



Raychem One-Piece Joint up to 245 kV

Raychem
from TE Connectivity

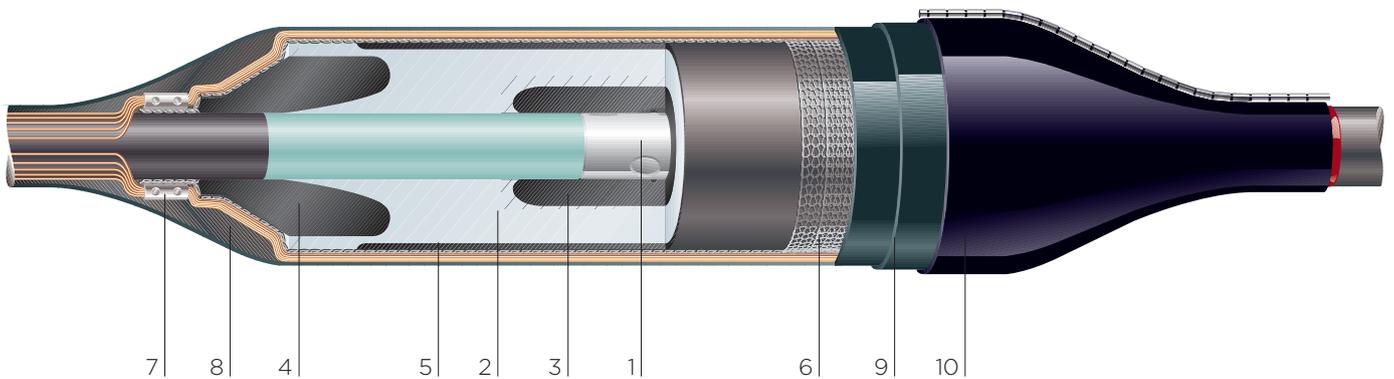
Raychem One Piece Joint up to 245 kV

Application

The joint is a pre-fabricated one-piece design for voltage classes up to 245 kV. Polymeric insulated cables of various designs can be adapted with respect to shielding and metal sheath. The silicone rubber joint body with integrated geometrical stress control provides proven electrical function. The joint components combine electrical performance, stress control and moisture sealing to provide the important functions required for all High Voltage products.

Features

- Premoulded one-piece joint body
- Torque-controlled connector
- Choice of outer sealing and protection systems
- Joint fits on all polymeric cable constructions
- Proven shield continuity concept
- Factory tested Silicon-rubber body
- Special silicone rubber provides perfect compression force for optimised electrical performance
- Simple assembly
- No tension set of joint body
- Moulded thick outer conductive screen
- Geometrical electrical stress control by moulded conductive deflectors
- Type tested according to IEC60840, IEC 62067, IEEE404, GB11017 Standards
- Manufactured according to ISO9001 and ISO14001



- 1 Mechanical connector
- 2 Silicone rubber body
- 3 Inner electrode/Faraday cage
- 4 Deflector
- 5 Outer screen
- 6 Copper mesh
- 7 Solderless shield connection
- 8 Sealant/mastic
- 9 Insulating tubes
- 10 Outer protection with integrated moisture barrier

Major Design Elements

The joint consists of connector (1), joint body (2) - containing inner electrode/Faraday cage (3), deflectors (4) and outer screen (5) as well as outer protection by heat-shrink technology (9, 10). The conductors of the cable are connected by a mechanical connector sleeve (1) using torque controlled shear-off bolts. The connector sleeve is suitable for stranded aluminium and copper conductors. The joint body (2) is made of silicone rubber, providing reliable elasticity and accommodating various cable insulation diameters.

During installation the joint body is parked on the semicon screen of the cable. Solderless connection technologies are used to connect the metal sheath/shield of the cable. Heat-shrink technologies (9, 10), replace the cable sheath and its moisture barrier. The joint concept is similar for inline (7), grounded and shield break joints, despite the shield conductivity. Special heat-activated sealant/mastic (8) is used to smooth out uneven shapes, providing a water tight seal and preventing moisture ingress.

Construction and design

Mechanical connector

- Mechanical connector with torque controlled shear-off bolts
- No additional metallic Faraday cage required up to 170 kV (integrated in joint body)
- One connector length for cable cross sections up to 1200 mm²
- Suitable for aluminium and copper conductors



Joint body

The joint body with sustainable mechanical properties allows a wide application range. For installation, simple re-usable tooling is needed to push on the joint body on the cable. Electrical stress control is fully integrated in the silicone joint body. Conductive electrodes with an exactly defined geometrical design over the screen cut area provide a well defined electrical stress distribution. The connector area is screened by an integrated conductive tube performing as a Faraday cage. The Faraday cage is designed to deal with cable insulation shrink back. The material used in the joint body is based on proven silicone compounds, exhibiting sustained thermal stability and long term performance.



Joint shield conductivity

- Solderless grounding connection
- Typical shield wire cross sections can easily be connected by either mechanical or compression connectors
- Shield break, straight through and grounding joints using the same basic components



Straight through connection



Grounded connection



Shield break connection

Cable metal shielding

Grounding kits for commonly used cable constructions like lead sheath, corrugated aluminium sheath, copper tape and wire screens, etc. are available.



Outer joint protection

Glass fibre reinforced heat shrink wrap around with integrated radial and axial moisture barrier



Copper casing with pre-molded polypropylene outer corrosion protection



Copper casing and glass fibre reinforced enclosure (2 half shells) with cold pour filling compound



Technical data:		123 kV	145 kV	245 kV
Rated voltage U_0/U (U_m)	kV	64/115(123)	76/132(145)	127/220(245)
Basic impulse level	kV	550	650	1050
Max. continuous operating temperature	°C	90	90	90
Max. conductor emergency temperature	°C	150	150	150
Conductor short circuit temperature	°C	250	250	250
Short circuit current (sheath)	kA / 1sec	40	40	40

Application Range:

Conductor	mm ²	1200	1200	2500
Diameter over Insulation	mm	56 - 78	56 - 78	71 - 119

For special applications and bigger cable sizes please contact your TE Connectivity representative.

Tools

Tools required for cable preparation can also be purchased or rented at TE Energy. (See brochure EPP-0756 and EPP-1543)



Cable stripper



Gas torch



Straightening slide rails



Tool box



Heating blanket

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Tyco Electronics Raychem GmbH
 a TE Connectivity Ltd. Company
 TE Energy
 Finsinger Feld 1
 85521 Ottobrunn/Munich, Germany

Phone: +49-89-6089-0
 Fax: +49-89-6096345

energy.te.com

