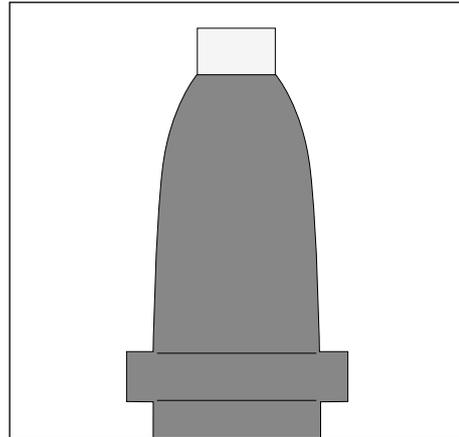




## TE's Raychem Cable Accessories



### Installation Instruction EPP-2305-3/18

### Compact Switchgear/ Transformer Termination Insulator Unit

**Um = 245 kV**

**PHVS/PHVT-245**

To view the TE Energy website:



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# General Instructions

## Before Starting

- Check the kit label and the title of the installation instructions to prove that the cable accessory you are going to use matches the cable.
- Make sure the cable is properly sealed.
- Make sure the cable is in the final installation position.
- Make sure the cable is straight at the jointing position.
- Check the position of the cables to be in alignment to the final position of the accessories.
- Make sure the joint bay/installation area provides adequate space for the cable components to be parked on either cable for later use during the installation.
- The joint bay/Installation area must be kept clean and dry during installation. For outdoor installation use tent or other appropriate shelter.
- Carefully read and follow the steps in the installation instructions. Components or working steps may have been changed/improved since you last installed this product.
- All tools, PPE and apparatus used must be kept clean during the installation.
- Obey relevant and local security and safety rules during the installation.

## Shrinking Heat-Shrink Tubing

Use a propane (preferred) or butane gas torch.

Ensure the torch is always used in a well-ventilated environment.

Adjust the torch to obtain a soft blue flame with a yellow tip. Pencil-like blue flames should be avoided.

Keep the torch aimed in the shrink direction to preheat the material.

Keep the flame moving continuously to avoid scorching the material.

Clean and degrease all parts that will come into contact with adhesives.

If a solvent is used follow the manufacturer's handling instructions.

Start shrinking the tubing at the position recommended in the instructions.

Ensure that the tubing is shrunk smoothly all around before continuing along the cable.

Tubing should be smooth and wrinkle free with inner components clearly defined.

## Stripping the Cable

Use appropriate stripping tools for smooth and even insulation diameter.

Adjust the stripping tool to the thickness of the semi-conductive layer. Avoid removing too much of the insulation.

Polish the stripped surface by hand using the supplied abrasive paper beginning with the lowest grid size, or by an appropriate sanding machine and abrasive paper and grades. The surface of the insulation must be even and free of all traces of conductive material.

## Cables with Segmented Conductors

All cut back dimensions and information given in this instructions document refer to cables with non-segmented conductors only. In case of cables with segmented conductors, all insulation or conductive materials have to be removed from the conductor. If the removal of these materials require a longer cut back of the cable insulation, this length needs to be added to the cable cut back dimensions mentioned in the instructions.

NOTE: Special instructions for segmented conductors are available on request.

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The Information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, TE Connectivity has no control over the field conditions which influence product installation.

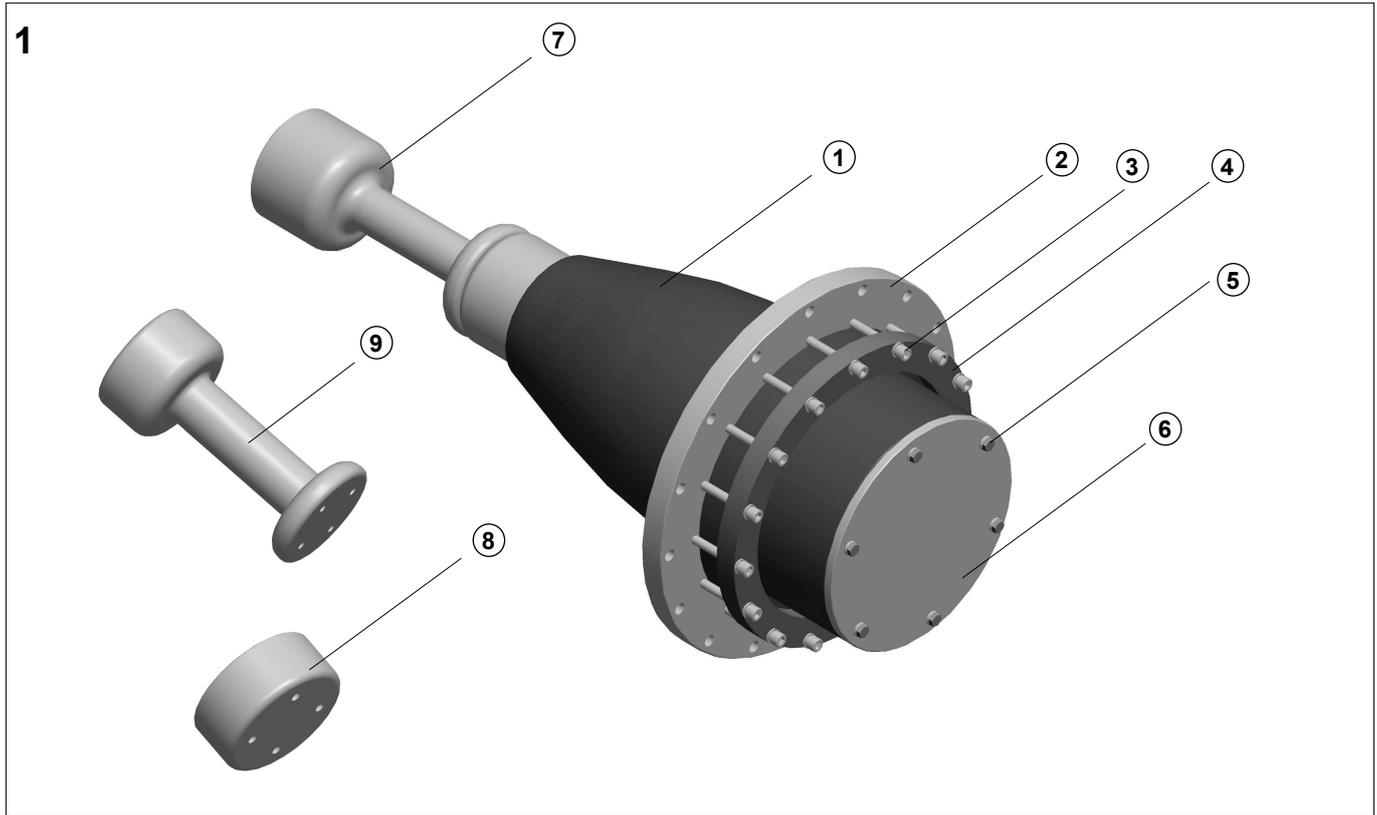
It is the user's responsibility to determine the suitability of the installation method in the user's field conditions.

TE Connectivity's only obligations are those in TE Connectivity's standard Conditions of Sale for this product and in no case will TE Connectivity be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products.

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# Exploded View of Insulator



## Scope of supply as per 62271-209 (former IEC 60859)

Item No.	Description	Qty (pc)	IEC62271-209 (Dry type)	IEC62271-209 (Oil type)	IEC60859 (Dry type)	IEC60859 (Oil type)	Remark
1	Epoxy insulator	1	x	x	x	x	GIS/Transformer
2	Flange <sup>1</sup> with (O-ring 425x7 GB3452.1-2005, NBR)	1		x	x	x	GIS/Transformer
3	M12 Bolt and washers <sup>1</sup> Bolt: M12x120 Spring washer: M12 Washer: M12	16		x	x	x	GIS/Transformer
4	Flange ring with cushion	1	x	x	x	x	GIS/Transformer
5	Screw (Fix seal plate)	6	x	x	x	x	GIS/Transformer
6	Seal plate (with O-ring)	1	x	x	x	x	GIS/Transformer
7	Extension rod <sup>2</sup>	1				x	GIS/Transformer
8	Extension rod <sup>2</sup>	1		x			GIS/Transformer
9	Extension rod <sup>2</sup>	1			x		GIS/Transformer
10	Corona shield <sup>3</sup>	1	x	x	x	x	Transformer

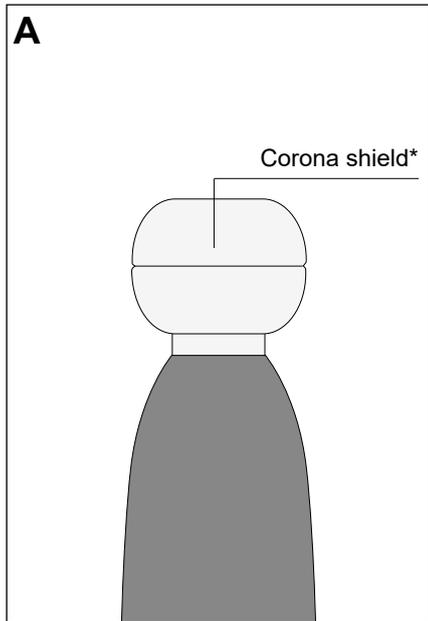
<sup>1</sup> The flange comply with IEC62271-209 (Oil type), IEC60859 (Dry type), IEC60859 (Oil type). Bolt the flange ring on the flange by 16 bolts.

<sup>2</sup> Attach 4 screws with all extension rod.  
Spec: Screw GB/T 70.1 M12x40, A2-70 4 Pcs  
Washer DIN 7603 C12X17X2 4 Pcs

<sup>3</sup> Corona shield for transformer termination only (not for switchgear).

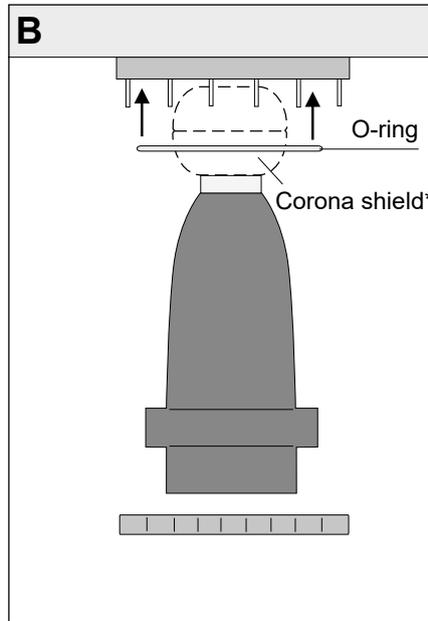
<sup>4</sup> If need GIS/Transformer manufacturer provide flange ring and cushion, corona shield for special case, contact GIS Transformer manufacturer.

# Installation of the Insulator into the Switchgear/Transformer Housing



Bolt the corona shield to the insulator electrode.

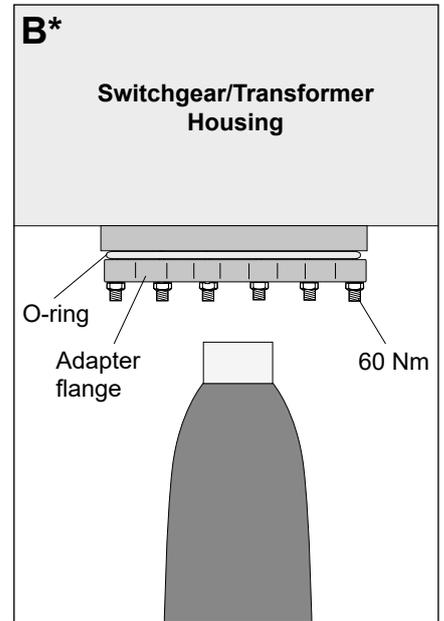
**\*Corona shield for transformer termination only (not for switchgear).**



If an adapter flange is necessary, go to step **B\*** firstly.

Put the O-ring (supplied by the switchgear/transformer manufacturer) into the sealing groove of the switchgear. Clean and degrease the epoxy insulator. Keep it free from dust and dirt.

**\*Corona shield for transformer termination only (not for switchgear).**



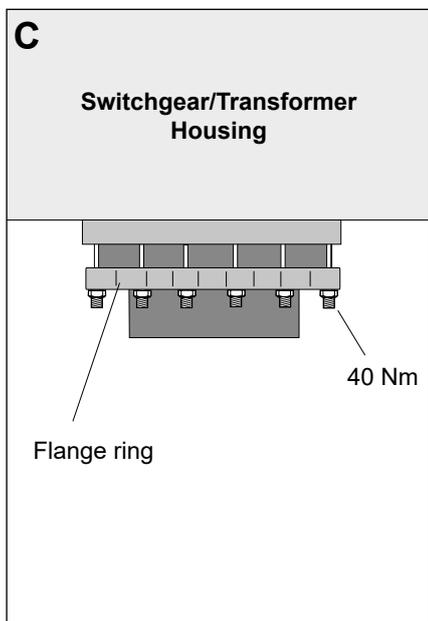
If an adapter flange is provided, install it to the equipment housing with O-ring provided by equipment manufacturer.

**Note:** Bolt the adapter flange with a torque of 60 Nm.

Insert the epoxy insulator into the switchgear/transformer housing. Apply the flange ring. Bolt the flange ring evenly to the switchgear/transformer housing.

Make sure the cantilever force applied to the epoxy bushing is low.

**Note:** Bolt the flange ring with a torque of 40 Nm.



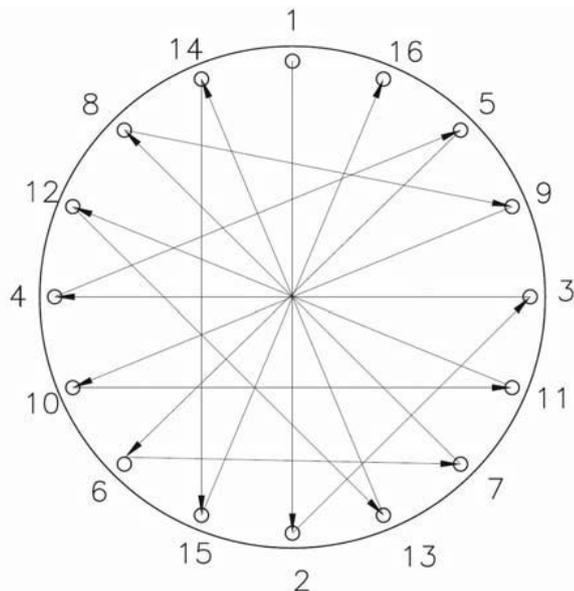
### Attention:

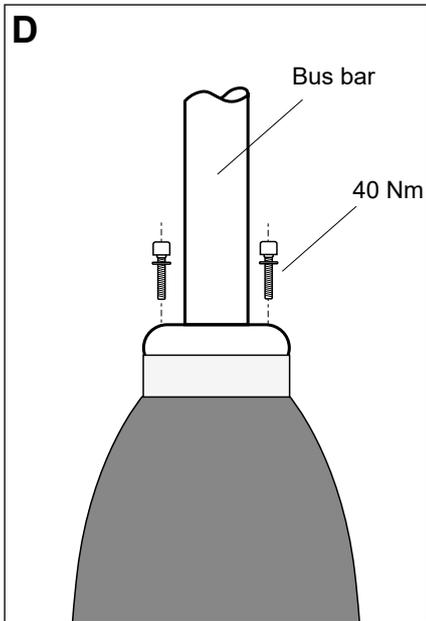
Bolt the flange ring and adapter flange to the housing or insulator with an equal torque and in the sequence shown below (see drawing).

Fix the screws with increasing torque as follows:

**Flange ring:** 15 Nm, repeat with max. 40 Nm

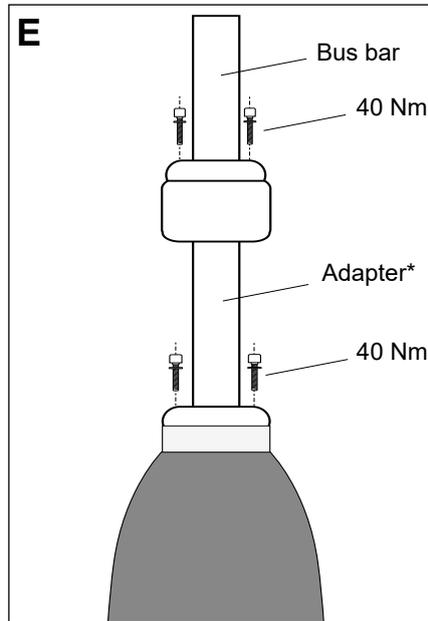
**Adapter flange:** 15 Nm, repeat with max. 60 Nm





Install the insulator to the switchgear/transformer housing.

**Note:** Bolt the bus bar with torque of 40 Nm.

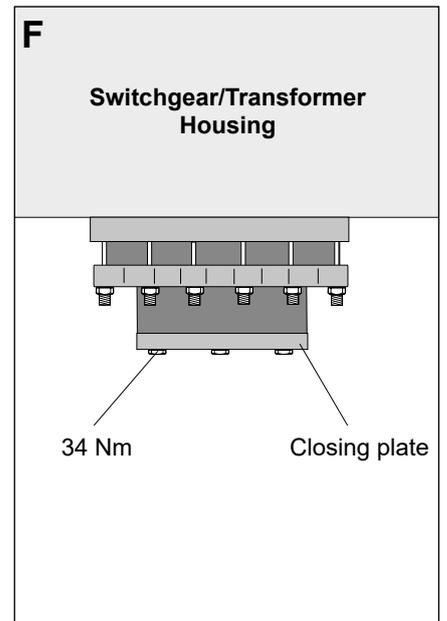


### Installation of the Adapter

**The adapter is required in the case of switchgears/transformers designed for fluid-filled cable terminations (see fig. 1).**

Install the adapter on top of the insulator and fix it with four bolts.

**Note:** Bolt the adapter with torque of 40 Nm.



For testing the switchgear/transformer a special test plate has to be mounted on the insulator.

Put the O-ring in the closing plate. Apply the closing plate. Bolt the closing plate evenly to the epoxy insulator.

**Note:** Bolt the closing plate with torque of 34 Nm.

**Please dispose of all waste according to environmental regulations.**

