

High Voltage Cable Accessories



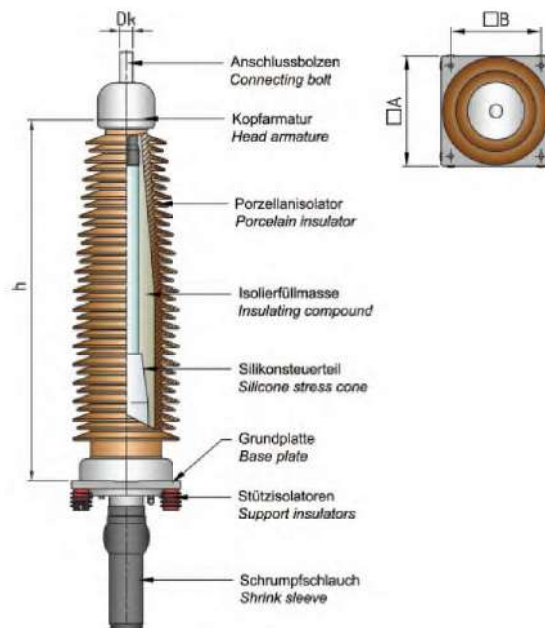
Outdoor terminations type TE

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 it's 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 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	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.

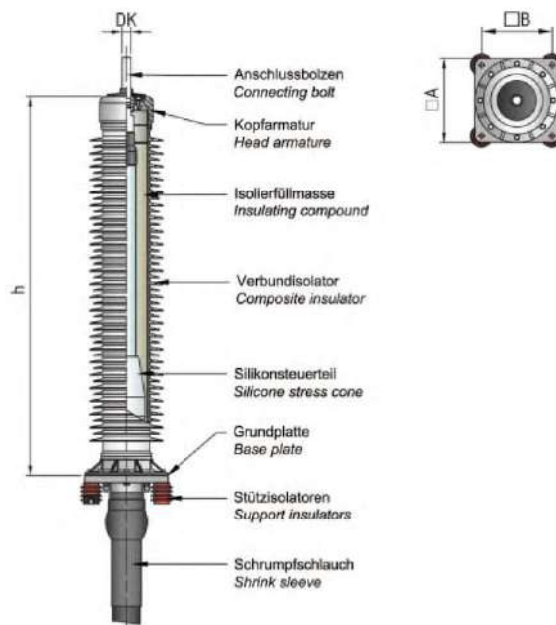
Outdoor terminations type FR

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 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	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

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.

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



Technical data

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