ABB Switchgear & Transformer Termination

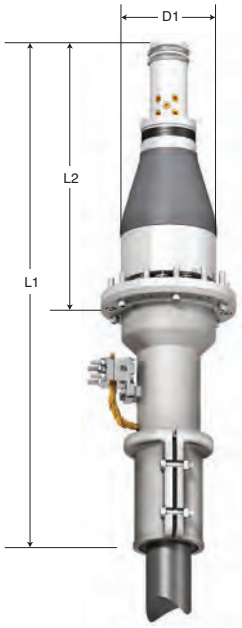
CD DRY TYPE PLUG-IN TERMINATION FOR GAS INSULATED SWITCHGEAR AND TRANSFORMER UP TO 170 kV

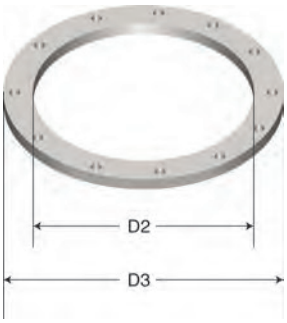
Dry plug-in cable termination suitable as a fixed connection point in a gas-insulated switchgear, a transformer without a separate cable box, or where the cable box is filled with transformer oil.

The cable termination is to be ordered in two separate kits:

1. CD 145, CD 170; plug-in termination kit consisting of plug-in termination, locking halves, stress cone, pre-loaded spring assembly, box body, earth clamp, and cable clamp.
2. CDI 145, CDI 170; insulator kit consisting of top fitting, epoxy insulator with integrated screen separation, and pressure ring.

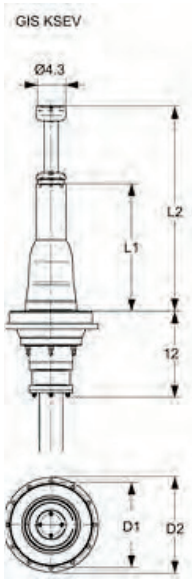
- Type tested to IEC 60840
- Dimensions according to IEC 62271-209, dry-type design
- CST Corona shield for transformer (TRF) applications, made of aluminum with surface insulation coating
- CBT Contact bolt for transformer (TRF) applications, if required
- ECDI Extension kit from 470 mm to 757 mm, if required





Type	CD
Operation Voltage Um (kV)	145/170
Conductor Cu/Al Max. (kcmil)	4000
Diameter Over Dielectric Min.-Max. (inches)	1.7-3.8
Diameter Over Jacket Max. (inches)	5.9
Length L1 (mm)	1149
Length L2 (mm)	470
D1 (mm)	250
D2 (mm)	283
D3 (mm)	345

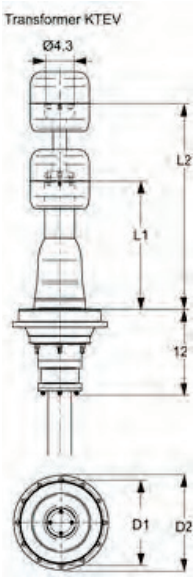
nkt cables Switchgear & Transformer Termination



KSEV/KTEV DRY TYPE PLUG-IN TERMINATION UP TO 245 kV

All versions of dry-type termination are designed for installation in SF6 gas insulated switchgear (GIS) or for installation in the oil filled cable box of the transformer. The complete termination consists of epoxy resin insulator with embedded electrode, fixing ring which is fitted to the cable, comprising metal cable gland, compression device, and premolded plug-in stress cone for electrical field control.

- Plug-in part comprising of four components (stress cone made of silicone rubber, cable gland, connection bolt and spring-loaded compression device)
- Insulator according with IEC 60859 (145) and 62271-209 (245) for GIS and transformer termination
- Conductor connection bolt designed as mechanical screw type connector
- Combination with different adaptor and additional electrodes available
- Type test certificate in accordance with IEC 60840, 62067 available
- Dead-end plug available



Type Switchgear Transformer	KSEV 72 KTEV 72	KSEV 145 KTEV 145	KSEV 245 KTEV 245
Operation Voltage Um (kV)	72	145	245
Conductor Cu/Al Max. (kcmil)	2000	2500	5000
Diameter Over Dielectric Min.-Max. (inches)	1.5-2.9	1.5-2.9	1.8-3.9
Diameter Over Jacket Max. (inches)	3.9	3.9	5.3
Length L1 (mm)	310	470	620
Length L2 (mm)	582	757	960
D1 (mm)	245	266	475
D2 (mm)	300	350	500

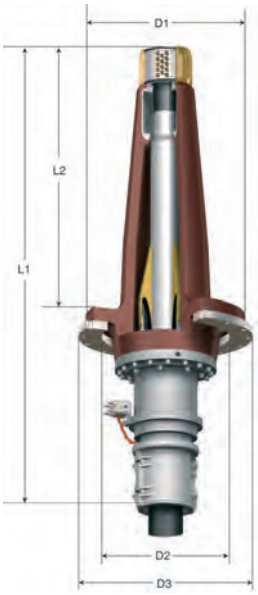
ABB Switchgear & Transformer Termination

APEGA OIL FILLED PLUG IN TERMINATION FOR GAS INSULATED SWITCHGEAR AND TRANSFORMER UP TO 420 kV

Oil filled cable termination suitable as a fixed connection point in a gas-insulated switchgear, a transformer without a separate cable box, or where the cable box is filled with transformer oil.

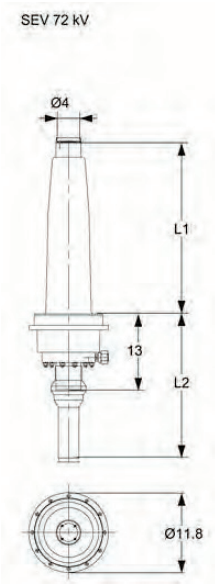
The cable termination consists of an epoxy insulator fitted to a box body made of aluminum. The stress controlling component is a rubber stress cone. The insulator is filled with synthetic insulating oil. A flange for insulated installation is integrated in the epoxy insulator. A pressure ring is also included.

- CST Corona shield for transformer (TRF) applications, made of aluminum with surface insulation coating
- CBT Contact bolt for transformer (TRF) applications, if required
- Type tested to IEC 60840, 62067, and IEEE 48
- Dimensions according to IEC 62271-209



Type	APEGA	APEGA	APEGA
Operation Voltage Um (kV)	170	245	420
Conductor Cu/Al Max. (kcmil)	4000	6000	6000
Diameter Over Dielectric Min.-Max. (inches)	1.8-4.2	2.9-4.7	3.2-4.7
Diameter Over Jacket Max. (inches)	6.3	6.3	6.3
Length L1 (mm)	1460	1670	2175
Length L2 (mm)	757	960	1400
D1 (mm)	298	450	614
D2 (mm)	270	450	464
D3 (mm)	345	612	570

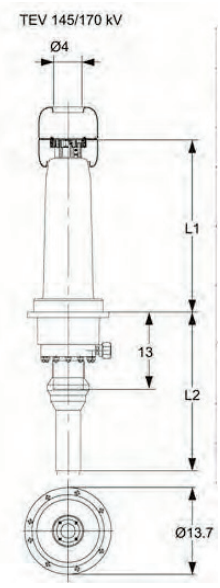
nkt cables Switchgear & Transformer Termination



SEV/TEV EPOXY INSULATOR TERMINATION

The termination is designed for direct installation in SF6 gas insulated switchgear (GIS) or in the oil filled cable box of the transformer. Major components of the termination are the pressure tight epoxy resin insulator with embedded electrode, metal fixing ring, metal cable gland, and prefabricated stress cone for electrical field control.

- Integrated prefabricated stress control system with silicon rubber
- Pressure tight epoxy resin insulator cast in one piece with integrated insulation ring at the bottom allowing to separate the cable screen from earth
- Cable gland made of corrosion resistant aluminum alloy
- Possible installation position vertical up to 45°, then up to 90° with oil expansion vessel required
- Type test according to IEC 60840 available



Type Switchgear Transformer	SEV 72 TEV 72	SEV 145 TEV 145
Operation Voltage Um (kV)	72	145
Conductor Cu/Al Max. (kcmil)	2000	5000
Diameter Over Dielectric Min.-Max. (inches)	1.3-2.9	1.6-4.3
Diameter Over Jacket Max. (inches)	3.3	4.1
Creepage Distance (inches)	19.7	25.6
Length L1 (mm)	583	757
Length L2 (mm)	630	630

ABB Joint

JX PREMOLDED ONE PIECE CABLE JOINT

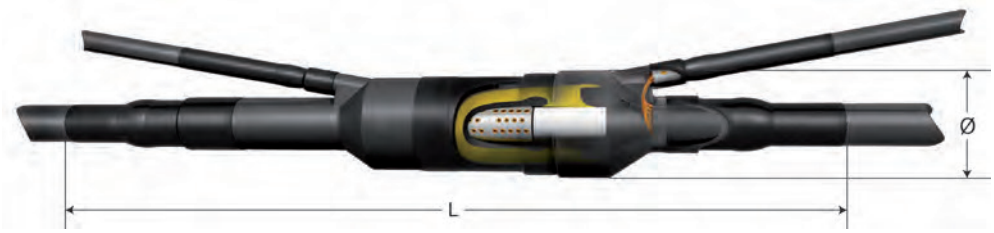
Premolded cable joints for XLPE insulated cables with aluminum or copper conductors and various types of cable screens and cable sheaths. The joint is available with or without integrated screen interruption for cross bonding of cable screens. Designed to meet the requirements of internationally accepted standards.

The joint body is made of rubber in three layers: a conductive inner layer, an insulating layer, and a conductive outer layer in one piece. The cable joint is supplied with a heat-shrink outer jacket.

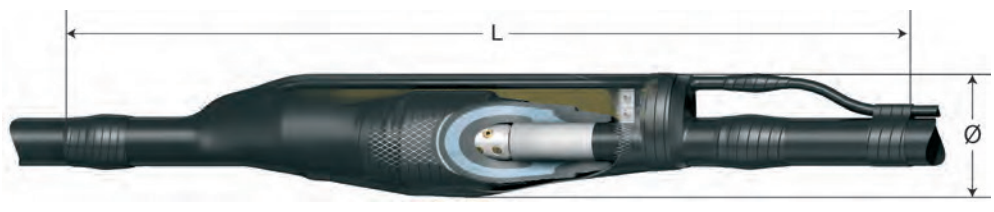
- Available with or without screen interruption
- Supplied with bolted connector
- Designed with heat-shrink outer jackets with additional sealing at all ends to prevent longitudinal water ingress
- Includes a heat-shrink crutch-seal and filling compound for moisture and mechanical protection of outgoing cross-bonding cable
- Meets the requirements of IEC 60840 including Annex G, IEC 62067 including Annex G, and IEEE 404 (JX 245) where applicable
- JX 245 available with prefabricated PUR casted copper casing for cable with metallic sheath

Type	JX	JX	JX
Operation Voltage Um (kV)	72	123	245
Conductor Cu/Al Max. (kcmil)	3000	5000	5000
Diameter Over Dielectric Min.-Max. (inches)	1.3-3.0	1.8-3.9	2.9-4.7
Diameter Over Jacket Max. (inches)	3.7	7.5	5.6
Length (inches)	70.9	70.9	70.9
Outer Diameter (inches)	9.3	11.8	11.8
Insulation Material	Silicone	Silicone	EPDM

JX 245



JX 72/123



nkt cables Joint

KSME/SME PREMOLDED ONE PIECE CABLE JOINT

This premolded straight joint in one piece design with compact dimensions is made of silicone rubber. Main components of the standard straight joint are conductor connection sleeve, main joint sleeve, and outer protective covering.

- Very short and compact design
- Easy push on installation
- Minimum tools and installation space needed
- Screw or compression type conductor connector
- Version with screen separation available
- Additional outer protection housings available
- Type test certificate in accordance with IEC 60840/62067 available

Operation Voltage Um (kV)	Type	Conductor Cu/Al Max. (kcmil)[1]	Diameter Over Dielectric Max. (inches)	Diameter Joint Approx. (inches)	Length Joint Approx. (inches)
72	KSME/SME 72 Size 36	1250	2.1	5.9	70.9
72	KSME/SME 72 Size 46	2000	2.6		
145	KSME/SME 145 Size 4	3000	3.3	6.7	78.7
145	KSME/SME 145 Size 6	5000	4.7	9.4	92.5
245	KSME/KSM 245 Size 6	5000	4.7	9.4	92.5

[1]2500 up to 5000 kcmil special crimping tool is required.

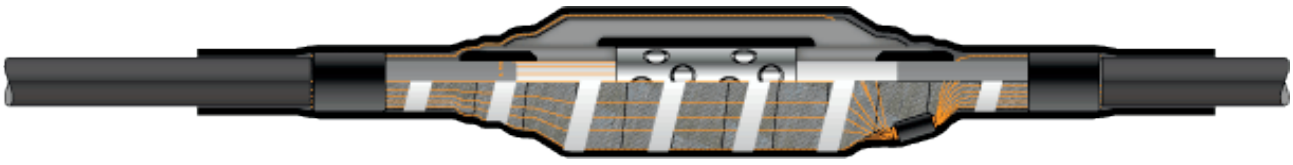


ABB Joint

SMPGB PREMOLDED THREE PIECE CABLE JOINT

Premolded cable joints for XLPE insulated cables with aluminum or copper conductors and various types of cable screens and cable sheaths. The joint is available with or without integrated screen interruption for cross bonding of cable screens. Designed to meet the requirements of internationally accepted standards.

The joint consists of a premolded rubber tube, two premolded rubber adaptors, and a bolt cable clamp. Bolt technology facilitates jointing of the conductor and also allows jointing of different cross sections.

- Available with or without screen interruption
- Supplied with bolted connector
- Prefabricated PUR casted copper casing for cable with metallic sheath
- Accommodates transition between different cable types and sizes
- Meets the requirements of IEC 60840 including Annex G, IEC 62067 including Annex G, and IEEE 404 where applicable

Type	SMPGB	SMPGB	SMPGB
Operation Voltage Um (kV)	145	170	420
Conductor Cu/Al Max. (kcmil)	5000	5000	5000
Diameter Over Dielectric Min.-Max. (inches)	1.9-4.2	2.4-4.2	3.1-4.9
Diameter Over Jacket Max. (inches)	5.1	5.1	6.1
Length (inches)	88.5	88.5	78.7
Outer Diameter (inches)	9.6	9.6	22.6
Insulation Material	EPDM	EPDM	EPDM