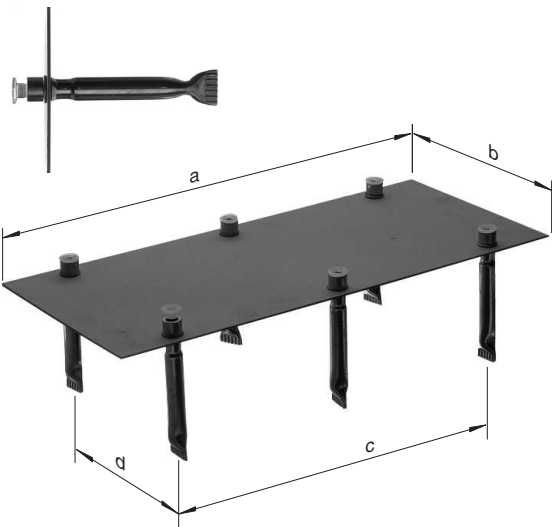
Jig type ML

Composed of

Perforated aluminium plate, dowels with stainless steel bolts, protective caps for Allen screws

To provide with PO's

Clamp type



Allocation table

Type	suitable with	Number of holes	a mm	b mm	c mm	d mm
ML A1	BA 40	4	300	110	180	70
ML A2	BA 80	4	400	150	240	110
ML A3	BA 110	6	500	190	185	150
ML A4	BA 130	6	500	220	185	185
ML F1	BAF 40	4	180	110	90	70
ML F2	BAF 80	4	250	150	140	110
ML F3	BAF 110	4	300	190	185	150
ML F4	BAF 130	4	320	220	184	180

Part no	Type
48200	ML A1
48202	ML A2
48204	ML A3
48206	ML A4
48201	ML F1
48203	ML F2
48205	ML F3
48207	ML F4

Dowel type MLS

to concrete-cast for assembly of anchoring clamps

Composed of

Dowel M12 made of tin plated steel



Part no	Type	suitable with clamp	Dowel quantity
89551	MLS 12/1	BA/BAT 40 - 80, BAF/BAFT 40 - 130	4
89552	MLS 12/2	BA/BAT 110 - 130	6

Dowel type MLD

for assembly of anchoring clamps

Composed of

Dowel M12 made of tin plated steel



Part no	Type	suitable with clamp	Dowel quantity
89553	MLD 12/1	BA/BAT 40 - 80, BAF/BAFT 40 - 130	4
89554	MLD 12/2	BA/BAT 110 - 130	6

BRIFIX® cable belts type KG

Short-circuit resistant bandaging of single core cables in basements, cable ducts, manholes, etc.

The BRIFIX cable belts are characterized by high tensile strength and easy assembly.

To provide with PO's

Cable diameter d or total circumference



Type	Length mm	Width mm	d mm	Perimeter mm
KG 350/40	350	40	25 - 34	170 - 230
KG 420/40	420	40	35 - 45	231 - 305
KG 600/40	600	40	46 - 62	306 - 420
KG 750/40	750	40	63 - 80	421 - 545
KG 900/40-1	900	40	81 - 100	546 - 680
KG 900/40-2	900	40	101 - 110	681 - 745
KG 900/40-3	900	40	111 - 120	746 - 810
KG 1200/40	1200	40	121 - 129	811 - 870

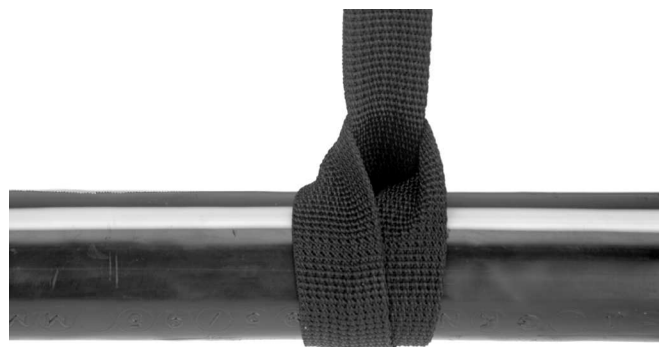
Part no	Type	Standard-Packaging piece	Weight kg/piece
71504	KG 350/40	25	0.06
71505	KG 420/40	25	0.08
71506	KG 600/40	25	0.08
71507	KG 750/40	25	0.08
71508	KG 900/40-1	25	0.08
71509	KG 900/40-2	25	0.08
71510	KG 900/40-3	25	0.08
71558	KG 1200/40	25	0.10

BRIFIX[®] cable belt endless type KGE

For hanging cables in basements, cable ducts, manholes, etc.

The BRIFIX cable belts are characterized by high tensile strength and easy assembly.

The cable belt distance is determined according to the cable weight and the tensile force.



Type	Length mm	Width mm	Max. cable-Ø mm	Breaking load N
KGE 800/25	800	25	80	500
KGE 1500/25	1500	25	80	500

Part no	Type	Standard-Packaging piece	Weight kg/piece
58618	KGE 800/25	25	0.01
58619	KGE 1500/25	25	0.02

HV Tools

Pulling eye set type LP

for pulling of single core high voltage cables on copper or aluminum conductors.

For cables with corrugated sheath the pulling set type ZS must be used.

Technical Data

Max permissible tensile force for Cu conductors = 60 N/mm²

Max permissible tensile force for Al conductors = 30 N/mm²
but max. 85 kN

Composed of

Pulling eye and compression sleeve made of steel, longitudinally sealed

In the set complete with heat shrink tube MWTM



Ordering information

Part no	Type	Min. Ø conductor mm	Max. Ø conductor mm	Equivalent conductor cross section mm ²	Press die size pull strap/conductor
37697	LP 2/240	16.5	19.0	240	27/27
37698	LP 2/300	18.5	21.0	300	27/27
37699	LP 3/400	21.5	24.5	400	30/30
37700	LP 4/500	23.5	27.0	500	34/34
37701	LP 4/630	27.0	31.5	630	34/38
37702	LP 4/800	33.0	36.5	800	34/44
59896	LP 4/1000	38.0	42.5	1000	34/55
64477	LP 4/1200	42.5	46.0	1200	34/60
79078	LP 4/1400	45.5	49.5	1400	34/60
64478	LP 4/1600	48.0	52.5	1600	34/65
59897	LP 4/2000	55.0	58.5	2000	34/70
59898	LP 4/2500	61.0	64.5	2500	34/75

Pulling eye set for Un up to 110 kV

Part no	Type	MWTM
88900	LP 2/240 110 kV	85/25-500
88901	LP 2/300 110 kV	85/25-500
88921	LP 3/400 110 kV	95/29-500
88922	LP 4/500 110 kV	95/29-500
88923	LP 4/630 110 kV	115/34-500
88902	LP 4/800 110 kV	115/34-500
88903	LP 4/1000 110 kV	115/34-500
88904	LP 4/1200 110 kV	140/42-500
59661	LP 4/1400 110 kV	140/42-500
88905	LP 4/1600 110 kV	140/42-500
88906	LP 4/2000 110 kV	140/42-500
59662	LP 4/2500 110 kV	140/42-500

Pulling eye set for Un 132 - 500 kV

Part no	Type	MWTM
88915	LP 2/300 132-500 kV	95/29-750 + 75/22-250
88916	LP 3/400 132-500 kV	115/34-750 + 75/22-250
88910	LP 4/500 132-500 kV	115/34-750 + 75/22-250
88917	LP 4/630 132-500 kV	140/42-750 + 75/22-250
88918	LP 4/800 132-500 kV	140/42-750 + 75/22-250
88911	LP 4/1000 132-500 kV	140/42-750
88912	LP 4/1200 132-500 kV	140/42-750
89362	LP 4/1400 132-500 kV	140/42-750
88919	LP 4/1600 132-500 kV	160/50-750
88920	LP 4/2000 132-500 kV	160/50-750
88929	LP 4/2500 132-500 kV	160/50-750

Pulling set type ZS for corrugated sheath cables

for pulling of single core polymeric cables with corrugated sheath

Technical Data

Max permissible tensile force for Cu conductors = 60 N/mm²

Max permissible tensile force for Al conductors = 30 N/mm²

Composed of

Pulling piece, self-tapping screws, heat shrink tube and sealing tape



Ordering information

Part no	Type	Min. Ø conductor mm	Max. Ø conductor mm	Equivalent conductor cross section mm ²	Press die size
88641	ZS 240	16.0	18.5	240	28
88642	ZS 300	18.5	21.0	300	32
88643	ZS 400	21.0	24.5	400	38
88644	ZS 500	24.5	28.0	500	38
88645	ZS 630	28.0	31.5	630	42
88646	ZS 800	31.5	35.0	800	44
88647	ZS 1000-1	35.0	38.5	1000	52
88648	ZS 1000-2	38.5	42.0	1000	52
88649	ZS 1200	42.0	45.5	1200	60
88650	ZS 1400	45.5	49.0	1400	60
88651	ZS 1600	49.0	52.5	1600	65
88652	ZS 1800	52.5	56.0	1800	70
88654	ZS 2000	56.0	59.5	2000	70
88655	ZS 2500	59.5	64.0	2500	75

Cable band saw

Application

The cable band saw is used to cut polymer cables.

Technical Data

- Maximal cutting width: 150 mm
- Rated Voltage: 230 V 50 Hz
- Adjustable speed: 20 - 110 m/min

Scope of delivery

- 1 Band saw Marpol 88
- 1 Holding device consisting:
 - aluminium holder
 - ratchet span set
- Hexagonal key 6 mm
- Instruction manual including list of spare parts in English, German, French, Spanish and Italian
- Packaging, wooden box (71 x 37 x 29 cm)



Ordering information

Part no	Type	Description	Weight kg
88880	MP 88	Cable band saw	29.0

Spare parts

Part no	Type	Description	Weight kg
65554	LC 3000.	Tighten clamp	
65029	Marpol	Aluminium holder	
77457	Endless saw blade	1440 x 13 x 0.65; 8/12 inch	

Cable sheath cutter

Application

The sheath cutter is applied to cut copper- or aluminium corrugated sheaths of high voltage cables.

Technical Data

- Rated power: 700 W
- Cutting depth: 3 - 12 mm
- Cutting speed: 1 m / min

Scope of delivery

- 1 Sheath cutter
- 5 Chisels
- Packaging, Metal box (50 x 32 x 10 cm)



Ordering information

Part no	Type	Voltage	Weight kg
78026	MS2000	110 V / 60 Hz	
65502	MS2000	230 V / 50 Hz	13.0

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
76631	MS2000	Dismanteling fork	1.0

Spare parts

Part no	Type	Description	Weight kg
88459	MS2000	Set of chisels, 5 pieces	1.6

Cable sheath dismantling fork

Application

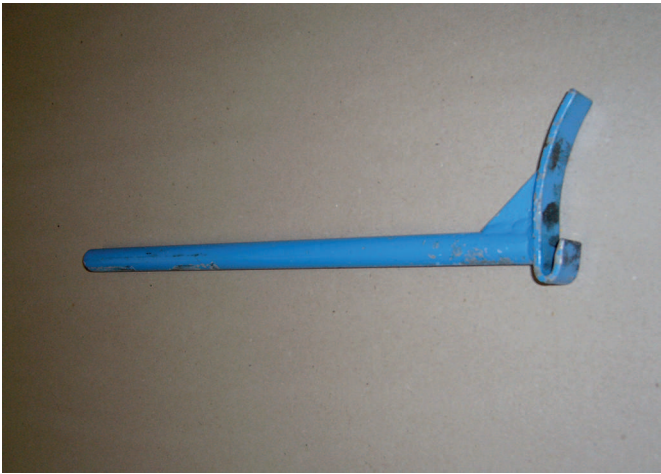
The dismantling fork is applied to remove the outer jacket and sheath of polymer cables.

Technical Data

- Material: Steel
- Length of steel pipe: 350 mm
- Width of tool: 25 mm
- Please note that two dismantling forks are necessary for a proper dismantling procedure

Scope of delivery

- 1 Dismantling fork
- Packaging, covering box



Ordering information

Part no	Type	Description	Weight kg
76631		Dismanteling fork	1.0

Cutting and peeling device type EH 150

Application

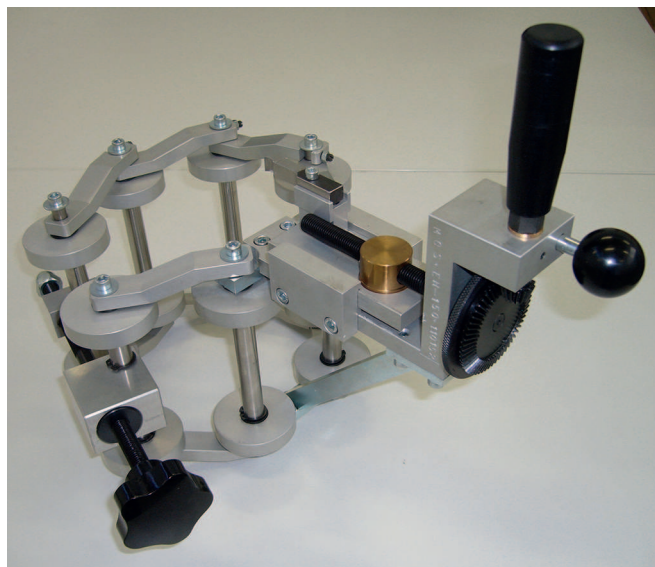
The cutting and peeling device type EH 150 is applied to cut and shape the insulation of high voltage polymeric cables with diameters up to 150 mm.

Technical Data

- Max. cable diameter: 150 mm
- Max. adjusting range: 60 mm
- Feed per turn: approx. 1 mm
- Max. cutting depth: 40 mm
- Width between rollers: 106 mm
- Shapes like a slot, a taper of 45 degrees or curved tapers can be achieved with the individual knives

Scope of delivery

- Cutting and peeling device
- Slot knife, width 10 mm
- Taper knife
- Hexagonal key 4 x 150
- Set of axle extensions
- Instruction manual in English
- Packaging, plastic box



Ordering information

Part no	Type	Description	Weight kg
88468	EH150	Cutting and peeling device	8.0

Spare parts

Part no	Type	Drawing	Description	Weight kg
75961	Alesa 4900.1514	MO 1023	Slot knife with a width of 5 mm	0.02
75962	Alesa 4900.1513	MO 1022	Slot knife with a width of 10 mm	0.03
76589	Alesa 4900	MO 1304	Slot knife with a width of 20 mm	0.04
75963	Alesa 4900.1516	MO 1024	Peeling knife for cone part 1	0.08
75964	Alesa 4900.1515	MO 1025	Peeling knife for cone part 2	0.10
62521	70.006	MO 1094	Grooving knife with a width of 26 mm	0.05
76329	Alesa 4900.1590	MO 1110	Grooving knife with a width of 49 mm	0.06
76367	Alesa 4900.1098	MO 1124	Taper knife 45 degree	0.06

Peeling and stripping tool type SH

Application

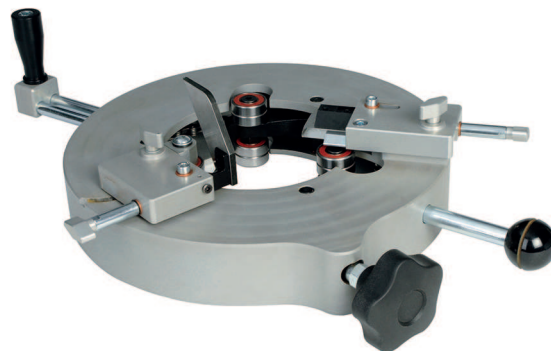
The peeling and stripping tools type SH are applied to cut and remove bonded outer semiconductive layers as well as to strip and chamfer the insulation off high voltage polymeric cables.

Technical Data

- Max. peeling depth:
 - SH50 2.5 mm
 - SH80 3.0 mm
 - SH130 3.0 mm
 - SH160 3.0 mm

Scope of delivery

- Peeling and stripping tool
- 3 Hexagonal keys
- 1 Spare knife for peeling
- 1 Spare knife for cutting
- Guide bracket
- Instruction manual in English and German
- Packaging, Plastic box



Ordering information

Part no	Type	Cable Ø mm	Cutting depth of insulation mm	Weight kg
65030	SH50	15 - 50	0 - 20	4.6
65031	SH80	30 - 80	0 - 30	5.5
65032	SH130	70 - 130	0 - 35	6.5
79066	SH160	100 - 160	0 - 35	8.2

Spare parts

Part no	Type	Description	Weight kg
	Knife for SH50	Knife for peeling-off the semiconductive layer	0.05
	Knife for SH50	Knife for cutting the main insulation	0.05
78820	Knife for SH80	Knife for peeling-off the semiconductive layer	0.05
78821	Knife for SH80	Knife for cutting the main insulation	0.05
78617	Knife for SH130	Knife for peeling-off the semiconductive layer	0.05
78618	Knife for SH130	Knife for cutting the main insulation	0.05
	Knife for SH160	Knife for peeling-off the semiconductive layer	0.05
	Knife for SH160	Knife for cutting the main insulation	0.05

Peeling tool type S

Application

The peeling tools type S are applied to remove easily and fast semiconductive layers over cable jackets or outer semiconductive layers over insulation of high voltage polymeric cables.

Technical Data

- Rated Voltage: 230 V 50/60 Hz
- Rated power: 470 - 750 W
- Peeling depth: 0.1 – 5 mm

Scope of delivery

- Peeling and stripping tool with motor
- 3 Hexagonal wrench; 2.5, 5, 8
- 3 Combination wrench; 8, 10, 13
- 2 Spare knife
- Knife with stilt
- Spare peeling blade
- Spare belt
- Guide bracket
- Instruction manual in English and German
- Packaging, plastic box



Ordering information

Part no	Type	Cable Ø mm	Weight kg
65503	S50	15 - 50	5.8
65504	S80	30 - 80	10.5
65505	S125	70 - 125	10.5
65506	S150	90 - 150	15.0
77861	S180	110 - 180	9.8

Optional Item

Part no	Type	Description	Weight kg
62514	S50 - S150	Tripod with swivel castors	

Spare parts

Part no	Type	Description	Weight kg
66220		Belt for S50	0.02
66221		Belt for S80	0.02
76120		Belt for S125	0.02
66302		Belt for S150	0.02
62515		Peeling knife-head for S50-S150	0.05
76119		Peeling blade for EPR cables for S50-S150	0.05
62513		Peeling blade for XLPE cables for S50-S150	0.05
04539		Knife with stilt for S50-S150	0.05

Cable sanding machine

Application

The cable sanding machine is applied to sand the insulation surface of polymer cables.

Technical Data

- Rated power: 500 W
- Engine adjustable speed: 1000 – 2000 / min

Scope of delivery

- Cable sanding machine
- Spanner wrench M 17
- Technical document (various languages)
- Safety instruction (various languages)
- List of spare parts (English, German and French)
- Packaging, plastic toolbox (51 x 26 x 25 cm)



Ordering information

Part no	Type	Description	Weight kg
88964	UPC 2-R 220/230 V 50/60 Hz	Cable sanding machine 230 V	8.0
60187	UPC 2-R 120 V 60 Hz	Cable sanding machine 120 V	8.0

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
76094	150	Emery papers, width 29 mm	0.01
76095	180	Emery papers, width 29 mm	0.01
76096	220	Emery papers, width 29 mm	0.01
76098	320	Emery papers, width 29 mm	0.01
62371	400	Emery papers, width 29 mm	0.01

Spare parts

Part no	Type	Description	Weight kg
78867	220/230 V 50/60 Hz	Electrical drive	
78868		Mechanical drive with rollers	
78869		Handle bar	

3-arm puller

Application

Is applied to pull off the insulation of polymer cables

Technical Data

- Pressure disk thickness: 13 mm

Scope of delivery

- Main tool
- Spanner "Kukko"
- Packaging, cardboard box



Ordering information

Part no	Type	Pulling width mm	Pulling depth mm	Pulling power t	Wrench for spindle mm	Weight kg
76117	12-2	150	125	8	19	1.8
76118	12-3	200	165	10	24	3.5

Additional tools (to be ordered separately)

Part no	Conductor cross section mm ²	Diameter of disk mm	Description	Weight kg
66416	400	20	Pressure Disk	0.5
66417	500	22	Pressure Disk	0.5
66418	630	26	Pressure Disk	0.5
66419	800	30	Pressure Disk	0.5
66420	1000	35	Pressure Disk	1.0
66421	1200	40	Pressure Disk	1.0
66422	1600	45	Pressure Disk	1.0
66423	2000	50	Pressure Disk	1.0
66424	2500	60	Pressure Disk	1.0

Insulation pushing device set up to 800 mm²

Application

The insulation pushing device set is applied to push back the insulation of polymeric cables with cross sections up to 800 mm².

Technical Data

- Conductor cross-section: 240 - 800 mm²
- Material: Stainless steel

Scope of delivery

- 2 Insulation pushing devices
- 6 Pair of pressure discs
- 5 Pair of adapter sleeves
- Lubricant type Metaflux
- Packaging, Wooden box (38 x 27 x 15 cm)



Ordering information

Part no	Type	Description	Weight kg
88957	240 - 800 mm ²	Insulation pushing device set	16.0

Spare parts

Part no	Type	Description	Weight kg
78168	240 mm ²	Pressure disc with inner Ø 19.8 mm	0.24
78169	300 mm ²	Pressure disc with inner Ø 22.5 mm	0.23
78170	400 mm ²	Pressure disc with inner Ø 25.5 mm	0.26
78171	500 mm ²	Pressure disc with inner Ø 28.5 mm	0.28
78172	630 mm ²	Pressure disc with inner Ø 32.5 mm	0.31
78173	800 mm ²	Pressure disc with inner Ø 38 mm	0.32
78159	240 mm ²	Adapter sleeves with inner Ø 19.8 mm	0.43
78160	300 mm ²	Adapter sleeves with inner Ø 22.5 mm	0.40
78161	400 mm ²	Adapter sleeves with inner Ø 25.5 mm	0.33
78162	500 mm ²	Adapter sleeves with inner Ø 28.5 mm	0.26
78163	630 mm ²	Adapter sleeves with inner Ø 32.5 mm	0.16
78179	240 - 800 mm ²	Sliding disc	0.01
78157	240 - 800 mm ²	Fixing part	0.66
78158	240 - 800 mm ²	Press part	0.60
78183	209	Handle bar complete	0.08
79249	Metaflux	Lubricant	0.01

Insulation pushing device set 1000–2500 mm²

Application

The insulation pushing device set is applied to push back the insulation of polymeric cables with cross sections from 1000 mm² up to 2500 mm².

Technical Data

- Conductor cross-section: 1000 - 2500 mm²
- Material: Stainless steel

Scope of delivery

- Insulation pushing device
- 5 Pair of pressure discs
- 4 Pair of adapter sleeves
- Lubricant type Metaflux
- Packaging, Wooden box (47 x 30 x 15 cm)



Ordering information

Part no	Type	Description	Weight kg
88958	1000 - 2500 mm ²	Insulation pushing device set	23.5

Spare parts

Part no	Type	Description	Weight kg
78174	1000 mm ²	Pressure disc with inner Ø 42 mm	0.36
78175	1200 mm ²	Pressure disc with inner Ø 45.5 mm	0.38
78176	1600 mm ²	Pressure disc with inner Ø 51 mm	0.40
78177	2000 mm ²	Pressure disc with inner Ø 58 mm	0.46
78178	2500 mm ²	Pressure disc with inner Ø 65 mm	0.48
78164	1000 mm ²	Adapter sleeves with inner Ø 42 mm	1.12
78165	1200 mm ²	Adapter sleeves with inner Ø 45.5 mm	0.96
78166	1600 mm ²	Adapter sleeves with inner Ø 51 mm	0.70
78167	2000 mm ²	Adapter sleeves with inner Ø 58 mm	0.30
78180	1000 - 2500 mm ²	Sliding disc	0.02
78181	1000 - 2500 mm ²	Fixing part	1.20
78182	1000 - 2500 mm ²	Press part	0.90
78183	209	Handle bar complete	0.08
79249	Metaflux	Lubricant	0.01

Insulation pushing device XL

Application

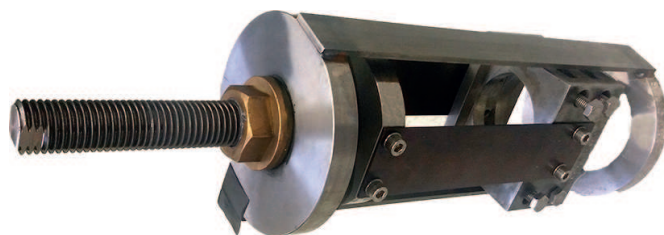
The insulation pushing device is applied to push back the extra large insulation of 400 kV and 500 kV polymeric cables with cross sections from 1600 mm² up to 2500 mm².

Scope of delivery

- Insulation pushing device
- 3 pressure discs
- Packaging: cardboard box

Technical Data

- Conductor cross-section: 1600 - 2500 mm²
- Material: carbon steel 1.1191



Ordering information

Part no	Type	Description	Weight kg
88878	1600 - 2500 mm ²	Insulation pushing device XL	10.0

Spare parts

Part no	Type	Description	Weight kg
76267	1600 mm ²	Pressure disc with inner Ø 54 mm	1.0
76268	2000 mm ²	Pressure disc with inner Ø 63 mm	1.0
64226	2500 mm ²	Pressure disc with inner Ø 67 mm	1.0
79249	Metaflux	Lubricant	0.1

Heating tube type 150

Application

The heating tube is applied to heat the insulation of polymer cables for installation purposes.

Technical Data

- Inner diameter: 150 mm
- Outer diameter: 250 mm
- Length: 980 mm
- Rated Voltage: 230 V 50/60 Hz
- Rated power: Max. 400 W
- Heating temperature: 80 – 100 °C

Scope of delivery

- Heating tube complete
- Packaging, covering box



Ordering information

Part no	Type	Description	Weight kg
83347	150 CH	Heating tube with CH plug	11.2
83348	150 EU	Heating tube with EU plug	11.2
83349	150 UK	Heating tube with UK plug	11.2

Angle for cable aligning

Application

The aluminium angle serves to align the cable during the assembly of HV terminations and HV joints. With the help of adapters several aluminium angles can be connected.

Scope of delivery

- 1 Aluminium angle
- Packaging, cardboard box

Technical Data

- Dimension: 100 x 100 mm
- Length: 1 - 2 m
- Material: Aluminium



Ordering information

Part no	Type	Description	Weight kg
78196	1.0 m	Aluminium angle	1.1
78197	1.5 m	Aluminium angle	1.4
78198	2.0 m	Aluminium angle	1.7
77952	0.4 m	Extension adapter	0.8

Hot air gun

Application

The hot air gun is applied for several purpose during cable and accessories installation such as smoothing polymeric cable surfaces, soft soldering and shrinking of sleeves.

Technical Data

- Rated Voltage: 220 – 240 V
- Rated power: 2300 W
- Temperature at nozzle: approx. 50... 660 °C
- Air flow: approx. 250... 500 l / min

Scope of delivery

- Hot air gun
- Wide nozzle 50 mm
- Glass protection nozzle 75 mm
- Operating instruction manual (German, French, Italian, English, Spanish and 24 other languages)
- Packaging, Plastic box



Ordering information

Part no	Type	Description	Weight kg
62465	GHG 660 LCD	Hot air gun	1.8

Selection guide for slide-on tools

Selection guide for slide-on tools to gas cushion installation method for joints

1. Introduction

The following application guide will help you easily select the necessary tool components for single applications according to the particular cable dimensional data. Complete tool sets to cover a wide range of cable dimensions and voltages are also available; please consult the Brugg Cables e-Catalogue.



Fig. 1: installation with gas cushion method

2. Basic slide-on assembly tool set

The basic assembly tool set is required for the set-up of joint silicone bodies from 72.5 kV up to 550 kV. The tool set consists of a joint body carrier, spindle guide rods and some small assembly parts.

2.1 Carrier for silicone joint bodies

The carrier is used to safely deposit joint bodies during the set-up process.



Fig. 2: Carrier for silicone joint bodies

Applicable for all voltage levels the carrier can be flexibly adapted to the different sizes of silicone joint bodies.

2.2 Spindle for silicone joint bodies

The spindle is used to insert slide-on rings onto the silicone joint bodies. The tool set consists of a base plate, threaded rods in different lengths according to the joint body size and a cover with threaded screws.

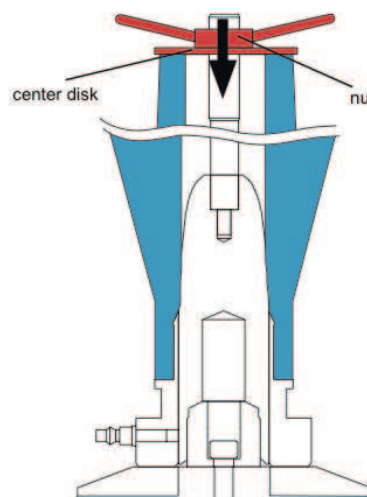


Fig. 3: Spindle for silicone joint bodies

The Basic slide-on assembly tool set is available in two sizes over insulation diameter:

Set 1: 56 – 109 mm

Set 2: 99 – 129 mm

Please refer the Brugg Cables e-Catalogue for ordering information and technical data.

3. Selection of single slide-on components

The slide-on components are required for the installation of the joint body dependent on the particular cable dimensions. For proper installation four slide-on components are required, one slide-on ring with gas valve, two slide-on cones and one conductor ring.



Fig. 4: Single slide-on components

3.1 Selection of slide-on ring

The slide-on ring with integrated valve allows the gas injection underneath silicone joint bodies during the slide-on installation process. The proper ring size is selected according to the diameter of the outer semi-conductive layer of the cable where the joint body must be brought into parking position. For the selection please attend following rule:

$$D_i = D_{sc} + \begin{matrix} \text{min. 1 mm} \\ \text{max. 5 mm} \end{matrix}$$

D_i = Inner diameter of necessary slide-on ring

D_{sc} = Diameter over outer semi conductive layer of the cable



Fig. 5: Slide-on rings with gas valve

The slide on rings are available in 18 sizes. Please refer the Brugg Cables e-Catalogue for ordering information and technical data.

3.2 Selection of slide-on cones

For the installation process two slide-on cones are needed.

Cone A is required for the basic assembly tool to help the insertion of the slide-on ring over the joint body. The proper size of the necessary cone A is therefore selected according to the inner diameter of the selected slide-on ring with gas valve. For the selection of cone A please attend following rule:

$$D_A = D_i - 1 \text{ mm}$$

D_A = Diameter of necessary cone A

D_i = Inner diameter of selected slide-on ring

Cone B is required to guide the joint body onto the prepared cable end. The selection of the cone B is according to the diameter over cable insulation of the prepared cable end.

$$D_{\text{insul}} \leq D_B < D_i$$

D_B = Diameter of necessary cone B

D_i = Inner diameter of selected slide-on ring

D_{insul} = Diameter over cable insulation



Fig. 6: Slide-on cones

The slide on cones are available in 21 sizes. Please refer the Brugg Cables e-Catalogue for ordering information and technical data.

3.3 Selection of conductor ring

The conductor ring is required to fix the slide-on cone B onto the prepared cable end. The proper size of the conductor ring is selected according to the diameter of the cable conductor of the prepared cable end. For the selection please attend following rule:

$$D_{ring} > D_{cond} + 2 \text{ mm}$$

D_{ring} = Diameter of conductor ring

D_{cond} = Diameter over cable conductor

Note: Please attend the necessary thread size of the conductor ring according to the selected slide-on cone.



Fig. 7: Conductor rings

The conductor rings are available in 16 sizes. Please refer the Brugg Cables e-Catalogue for ordering information and technical data.

4 Complete slide-on device sets

Complete sets are offered to simplify the selection of slide-on components. These sets contain, for defined cable dimensions, a basic assembly tool set plus all the single components required for a proper installation.



Fig. 8: Complete set in a robust wooden box

The complete slide-on device sets are available in two sizes over insulation diameter:

Set 1: 56 – 109 mm

Set 2: 99 – 129 mm

Please refer the Brugg Cables e-Catalogue for ordering information and technical data.

Pulling device set for Terminations

Application

The pulling device set is used to pull-on silicone stress cones type STRC on polymer cables during the assembly of HV cable terminations.

Technical Data

Manual hoist:

- Rated force: 600 kg
- Overload protection: 900 kg
- Wire feed per double stroke: 30 mm
- Load on lever at rated load: 25 kg
- Wire diameter: 6.4 mm
- Wire length: 10 m
- Length of wire rope strap: 1 m

Scope of delivery

- 2 pieces of manual hoists of type "Habegger Hit-6"
- Box with adapter rings to pull-on the stress cones of type STRC
- Packaging, Wooden box (50 x 45 x 37 cm)



Ordering information

Part no	Type	Description	Weight kg
88299	50 - 126 mm	Pulling Device Set	40.0

Spare parts

Part no	Type	Description	Weight kg
76283	58 mm	Adapter ring	0.10
76289	62 mm	Adapter ring	0.11
76284	66 mm	Adapter ring	0.15
76290	70 mm	Adapter ring	0.12
76285	74 mm	Adapter ring	0.13
76291	78 mm	Adapter ring	0.13
76286	82 mm	Adapter ring	0.14
76292	86 mm	Adapter ring	0.14
76287	90 mm	Adapter ring	0.14
76293	94 mm	Adapter ring	0.16
76288	98 mm	Adapter ring	0.20
76294	102 mm	Adapter ring	0.16
62126	110 mm	Adapter ring	0.18
78058	118 mm	Adapter ring	0.20
78059	126 mm	Adapter ring	0.20
76155	Habegger Hit-6	2 pieces of manual hoists	7.40
76282		Retaining ring	1.45

Slide-on tube for terminations

Application

The slide-on tube facilitates the pulling of the stress cone during the assembly of HV cable termination. For this purpose, the two-piece slide-on tube consists of a cone with a tube extension.

Scope of delivery

- One cone each with a tube extension
- Packaging, cardboard box

Technical Data

- Cone length: 130 mm
- Tube length: 500 mm
- Tube wall thickness: 6 mm
- Outer diameter: 60 - 120 mm
- Material: RCH 1000



Ordering information

Part no	Type	Description	Weight kg
76156	60 mm	Slide-on tube complete	0.8
76157	75 mm	Slide-on tube complete	1.1
76158	85 mm	Slide-on tube complete	1.4
76159	95 mm	Slide-on tube complete	1.7
62924	100 mm	Slide-on tube complete	2.0
76997	105 mm	Slide-on tube complete	2.1
76998	110 mm	Slide-on tube complete	2.2
76999	115 mm	Slide-on tube complete	2.3
79145	120 mm	Slide-on tube complete	2.4

Slide-on device set 1 for joints

Application

The Slide-on device set is used to slide-on the silicon slide-on bodies of type ASMK on the polymer cable

Technical Data

- Insulation diameters: 56 – 109 mm
- Cross section: 240 – 2000 mm2

Scope of delivery

- Basic slide-on assembly tool set 1
- Ring with gas valve, 11 pieces from 60 mm to 110 mm
- Slide-on cone, 14 pieces from 56 mm to 109 mm
- Conductor ring, 14 pieces from 19.5 mm to 62.0 mm
- Packaging, wooden box (880 x 600 x 710)



Ordering information

Part no	Type	Description	Weight kg
88474	Size 1 = 56 - 109 mm	Set of slide-on devices	113.0

Slide-on device set 2 for joints

Application

The Slide-on device set is used to slide-on the silicon slide-on bodies of type ASMK on the polymer cable

Technical Data

- Insulation diameters: 99 – 129 mm
- Cross section: 1600 – 2500 mm2
- Basic slide-on assembly tool set 2
- Ring with gas valve , 6 pieces from 115 mm to 135 mm
- Slide-on cone, 10 pieces from 99 mm to 134 mm
- Conductor ring, 4 pieces from 52.2 mm to 65.0 mm
- Packaging, wooden box (800 x 600 x 710)



Ordering information

Part no	Type	Description	Weight kg
88475	Size 2 = 99 - 129 mm	Set of slide-on devices	113.0

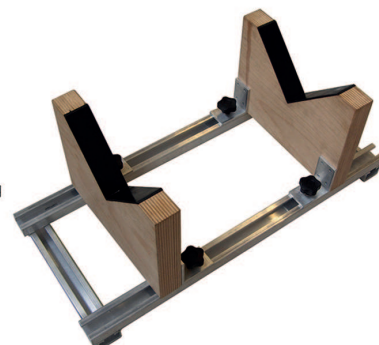
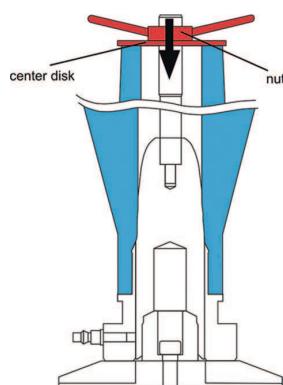
Basic slide-on assembly tool set

Application

The slide-on mounting device sets are used to slide-on the silicon slide-on bodies of type ASMK on polymer cables. The Slide-on assembly tool sets are part of the slide-on device sets.

Scope of delivery

- Baseplate
- Guide rod of Ø 15 mm x 230 mm
- Guide rod of Ø 15 mm x 550 mm
- Threaded rod M16 x 490 mm
- Carrier for silicone body
- Set of grease-sticks
- Pressure reduction valve for nitrogen
- Protection tube KIR PG 16 x 350 mm
- Cable stripping knife
- Cylindrical screw with internal hexagon of type DIN 912-M 10 x 45 A2, 2 pieces
- Wingnut M16
- Rubber gasket 10 x 12.5 mm, 12 m
- Adhesive tape of type 228-20/30 black, 12 pieces
- Filament adhesive tape "Scotchpro 8956", 12 pieces
- Self-vulcanizing insulation tape of type B 50 - 19/9.1, 12 pieces
- Screw pin zinc-plated, 12 pieces each: M6 x 6 mm, M6 x 10 mm, M6 x 12 mm
- Hexagon wrench, 2 pieces each: 3 mm; 5 mm; 8 mm
- Centering piece, set 1 = 4 sizes, set 2 = 2 sizes
- Five O-rings, set 1 = 4 sizes, set 2 = 2 sizes
- Centering disc, set 1 = 4 sizes, set 2 = 1 size
- Packaging, Wooden box (88 x 60 x 71 cm)



Ordering information

Part no	Type	Description	Weight kg
80603	Size 1 = 56 - 109 mm	Slide-on assembly tool set 1	91.0
80604	Size 2 = 99 - 129 mm	Slide-on assembly tool set 2	90.0

Spare parts

Part no	Type	Description	Part of Set	Weight kg
76197		Baseplate	1 + 2	1.34
78047	Ø 15 mm x 230 mm	Guide rod	1 + 2	0.30
76213	Ø 15 mm x 250 mm	Guide rod	1 + 2	0.74
76238	M16 x 490 mm	Threaded rod	1 + 2	0.64
88294		Carrier for silicone body	1 + 2	9.00
88138		Set of grease-sticks	1 + 2	2.00
88285		Pressure reduction valve	1 + 2	4.50
76231	KIR PG 16 x 350 mm	Protection tube	1 + 2	0.06
04627		Cable stripping knife	1 + 2	0.10
15486	DIN 912-M 10 x 45	Cylindrical screw, 2 pcs	1 + 2	0.02
76233	M16	Wingnut	1 + 2	0.05
76226	10 x 12.5 mm	Rubber gasket, 12 m	1 + 2	1.00
14955	228-20/30	Adhesive tape black, 12 pieces	1 + 2	1.44
76295	"Scotchpro 8956"	Filament adhesive tape, 12 pcs	1 + 2	1.82
54197	B 50 - 19/9.1	Self-vulcanising insulation tape, 12 pcs	1 + 2	2.40

Part no	Type	Description	Part of Set	Weight kg
76198	Ø 38 mm, M42 x 2	Centering piece	1	0.06
76237	Ø 37.47 mm, M42 x 2	O-ring, 5 pcs	1	0.02
76193	Ø 46/100 mm	Centering disc	1	0.20
76199	Ø 38 mm, M50 x 2	Centering piece	1	0.08
35679	Ø 47.00 mm, M50 x 2	O-ring, 5 pcs	1	0.03
76194	Ø 55/100 mm	Centering disc	1	0.22
76200	Ø 62.5 mm, M65 x 2	Centering piece	1	0.18
65711	Ø 62.87 mm, M65 x 2	O-ring, 5 pcs	1	0.03
76195	Ø 67/100 mm	Centering disc	1	0.20
76201	Ø 72.5 mm, M75 x 2	Centering piece	1 + 2	0.24
35622	Ø 72.40 mm, M75 x 2	O-ring, 5 pcs	1 + 2	0.03
76196	Ø 81/150 mm	Centering disc	1 + 2	0.48
64242	Ø 77.5 mm, M80 x 2	Centering piece	2	0.28
11381	Ø 75.57 mm, M80 x 2	O-ring, 5 pcs	2	0.03
76236	M6 x 6 mm	Screw pin zinc-plated, 8 pcs	1 + 2	0.12
76244	M6 x 10 mm	Screw pin zinc-plated, 8 pcs	1 + 2	0.12
76245	M6 x 12 mm	Screw pin zinc-plated, 8 pcs	1 + 2	0.12
76246	3 mm	Hexagon wrench, 2 pcs	1 + 2	0.04
76247	5 mm	Hexagon wrench, 2 pcs	1 + 2	0.04
76248	8 mm	Hexagon wrench, 2 pcs	1 + 2	0.04

Slide-on ring with gas valve

Application

The slide-on ring with integrated valve allows the gas injection underneath silicone joint bodies during the slide-on installation process. The proper ring size is selected according to the diameter of the outer semi-conductive layer of the cable where the joint body must be brought into parking position:

$$D_i = D_{sc} + 1 \dots 5 \text{ mm}$$

Scope of delivery

- Single slide-on ring
- Packaging, cardboard box



Ordering information

Part no	Diameter mm	Description	Part of Set	Weight kg
76166	60.0	Slide-on ring	1	0.50
76167	65.0	Slide-on ring	1	0.50
76168	70.0	Slide-on ring	1	0.52
76169	75.0	Slide-on ring	1	0.54
76170	80.0	Slide-on ring	1	0.58
76171	85.0	Slide-on ring	1	0.62
76172	90.0	Slide-on ring	1	0.62
76173	95.0	Slide-on ring	1	0.68
76174	100.0	Slide-on ring	1	0.70
76175	105.0	Slide-on ring	1	0.72
76176	110.0	Slide-on ring	1	0.74
64240	115.0	Slide-on ring	2	2.62
64241	120.0	Slide-on ring	2	2.72
64199	125.0	Slide-on ring	2	2.82
64200	130.0	Slide-on ring	2	2.90
77154	132.0	Slide-on ring	2	2.96
77128	135.0	Slide-on ring	2	3.02

Slide-on cone

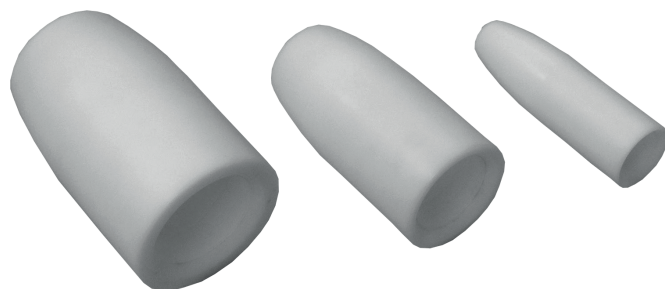
Application

For the installation process two slide-on cones are needed. Cone B is required to guide the joint body onto the prepared cable end. The selection of the cone B is according to the diameter over cable insulation of the prepared cable end.

Diameter of cone B: $D_{\text{insul}} \leq D_B < D_i$

Cone A is required for the basic assembly tool to help the insertion of the slide-on ring over the joint body. The proper size of the necessary cone A is therefore selected according to the inner diameter of the selected slide-on ring.

Diameter of cone A: $D_A = D_i - 1 \text{ mm}$



Scope of delivery

- Single slide-on cone
- Packaging, cardboard box

Ordering information

Part no	Diameter mm	Thread	Description	Part of Set	Weight kg
76179	56.0	M42 x 2	Slide-on cone	1	0.36
76180	59.0	M42 x 2	Slide-on cone	1	0.42
76181	64.0	M50 x 2	Slide-on cone	1	0.48
76182	69.0	M50 x 2	Slide-on cone	1	0.60
76183	74.0	M50 x 2	Slide-on cone	1	0.74
64250	74.0	M65 x 2	Slide-on cone	1	0.50
76184	79.0	M65 x 2	Slide-on cone	1	0.62
76185	84.0	M65 x 2	Slide-on cone	1	0.78
76186	89.0	M65 x 2	Slide-on cone	1	0.94
76187	94.0	M65 x 2	Slide-on cone	1	1.02
76188	99.0	M65 x 2	Slide-on cone	1	1.30
64251	99.0	M75 x 2	Slide-on cone	1 + 2	1.18
76189	104.0	M75 x 2	Slide-on cone	1 + 2	1.38
76190	109.0	M75 x 2	Slide-on cone	1 + 2	1.58
76191	114.0	M75 x 2	Slide-on cone	2	1.82
76192	119.0	M75 x 2	Slide-on cone	2	2.04
64252	119.0	M80 x 2	Slide-on cone	2	1.96
64197	124.0	M80 x 2	Slide-on cone	2	2.15
77127	128.0	M80 x 2	Slide-on cone	2	2.30
64198	129.0	M80 x 2	Slide-on cone	2	2.44
77126	134.0	M80 x 2	Slide-on cone	2	2.58

Slide-on conductor ring

Application

The conductor ring is required to fix the slide-on cone onto the prepared cable end. The proper size of the conductor ring is selected according to the diameter of the cable conductor of the prepared cable end:

$$D_{\text{ring}} > D_{\text{con}} + 2 \text{ mm}$$

Note: Please attend the necessary thread size of the conductor ring according to the selected slide-on cone.



Scope of delivery

- Single conductor ring
- Packaging, cardboard box

Ordering information

Part no	Diameter mm	Cross section mm ²	Thread	Description	Part of Set	Weight kg
76202	19.5	240	M42 x 2	Conductor ring	1	0.28
76203	21.8	300	M42 x 2	Conductor ring	1	0.26
76259	24.9	400	M42 x 2	Conductor ring	1	0.22
76204	24.9	400	M50 x 2	Conductor ring	1	0.40
76205	27.8	500	M50 x 2	Conductor ring	1	0.36
60111	28.5	550	M42 x 2	Conductor ring	-	0.35
76206	32.0	630	M50 x 2	Conductor ring	1	0.30
76207	32.0	630	M65 x 2	Conductor ring	1	0.70
60112	34.5	800	M50 x 2	Conductor ring	-	0.65
76208	36.8	800	M65 x 2	Conductor ring	1	0.62
76209	42.5	1000	M65 x 2	Conductor ring	1	0.52
76210	46.0	1200	M65 x 2	Conductor ring	1	0.44
62155	46.0	1200	M75 x 2	Conductor ring	1	0.76
64249	52.2	1600	M65 x 2	Conductor ring	1	0.30
76211	52.2	1600	M75 x 2	Conductor ring	1 + 2	0.64
76212	62.0	2000	M75 x 2	Conductor ring	1 + 2	0.36
64195	65.0	2500	M75 x 2	Conductor ring	2	0.28
64196	65.0	2500	M80 x 2	Conductor ring	2	0.44

High-pressure pump 35 t type EHP 850

Application

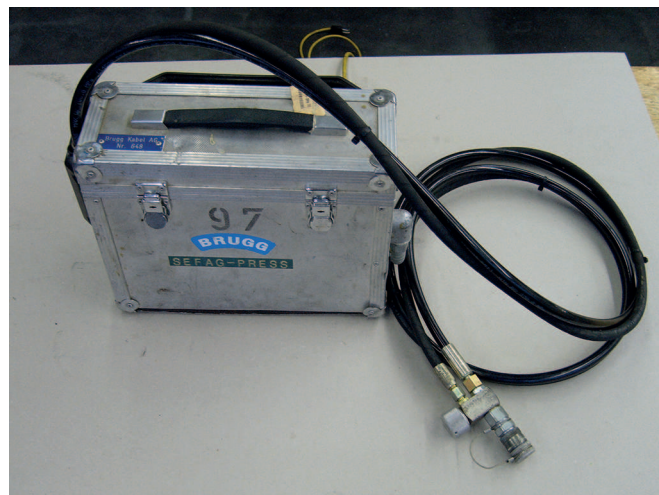
The electro-hydraulic high-pressure pump is applied to press cable conductor press connectors for cable joints and terminations.

Technical Data

- Cable diameters: 120 - 1000 mm²
- Max. working pressure: 850 bar
- Hydraulic oil content: 0.65 l
- Hose length: 3 m
- Rated voltage: 220 V / 50 Hz
- Rated power: 500 W
- Cable length: 5 m

Scope of delivery

- Electro-hydraulic high-pressure pump
- Handy carrying case
- Hydraulic hose fix connected



Ordering information

Part no	Type	Description	Weight kg
65416	EHP 850	High-pressure pump 35 t	13.0

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
65417	Size IV	Press head 35 t	11.0
	120 - 1000 mm ²	Hexagonal press dies 35 t	

Press head 35 t size IV

Application

The press head is applied to press conductor connectors with hexagonal press dies.

Technical Data

- Cable diameters: 120 - 1000 mm²
- Max. working pressure: 850 bar
- Max. working force: 380 kN
- Max. working stroke: 30 mm
- Compressible conductor cross section:
 - Copper: 120 – 1000 mm²
 - Aluminium: 95 – 1000 mm²
- Repair and maintenance through manufacturer only
- The pressing of steel pulling heads is also possible, separate technical information is required for this

Scope of delivery

- Press head
- Packaging, wooden box



Ordering information

Part no	Type	Description	Weight kg
65417	IV	Press head 35 t	11.0

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
65416	EHP 850	High-pressure pump 35 t	13.0
	120 - 1000 mm ²	Hexagonal press dies 35 t	0.0

Hexagonal press dies 35 t, size IV

Application

The press dies are used for the hexagonal compression of bolts and connectors during the installation of high voltage cable accessories. The pressing of steel pulling heads for high voltage cables is also possible.

Technical Data

- Suitable for copper and aluminium conductors
- For press head 35 t, size IV

Selection

- Order the proper type according to the diameter over prepared cable conductor or the outer diameter of the press connector.
- The equivalent conductor cross section is for reference only.

Scope of delivery

- Pair of hexagonal press dies



Ordering information

Part no	Type	Outer diameter of press connector	Diameter over prepared cable conductor	Equivalent conductor cross section	Weight
		mm	mm	mm ²	kg
66025	KZ 20	20	8.5 - 13.5	95 - 120	4
66026	KZ 25	25	13.5 - 16.0	120 - 185	4
66027	KZ 28	28	16.0 - 18.5	150 - 240	4
66028	KZ 32	32	18.5 - 21.0	240 - 300	4
65418	KZ 38	38	21.0 - 24.5	300 - 400	4
62270	KZ 42	42	24.5 - 28.0	400 - 500	4
62271	KZ 44	44	28.0 - 31.5	500 - 630	4
62272	KZ 52	52	31.5 - 35.0	630 - 800	4
76148	KZ 58	58	35.0 - 38.5	800 - 1000	4

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
65416	EHP 850	High-pressure pump 35 t	13.0
65417	Size IV	Press head 35 t	11.0

High-pressure pump 60 t type PE 172

Application

The electro-hydraulic high-pressure pump is applied for the assembly of press connectors.

Technical Data

- Cable diameters: 185 - 2500 mm²
- Max. working pressure: 700 bar
- Hydraulic oil content: 6 l
- Material of oil reservoir: Aluminium
- Rated voltage: 220 V / 50/60 Hz
- Rated power: 370 W
- Cable length: 3.1 m

Scope of delivery

- Electro-hydraulic high-pressure pump
- Foot switch
- Packaging, separate box or with other items in a box



Ordering information

Part no	Type	Description	Weight kg
76691	PE 172 AM	High-pressure pump 60 t	30.0

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
76692	H240K	Press head 60 t	34.5
76693	185 - 2500 mm ²	Hydraulic tube 60 t Hexagonal press dies 60 t	2.0

Hydraulic tube 60 t

Application

The Hydraulic tube is applied to connect hydraulic pump with the press head 60 t

Technical Data

- Max. working pressure: 700 bar
- Length: 2.5 m
- Type of connection: CEJN 115 6404
- Hydraulic tube with nonelectrical conductivity

Scope of delivery

- Hydraulic tube
- Packaging, separate box or with other items in a box



Ordering information

Part no	Type	Description	Weight kg
76693	H240K	Hydraulic tube	2.0

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
76691	PE 172 AM	High-pressure pump 60 t	30.0
76692	H240K	Press head 60 t	34.5
	185 - 2500 mm ²	Hexagonal press dies 60 t	

Press head 60 t type H240K

Application

The press head is applied to press conductor connectors with hexagonal press dies.

Technical Data

- Cable diameters: 120 - 2500 mm²
- Max. working pressure: 700 bar
- Max. force: 600 kN
- Type of connection: PVVM38
- Max. conductor cross section: 2500 mm²
- Repair and maintenance through manufacturer only
- The pressing of steel pulling heads is also possible, separate technical information is required for this.

Scope of delivery

- Press head 60 t
- Packaging, Wooden box (36 x 34 x 35 cm)



Ordering information

Part no	Type	Description	Weight kg
76692	H240K	Press head 60 t	34.5

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
76691	PE 172 AM	High-pressure pump 60 t	30.0
76693		Hydraulic tube 60 t	2.0
	120 - 2500 mm ²	Hexagonal press dies 60 t	0.0

Spare parts

Part no	Type	Description	Weight kg
62525	H240K	Set of sealings	0.1

Hexagonal press dies 60 t

Application

The press dies are used for the hexagonal compression of bolts and connectors during the installation of high voltage cable accessories. The pressing of steel pulling heads for high voltage cables is also possible.

Technical Data

- Suitable for copper and aluminium conductors
- For press head 60 t, Type H240K

Selection

- Order the proper type according to the diameter over prepared cable conductor or the outer diameter of the press connector.
- The equivalent conductor cross section is for reference only.

Scope of delivery

- Pair of press dies
- Wooden box with 1 pair of press dies



Ordering information

Part no	Type	Outer diameter of press connector mm	Diameter over prepared cable conductor mm	Equivalent conductor cross section mm ²	Weight kg
65975	SK 25	25	13.5 - 16.0	120 - 185	4.7
65976	SK 28	28	16.0 - 18.5	150 - 240	4.7
65977	SK 32	32	18.5 - 21.0	240 - 300	4.9
65978	SK 38	38	21.0 - 24.5	300 - 400	4.9
65979	SK 42	42	24.5 - 28.0	400 - 500	4.8
62188	SK 44	44	28.0 - 31.5	500 - 630	4.7
62364	SK 52	52	31.5 - 35.0	630 - 800	4.9
62016	SK 58	58	35.0 - 38.5	800 - 1000	4.9
76698	SK 60	60	38.5 - 42.0	1000 - 1200	4.8
65980	SK 65	65	42.0 - 45.5	1200 - 1400	4.7
62017	SK 70	70	45.5 - 52.5	1400 - 1600	4.7
62608	SK 75	75	52.5 - 59.5	1600 - 2500	4.5
64413	SK 80	80	59.5 - 65.5	2000 - 2500	4.5

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
76691	PE 172 AM	High-pressure pump 60 t	30.0
76692	H240K	Press head 60 t	34.5
76693		Hydraulic tube 60 t	2.0

Torque wrench

Application

The torque wrench is applied to fasten bolts and nuts accurately in all cable accessories. The adjustable handle allows a precise torque control in both clockwise and anti-clockwise directions.

Technical Data

- Operates between: 5 - 60 Nm; 3.7 - 44 lbf.ft
- Female part: 9 x 12 mm
- Length of main tool: 280 mm

Scope of delivery

- Torque wrench
- Ratchet insert tool, size 1/2 inch
- Certificate of calibration
- Instruction manual
- Packaging, plastic box for the main tool



Ordering information

Part no	Type	Description	Weight kg
76149	60	Torque wrench	0.8

Socket set

Application

The socket set is applied to fasten bolts and nuts.

Technical Data

- Four cornered shaft: 1/2 inch
- Dimensions: 50 / 54 / 25 / 6

Scope of delivery

- 1 Ratchet, number 512
- 3 Extensions: 75 mm (509/3); 130 mm (509/5); 255 mm (509/10)
- 17 Sockets of type bi-hexagon, number 50:
 Sizes: 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 24, 27, 30, 32 mm
- 8 INHEX sockets, number 54: Sizes: 4, 5, 6, 7, 8, 10, 12, 14 mm
- 1 T-handle, number 506
- 1 Universal joint, number 510
- Packaging, Sheet steel case



Ordering information

Part no	Type	Description	Weight kg
64350		Socket set	6.2

BAND-IT clamping tool

Application

The BAND-IT clamping tool is applied to tighten metal bands in cable accessories.

Technical Data

- Width of band: 12.7 mm; 1/2 inch

Scope of delivery

- Clamping hand tool
- Instruction sheet in German and French
- Packaging, Cardboard box



Ordering information

Part no	Type	Description	Weight kg
65799	C00169	Clamping tool	2.0

Spare parts

Part no	Type	Description	Weight kg
65243	201 C 254	Stainless steel-loop (1 piece)	0.01
65244	201 C 204	Stainless steel-band 30.5 m	2.30
83307	201 C 204	Stainless steel-band 0.4 m	0.04
83273	201 C 204	Stainless steel-band 0.5 m	0.05
83266	201 C 204	Stainless steel-band 0.8 m	0.08
83271	201 C 204	Stainless steel-band 1.2 m	0.12
65800	J00169	JR-Adapter for cut off	0.63

Soldering tool set

Application

The soldering set is applied for brazing, soldering and plumbing operations during the installation of cables and accessories.

Technical Data

- Number of items: 25 pcs
- The connection between the regulator with hose break safety and leak test with the gas feed according to Swiss Standards and the gas bottle possibly will require an adapter piece considering local standards too. This needs to be provided locally

Scope of delivery

- Tool box with all the items from the list below
- Packaging, Steel tool box (53 x 20 x 20 cm)



Ordering information

Part no	Type	Description	Weight kg
88928		Soldering tool set	13.4

Spare parts

Part no	Type	Description	Weight kg
66068	Hand file rasp (cut 1)	length without tang 250 mm	
66069	Hand file 2nd cut (cut 2)	length without tang 250 mm	
66070	Hand file smooth (cut 3)	length without tang 250 mm	
66071	Round file 2nd cut (cut 2)	length without tang 250 mm	
66072	Half-round file rasp (cut 1)	length without tang 250 mm	
66073	Three-edge hollow scraper	blade length 100 mm	
66074	File handle	length 120 mm, 6 pieces	
66075	Hacksaw blade, 24 TPI	length 300 mm, 5 pieces	
54062	Saw with straight frame and blade backing	length of tool 350 mm, length of blade 190 mm	
64360	Gas lighter with fire stone		
66076	Replacement fire stones	10 pieces	
54357	Roller chain cutter for cable armours	diameters between 20 - 76 mm	
64339	Cable cutter	max. cable Ø of 52 mm	
4788	Pliers of type LIGAREX	for tensioning band hose clamps	
47983	Stainless band of type LIGAREX	dimension 10 x 0.3 mm, length 25 m	
47984	Stainless fastener of type LIGAREX	width of 10 mm, 100 pieces	
71706	Pliers and blades	max. Ø 30 mm, length 310 mm	
53584	Torch grip	coupling connection 3/8 inch	
53587	Soldering/heating torch	flame Ø 9 mm	
53588	Soldering/heating torch	flame Ø 20 mm	
53590	Soldering/heating torch	flame Ø 40 mm	
53595	Propane gas hose	coupling connections 3/8 inch, length 3 m	
53593	Regulator with hose break safety and leak test	gas output 3/8 inch, gas feed, Swiss Standard	
53600	Tee-fitting connector	3 coupling connections 3/8 inch	

Electric hand mixer set type CX 40

Application

The electric hand mixer is applied to mix high viscosity components.

Technical Data

- Diameter: 140 mm
- Length: 590 mm
- Rated Voltage: 230 V / 50 Hz
- Rated Power: 1200 W
- Max. mixable volume: 65 l
- Speed:
 - Gear I: 450 / min
 - Gear II: 600 / min
- Motor with electronic speed controls



Scope of delivery

- Electric mixer type CX 40
- Mixing tool type MK 140
- Packaging, Cardboard box

Ordering information

Part no	Type	Description	Weight kg
64039	CX 40	Electric hand mixer set	8.0

Spare parts

Part no	Type	Description	Weight kg
64040	MK 140	Mixing tool	1.5

Vacuum measuring set

Application

The measuring set is used to monitor the pressure during vacuum of gauge glass or insulators prior to silicone oil filling during installation of HV terminations.

Technical Data

- Voltage: 90...250 V AC
- Frequency: 50...60 Hz
- Operating temperature: +5 oC...+50 oC
- Gauge connection: 1

Scope of delivery

- Vacuum measuring set
- Gauge complete with coupling nut, ball valve of type DN 16 KF and "Pirani Gauge" of type TPR 280
- Additional "Pirani Gauge" of type TPR 280 for replacement
- Operating instructions with list of spare parts to "Pirani Gauge" in English and German (hard copy)
- Operating instructions to vacuum controller and list of spare parts in English and German (compact disc)
- Safety guide to vacuum gauge and vacuum controller in English and German (hard copy)
- Packaging, Wooden box (360 x 243 x 247 cm)



Ordering information

Part no	Type	Description	Weight kg
88683	BRUGG	Vacuum measuring set	8.6

Spare parts

Part no	Type	Description	Weight kg
64402	TPG 361	Vacuum controller	
64403	TPR 280	Pirani gauge	
30210	DN 16 KF	Clamping ring	
30211	DN 16 KF	Centering ring with O-ring	
30212	DN 16 KF	Ball valve	
88685	Ø 30 mm - 1/4 inch	Adapter for pirani gauge	
76507	CH plug	Device cable 3 m	
76514	EU plug	Device cable 2.5 m	
76517	UK plug	Device cable 2.5 m	

Vacuum pump type D 2.5

Application

The vacuum pump type D 2.5 is applied to extract air out of insulators for outdoor, GIS and transformer terminations up to 245 kV.

Technical Data

Oil filling max./min.: 0.7 / 0.4 l
 Pumping speed 50/60 Hz: 2.7 / 3.3 m³ · h⁻¹
 Rated Voltage: 220 V – 240/230 V, 50/60 Hz
 Power consumption: 250 / 300 W

Scope of delivery

All the items from the list below incl.:

- Operating instruction and list of spare parts in English and German
- 3-pin fixed adapter to plugs of type CEE7 — SEV Type 12
- Packaging, wooden box (480 x 280 x 315 cm)



Ordering information

Part no	Type	Description	Weight kg
88682	D 2.5	Vacuum pump system	28.0

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
88681	D 140	Gauge glass	13.5
88683	TPG 261	Vacuum measuring set	8.6

Spare parts

Part no	Type	Description	Weight kg
30215	O-ring	1 additional piece for replacement	
30191	Blind nipple 1/4 inch	length of shaft of 6 mm	
64400	Trivac D 2.5 E	Vacuum pump	15.3
88671	Adapter piece to vacuum pump	Ø 30 mm	
30214	Dirt sieve	1 additional piece for replacement	
30192	Hexagon coupling nut 1/4 inch		

Gauge glass set type D 140

Application

The gauge glass is applied to inspect the filling level of oil in fluid filled terminations. The upper flange of the gauge glass is applied as a connector of the tubes and the measuring gauge. This gauge glass is recommended for fluid filled terminations up to 245 kV.

Technical Data

- Diameter glass: 150 / 140 mm
- Length glass: 200 mm

Scope of delivery

All the items from the list below incl.:

- Fabric tube with diameter of 8 x 14 mm, 2 hose nipples and coupling nuts of size 1/4 inch, length 3 m
- Fabric tube with diameter of 8 x 14 mm, 2 hose nipples and coupling nuts of size 1/4 inch, length 1 m, 3 pieces
- Packaging, wooden box (20 x 20 x 55 cm)



Ordering information

Part no	Type	Description	Weight kg
88681	D 140	Gauge glass set	13.5

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
88682	D 2.5	Vacuum pump system	28.0
88683	TPG 261	Vacuum measuring set	8.6

Spare parts

Part no	Type	Description	Weight kg
64304	Glass cylinder	Ø 150/140 x 200 mm	
64319	Hose clamps	diameters up to 20 mm, 5 pieces	
30190	Blind nipples	size 1/4 inch, 3 pieces	
30192	Coupling nuts	size 1/4 inch, 3 pieces	
30195	Threaded nipples	size 1/4 inch, 3 pieces	
11679	Copper seal 17/23	5 x 5	
11676	Threaded nipples	size 3/8 inch, 5 pieces	
11280	Coupling nuts	size 3/8 inch, 2 pieces	
11281	Blind nipples	size 3/8 inch, 2 pieces	
14726	Reducing pieces with coupling nuts	size 3/8 inch and 1/4 inch, 3 pieces	
30196	Hose nipple to 1/4 inch		
64311	Flat gasket to glass cylinder		

Vacuum pump type D 16

Application

The vacuum pump type D 16 is applied to extract air out of insulators for outdoor, GIS and transformer terminations ≥ 245 kV.

Technical Data

- Terminations of voltages: ≥ 220 kV
- Oil filling max./min.: 1.0 / 0.5 l
- Pumping speed 50/60 Hz: 16,5 / 19.8 m³ · h⁻¹
- Rated Voltage: 3~ 230 / 400 V, 50 Hz; 250 / 440 V 60 Hz
- Power consumption: 550 / 750 W

Scope of delivery

All the items from the list below incl.:

- Motor overload switch
- Electric cable, length 5 m; connector of type CEE 16 A / 5-pole with phase changing switch
- Supporting ring and diaphragm to protect ports
- Documentation in English and German
- Spare parts lists to vacuum pump and exhaust filter
- Packaging, Wooden box (55 x 37 x 27 cm)



Ordering information

Part no	Type	Description	Weight kg
88662	Trivac D 16 B	Vacuum pump system	60.0

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
88661	D 200	Gauge glass set	26.8
88683	TPG 261	Vacuum measuring set	8.6

Spare parts

Part no	Type	Description	Weight kg
78903	DN 25 ISO-KF	O-ring, 2 additional piece for replacement	
78900	Trivac D 16 B	Rotary vane vacuum pump	
30192	Hexagon coupling nut 1/4 inch		
88672	Adapter piece to vacuum pump	Ø 40 mm	
78902	Dirt trap		
30191	Blind nipple 1/4 inch	length of shaft of 6 mm	

Gauge glass set type D 200

Application

The gauge glass is applied to inspect the filling level of oil in fluid filled terminations ≥ 245 kV.

Technical Data

- Diameter glass.: 215 / 200 mm
- Length glass: 300 mm

Scope of delivery

All the items from the list below incl.:

- Fabric tube with diameter of 8 x 14 mm, 2 hose nipples and coupling nuts of size 1/4 inch, length 3 m
- Fabric tube with diameter of 8 x 14 mm, 2 hose nipples and coupling nuts of size 1/4 inch, length 1 m, 3 pieces
- Packaging, Wooden box (30 x 30 x 55 cm)



Ordering information

Part no	Type	Description	Weight kg
88661	D 200	Gauge glass set	26.8

Additional tools (to be ordered separately)

Part no	Type	Description	Weight kg
88662	Trivac D 16 B	Vacuum pump	60.0
88683	TPG 261	Vacuum measuring set	8.6

Spare parts

Part no	Type	Description	Weight kg
78884	Glass cylinder	Ø 215/200 x 300 mm	
64319	Hose clamps	diameters up to 20 mm, 5 pieces	
30190	Blind nipples	size 1/4 inch, 3 pieces	
30192	Coupling nuts	size 1/4 inch, 3 pieces	
30195	Threaded nipples	size 1/4 inch, 3 pieces	
58608	Copper seal	13/20 x 1.5, 6 pieces	
11676	Threaded nipples	size 3/8 inch, 5 pieces	
11280	Coupling nuts	size 3/8 inch, 2 pieces	
11281	Blind nipples	size 3/8 inch, 2 pieces	
14726	Reducing pieces with coupling nuts	size 3/8 inch and 1/4 inch, 3 pieces	
11679	Copper seal	17/23.5 x 2	

Compressed air oil pump type D 40

Application

The pump type D 40 is applied to fill high viscose silicone oil into fluid filled cable terminations from containers with volumes up to 25 liters.

Technical Data

- Diameter: 40 mm
- Length: 750 mm
- Pipe length: 2 m
- Compression ratio: 3 : 1
- Max. flow rate: 14 l / min
- Air pressure: 3 – 8 bar
- Connection: G1/4 and G3/8 inch
- Please beware that silicone oil must be stored in metal bins only



Scope of delivery

- Pump
- Extension to drum pump
- Extract air tube with hose clamp
- Packaging, Wooden box

Ordering information

Part no	Type	Description	Weight kg
88000	2030	Pump for silicone oil	19.0

Spare parts

Part no	Type	Description	Weight kg
14721	RM 112 3/8 inch	Selfa-valve	
14726	G3/8 – G1/4 inch	Diminishing piece	
64648	Nylaflow 3/8 inch	Insulating sleeve	

Electric oil pump type D 50

Application

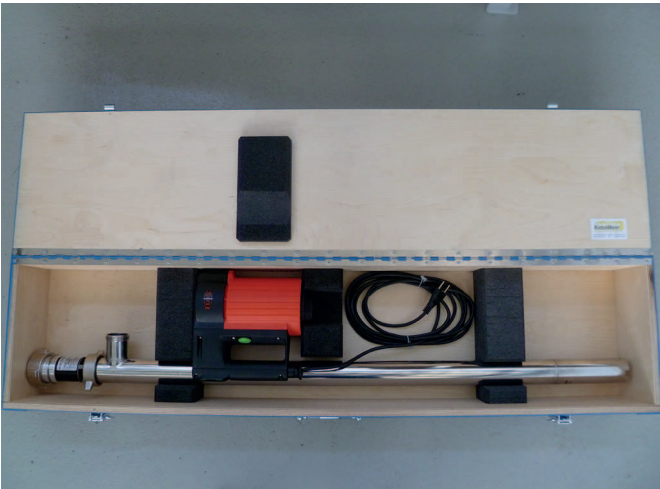
The pump type D 50 is applied to fill high viscose silicon oil in cable terminations.

Technical Data

- Type of stator: PTFE
- Rated Voltage: 230 V / 50 Hz
- Rated Power: 800 W
- Cable length: 4.7 m
- Length of suction pipe: 1 m
- Gear ratio: 1 : 15.9
- Protection: IP 24
- Number of revolutions: continuously adjustable
- Max. applicable power: 1500 W

Scope of delivery

- Electric motor, type F 457 EL
- High viscosity liquid pump, type 550 GS
- 3 m Fabric tube Ø 32...42 mm
- 4 Hose clamp Ø 32...50 mm
- Hose fitting for ball valve
- Hose fitting for shut-off valve
- Rubber gasket of 28 x 38
- Valve adapter 3/8
- Operating instruction to pump in English, German and French
- Operating instruction to motor in English, German and French
- List of spare parts to motor in English, German and French
- Packaging, wooden box



Ordering information

Part no	Type	Description	Weight kg
88010	F 550 GS	Pump for silicone oil	26.0

Subject to change without notice

20250627-1

Measuring jug

Application

The measuring jug is applied to measure drained oil of terminations.

Technical Data

- Max. Volume: 1000 ccm
- Material: Luran
- Crystal clear, easy readable, engraved scale

Scope of delivery

- Measuring glass
- Packaging, cardboard box



Ordering information

Part no	Type	Description	Weight kg
62376		Measuring glass	0.3

Hand workshop and measuring tools

Application

The hand workshop and measuring tools are applied for general operations and general measuring processes.

Technical Data

Number of items: 59 pieces

Scope of delivery

Tool box with items incl.:

- Ball point hex keys with handle for hexagon socket screws dimensions 5x140, 6x160, 8x180
- Phillips screwdrivers, size 0x60, 1x80, 2x100, 3x150
- Screwdrivers for slotted screws, size 0.5x3.5x90, 0.6x4.0x100, 0.8x5.5x120, 1.0x6.5x140, 1.2x8x160
- Set of wrenches, pipe size 10, 13, 16, 17, 18, 19
- Adjustable spanners with jaw capacity of 19 and 30 mm
- Parallel pin punches, octagonal, 150 mm, Ø 4, 6, 8 mm
- Flat chisels, octagonal, size 14 x 150 mm, 25 x 175 mm
- Combination spanners of type open box, size 8, 10, 13, 16, 17, 18, 19, 24, 27
- Various pliers and knives
- Packaging, steel tool box (53 x 20 x 20 cm)



Ordering information

Part no	Type	Description	Weight kg
88927	A	Hand workshop and measuring tools	17.0

Spare parts

Part no	Type	Description	Weight kg
53889	Diameter tape	Ø 115 mm	
76222	Palette-knife	width 50 mm	
76217	Cutting plier	length 160 mm	
66057	Paper and fabric scissor	length 190 mm	
76228	Steel brush	steel facing 140 mm	
04627	Cable stripping knife	length of the blade 78 mm, 2 pieces	
64359	Calliper rule	150 mm	
76220	Hammer	with timber needle	0.60
66050	Centre punches	octagonal, 120 mm	
76215	Combination plier	length 180 mm	
76223	Flat brush	width 30 mm	
66058	Ideal snip	length 280 mm	
76218	Carpenter's pincer	length 250 mm	
64351	Hex key L-wrench set	1.5 - 10 mm	
04539	Cable stripping knife	length of the blade 78 mm, 2 pieces	
09255	Folding rule		
76221	Hammer	with nylon inserts	0.65
66056	Paper and fabric scissor	180 mm	
76216	Snipe nose side cutting plier	length 160 mm	
09257	Cable stripping knife	length of aquiline blade 54 mm, 2 pieces	
76219	Plier wrench	length 250 mm	
66049	Screw wrench of type Reishauer	size of wrench 85 mm	
76587	Circlip pliers		

Cleaning sets

Application

Set of cleaning agents are applied to degrease and clean polymeric cable jackets, insulations and silicone parts.

Scope of delivery

One cleaning set consisting of:

- Cold cleaner HP 90/1 canister for general cleaning purpose
- Cleaning tissues impregnated with isopropanol
- Set LWL includes special cleaning tissues for optical fibers
- Packaging, cardboard box



Ordering information

Part no	Type	Description	Weight kg
89031	Isopropanol	Set of cleaning agents	1.0
80543	Isopropanol	Set of cleaning agents and special tissues for optical fibres	1.1

Spare parts

Part no	Type	Dangerous goods classification	Quantity
78603	Cleaning tissue	UN 1219	5 pcs.
75958	DGEL cleaning tissues	UN 3082	24 pcs.
76949	Cold cleaner HP 90/1	UN 1219	500 ml

Alternative cleaning agents for local procurement

Cleaning agents	Cleaning of polymeric cables	Cleaning of silicone parts	Cleaning of metal parts
Cleaning petrol	X		X
Ethanol 96%	X	X	



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CABLES
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