

Raychem Screened, Separable Surge Arrester
RSTI-SA-10 up to 41 kV

Raychem
from TE Connectivity

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Product Features:

- Tested in accordance with IEC60099-4 (May 2004)
- State of art - gapless design
- Excellent protection margins
- Low residual voltages
- Excellent short circuit performance
- Excellent TOV performance
- Maintenance free

The screened gapless surge arrester is a "T"-shaped product. It is designed for direct connection onto outer cone bushings in accordance to EN50180 or EN50181 with interface type "C" or for parallel connection mating to the rear entry of the base screened connector system RSTI designed for system voltage up to 41 kV.

The insulation of the screened surge arrester is made of a highly modified silicone rubber characterised by high tracking resistance, elongation at break and non-flammability.

A thin walled screen is permanently bonded onto the insulation and protects the connection system against unintentional contact.

The active part is a metal oxide arrester which meets the requirements of IEC-60099-4 for separable and dead-front arresters.

The combination of screened connector and surge arrester exceeds CENELEC HD 629.1 S2 requirements, which includes BS, VDE and other international specifications.

Easily accessible rear plug with capacitive test point.

Few accessories required for system test and earth connection.

Complete kit including screened surge arrester, threaded pin and ground lead for three phases facilitates installation and storage.

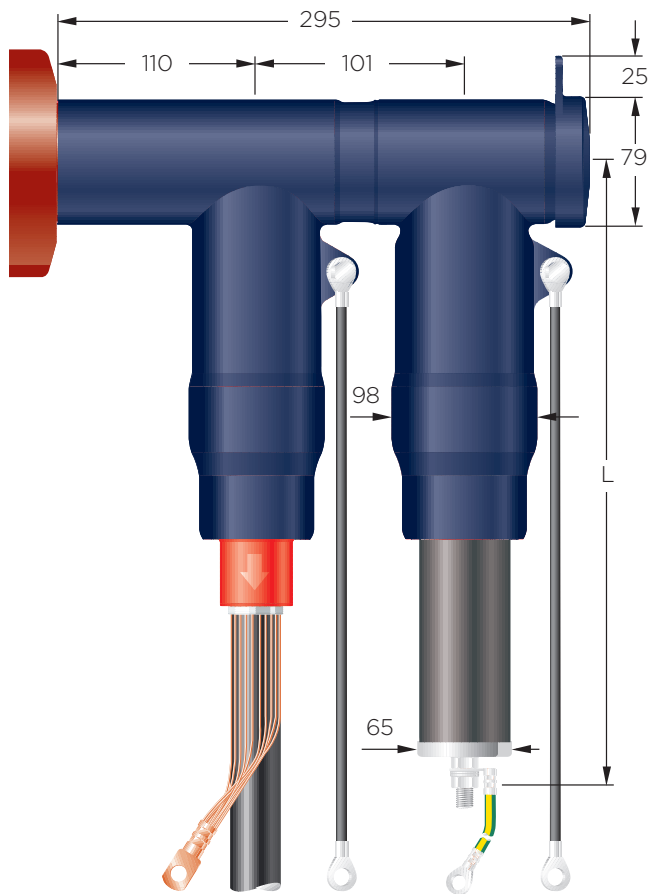
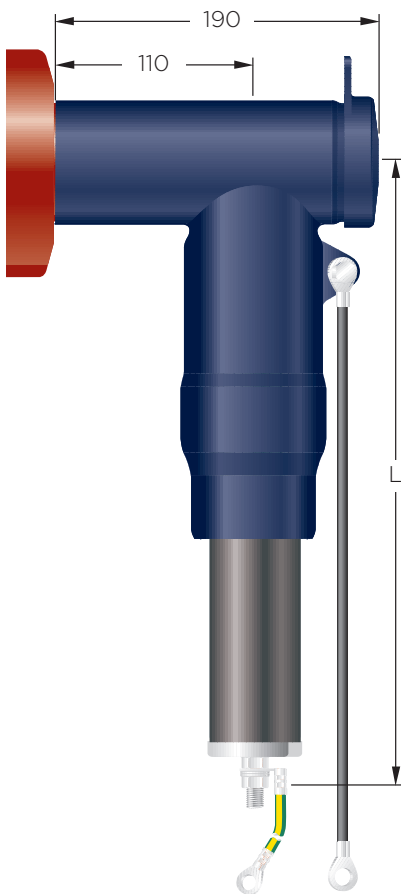
Applications

Single connection

Material requested for 3 phases:
 1 x RSTI-68SAxx10
 (Screened surge arrester kit for direct bushing connection)

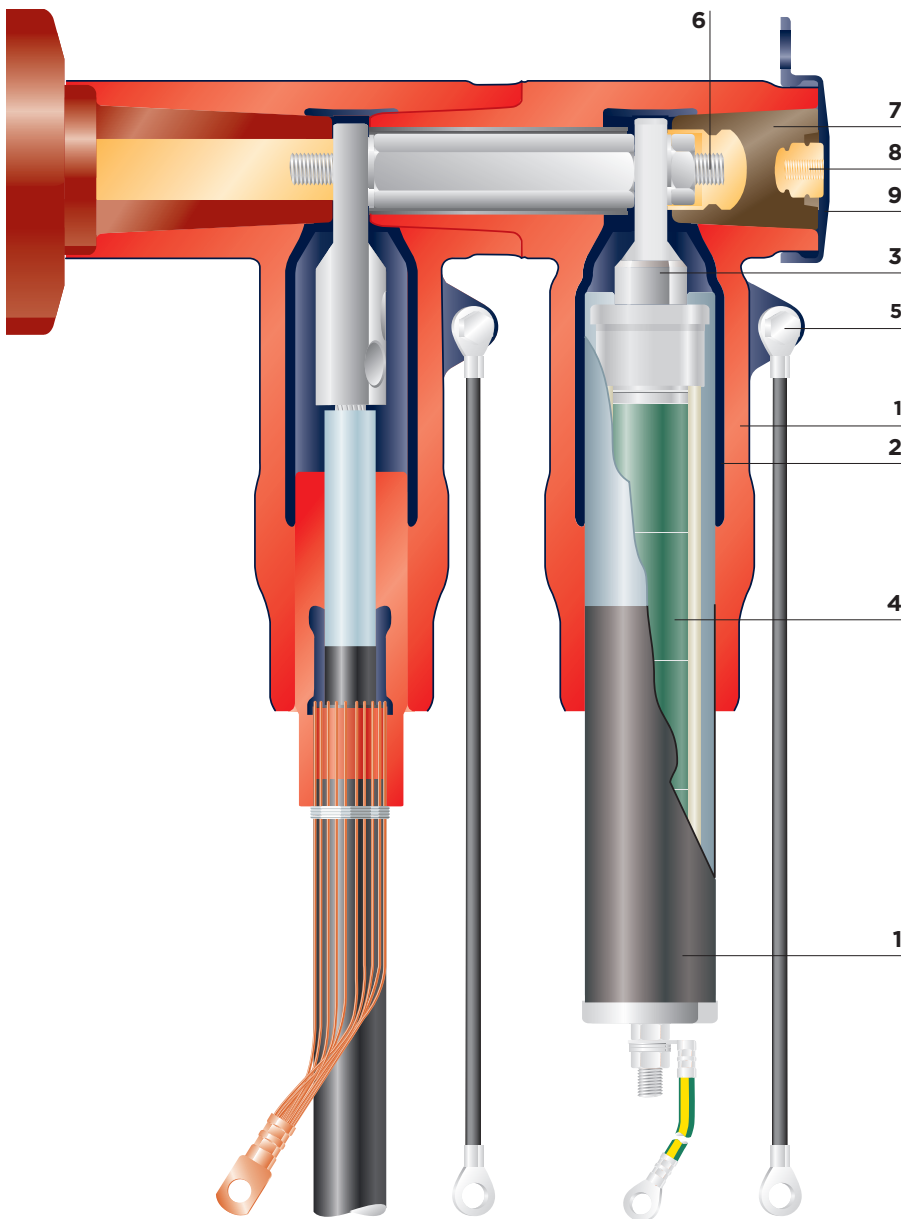
Parallel connection

Material requested for 3 phases:
 1 x RSTI-58xx or RSTI-68xx (Base connector kit)
 1 x RSTI-CC-68SAxx10
 (Screened surge arrester kit with coupling connection)



Dimensions in mm

Design and construction



- 1 Screened body**
A thin walled conductive outer screen is permanently bonded to the silicone rubber insulating material.
- 2 Inner screen**
A conductive inner layer, as a Faraday cage around the top end electrode prevents corona at rated voltage.
- 3 Threaded lug**
Pre-installed threaded lug, specially designed, facilitates the connection of the surge arrester to the base connector or bushing.
- 4 Surge arrester core**
Gapless surge arrester core assembly consisting of ZnO (Zinc Oxide) varistors and a mechanical robust structure.
- 5 Earthing eye and ground lead**
Provides a connection point for earthing the screen.
- 6 Threaded pin**
A threaded pin together with a spring washer and hex nut ensure a high performance electrical and mechanical contact with the base connector or bushing.
- 7 Rear plug with test point**
Removable rear plug with capacitive test point.
- 8 Test point**
The test point is used to determine whether the circuit is energised; alternatively it can be used for phasing.
- 9 Conductive end cap**
Electrical screen and protection of the rear end of the separable surge arrester.

Accessories

Test rod

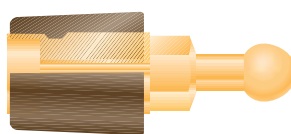
Ref. no.: RSTI-68TR; Length: 310 mm
 RSTI-68TRL; Length: 460 mm
 RSTI-68TRA; Kit includes
 2 short and 1 long testrod



Note: When test rod is in use, surge arrester assembly must be removed.

Earthing adapter

Ref. no.: RSTI-68EA20;
 Ball diameter: 20 mm
 RSTI-68EA25;
 Ball diameter: 25 mm

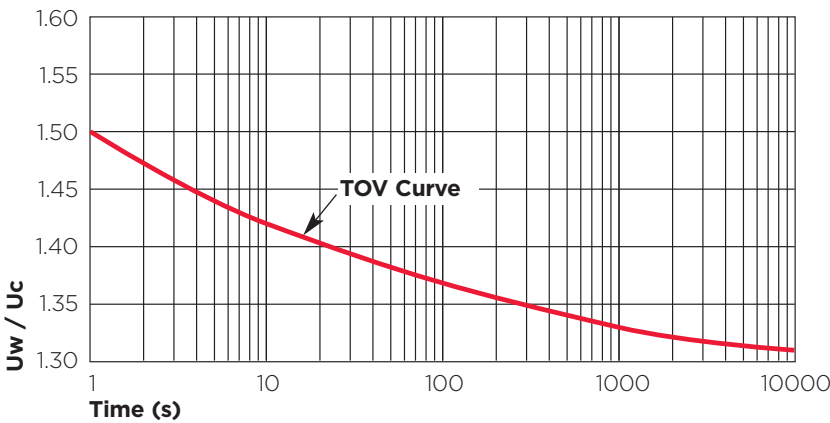


Technical data for single and parallel connections

Rated Discharge Current I_N	10 kA
Operating duty	
High current Impulse 4/10 μ s	100 kA
Short Circuit Current I_S	20 kA
Long duration current impulse (2ms)	212 A

	Residual Voltages (kV)							
Continuous operating voltage U_C	12.0	18.0	24.0	30.0	33.0	36.0	39.0	41.0
Rated voltage U_R	15.0	22.5	30.0	37.5	41.3	45.0	48.8	51.3
Lightning Current Impulse 8/20 μs								
5 kA	39.1	58.6	78.2	97.7	107.5	117.3	127.1	133.6
10 kA	41.5	62.2	83.0	103.7	114.0	124.5	134.9	141.8
20 kA	45.7	68.5	91.4	114.2	125.6	137.1	148.5	156.1
Steep lightning current impulse 1/20 μs								
10 kA	43.9	65.8	87.8	109.8	120.8	131.7	142.7	150.0
Switching impulse 30/60 μs								
125 A	31.5	47.3	63.1	78.9	86.8	94.7	102.5	107.8
500 A	32.4	48.7	64.9	81.1	89.2	97.4	105.5	110.9

TOV with 100kA single shot high current prior energy



Temperature of samples (pre-heated): 60° C according to IEC 60099-4, Ed 2.0 2004. TOV Curve applies to an arrester which has a pre-stress applied prior to TOV verification. This pre-stress is equivalent to one high current impulse of 100kA, 4/10 as per the switching surge operating duty test.

U_w = TOV withstand voltage
 U_c = continuous operating voltage

Ordering information

Voltage Class (kV)	12.0	18.0	24.0	30.0	33.0	36.0	39.0	41.0
Reference Number Single connection	RSTI-68SA1210	RSTI-68SA1810	RSTI-68SA2410	RSTI-68SA3010	RSTI-68SA3310	RSTI-68SA3610	RSTI-68SA3910	RSTI-68SA4110
Reference Number Parallel connection	RSTI-CC-68SA1210	RSTI-CC-68SA1810	RSTI-CC-68SA2410	RSTI-CC-68SA3010	RSTI-CC-68SA3310	RSTI-CC-68SA3610	RSTI-CC-68SA3910	RSTI-CC-68SA4110

Dimension and Weight

Length L* (mm)	285.0	400.0	400.0	520.0	520.0	520.0	530.0	530.0
Weight (kg/pc)								
(68SA)	3.5	3.7	3.9	4.1	4.2	4.2	4.3	4.4
(-CC-68SA)	4.4	4.6	4.8	5.0	5.1	5.1	5.2	5.3

* see page 2

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TE Energy - innovative and economical solutions for the electrical power industry: cable accessories, connectors & fittings, insulators & insulation, surge arresters, switching equipment, street lighting, power measurement and control.

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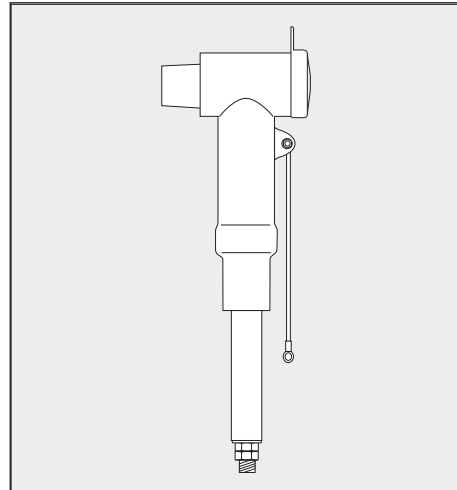
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Raychem Cable Accessories



Installation Instruction EPP-1884-6/18

**Raychem
Coupling Assembly Kit
to be used for Connection of
Coupling Connectors
RSTI-CC-68xx
RSTI-CC-58xx
and
Surge Arrester
RSTI-CC-68SAxx10
RSTI-CC-58SAxx05
with
Base Connector Type
RSTI-x95x**

To view the TE Energy website:



Safety Warning:

It is essential to observe the applicable safety regulations for working with high voltage equipment. For precise safety information please contact the responsible authority.

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Before Starting

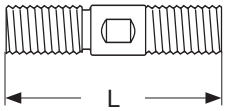
Check to ensure that the kit you are going to use fits the cable.

Refer to the kit label and the title of the installation instructions.

Components or working steps may have been modified since you last installed this product.

Carefully read and follow the steps in the installation instructions.

Kit Content



3 x Threaded pin M16 (EXRM-1885)
(L = 60 mm)



3 x Spring washer M16 (EXRM-1879)

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.

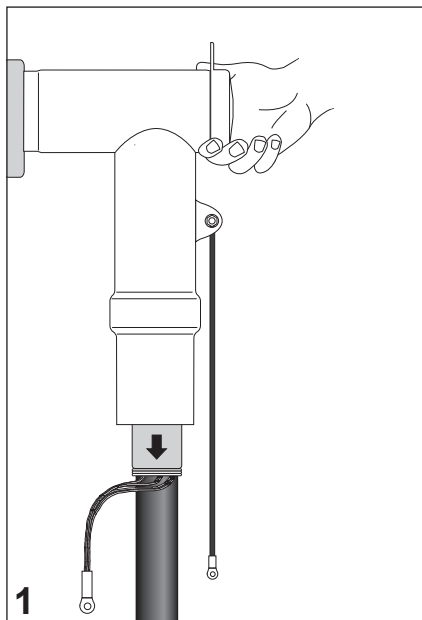
It is the user's responsibility to determine the suitability of the installation method in the user's field conditions.

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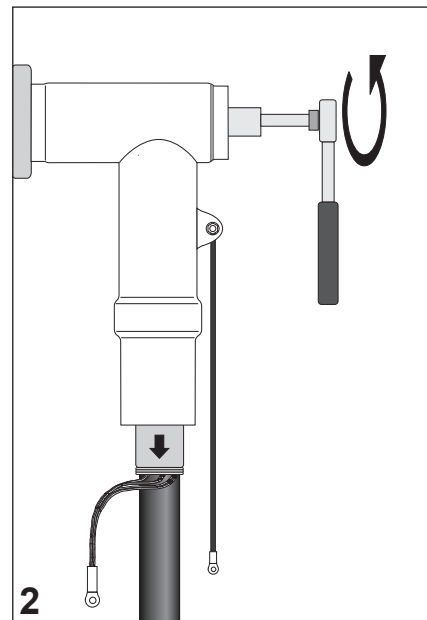
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Preparation of Installed Screened Separable Connector



Remove from the installed connector the conductive endcap and save it in a clean container.



Remove from the installed connector the back plug and save it in a clean container.

A. Installation of Coupling Connector with Surge Arrester (B. Installation of Coupling Connector see Page 6)

Remove from the installed connector hexagon nut, washer, threaded pin and save it in a clean container.

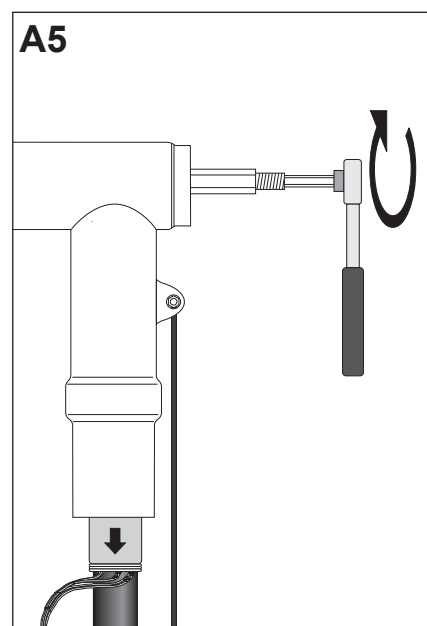
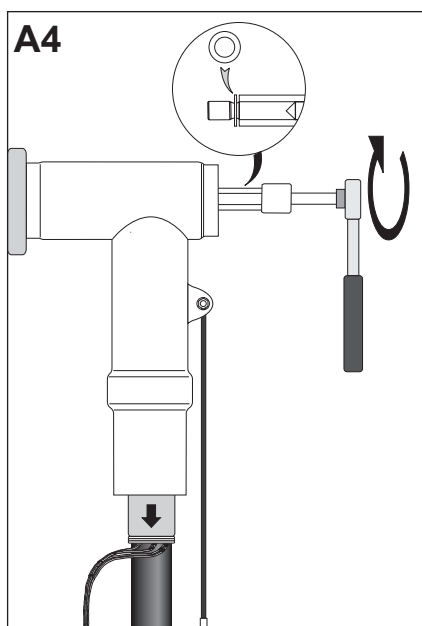
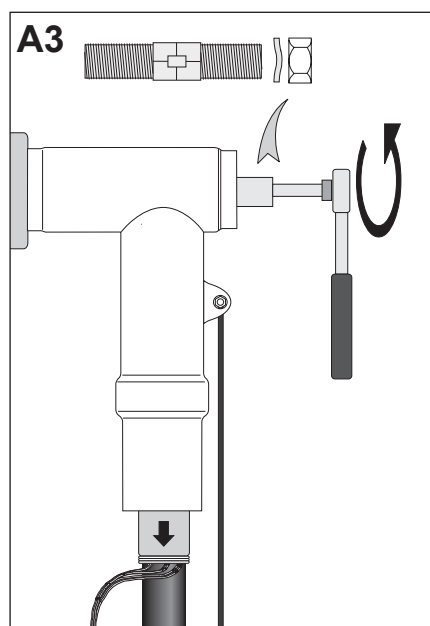
Throw away the washer.

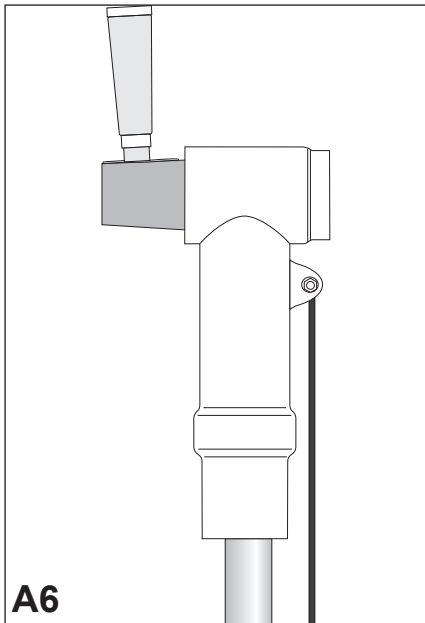
Ensure that the rear end of the already installed connector is lubricated with a thin layer of assembly lubricant.

Insert coupling stud with tinned Cu-washer (see detail) into the rear end of the connector and tighten it up with a torque wrench (27 mm).

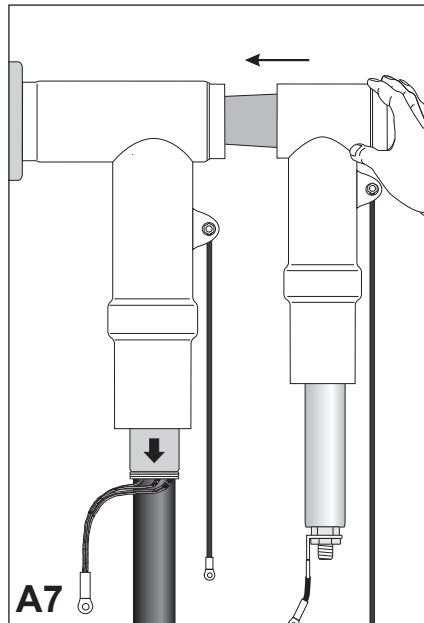
Maximum torque: **35 Nm**.

Insert a new threaded pin M16 marked EXRM-1885 into the rear end of the coupling stud and tighten it up with an Allen key (8 mm). Maximum torque: **30 Nm**.



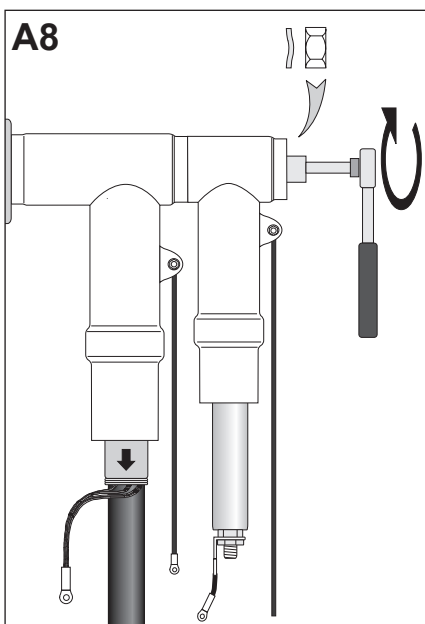


Clean the conical front end of the surge arrester and apply a thin layer of lubricant onto the outer surface of the cone with the sponge top. Continue **immediately** with the next step.

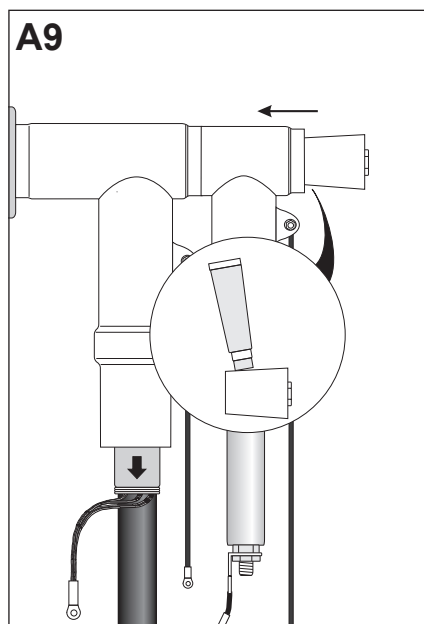


Align the conical front end of the surge arrester with the rear end of the already installed connector and push the coupling connector in position.

Insert the spring washer and hex nut. Use new washer. Tighten the hex nut onto the stud with a torque wrench (24 mm) at a torque of **30 Nm**.



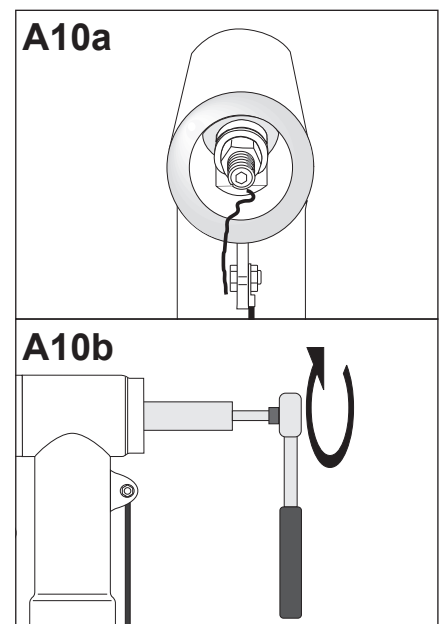
Clean the inner surface of connector back end and apply a thin layer of assembly lubricant. Do the same with the conical interface of the back plug as shown in detail.

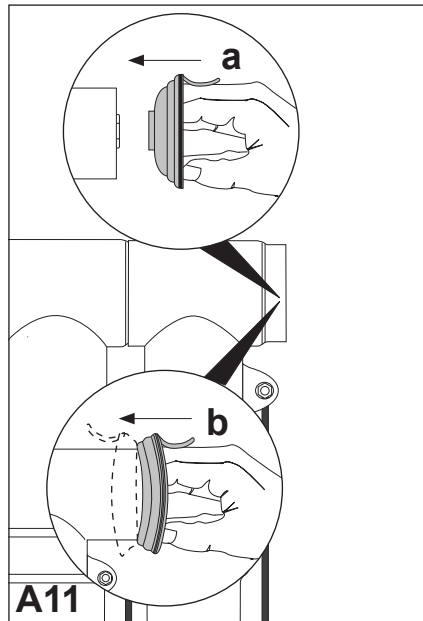


- a. Place a string into the rear entry of the connector as shown.
- b. Insert the back plug and screw it into place using a spanner (19 mm) at a torque of **30 Nm**.

Remove the string prior to the last two turns.

Note: Back plug has to be flush with connector end. In case of protrusion of back plug check steps A3 - A5 for correct installation of components.

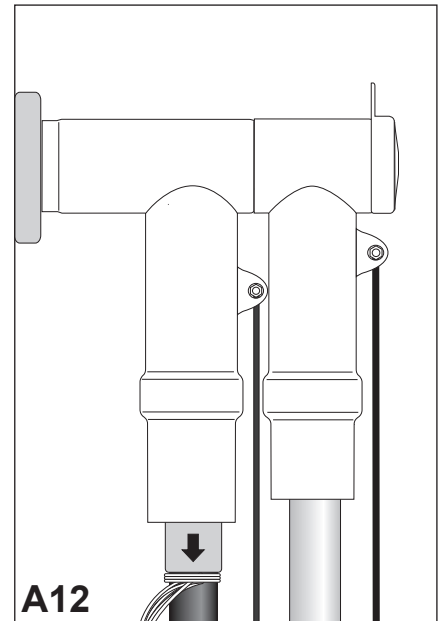
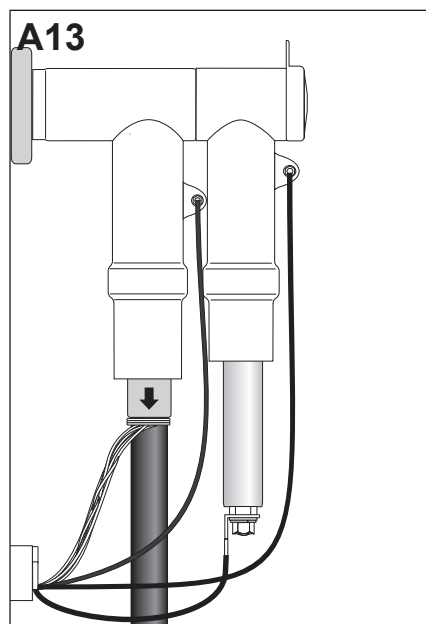




- a. Flip-back the endcap as shown in detail **a**. Position the protruding ring onto test point.
- b. Flip the endcap into final position with your finger as shown in detail **b**.

Select the shortest distance to ground and adjust the ground lead of the arrester to that length. Install the lug supplied at the free end of the ground lead.

Perform the connection to ground and ensure that the grounding point has the lowest resistance to earth.



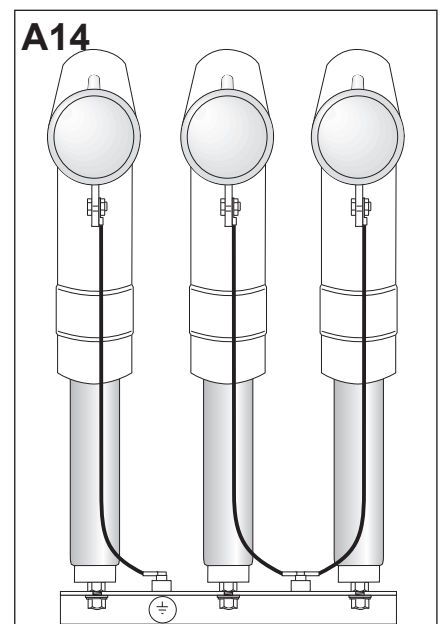
Ensure that the grounding lead of the housing is fastened tightly.

Perform proper connection to ground.

Mount the ground terminal of the arrester (M12 bolt) on a metal bar for mechanical support. This mechanical support is optional for voltage classes up to 24 kV. Switchgears for operating voltages above 24 kV require the mechanical support. Ensure that the mechanical support is grounded as well.

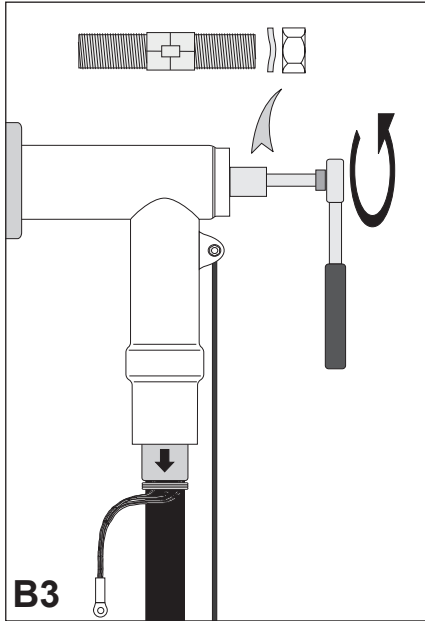
Installation completed.

Please dispose of all waste according to environmental regulations.



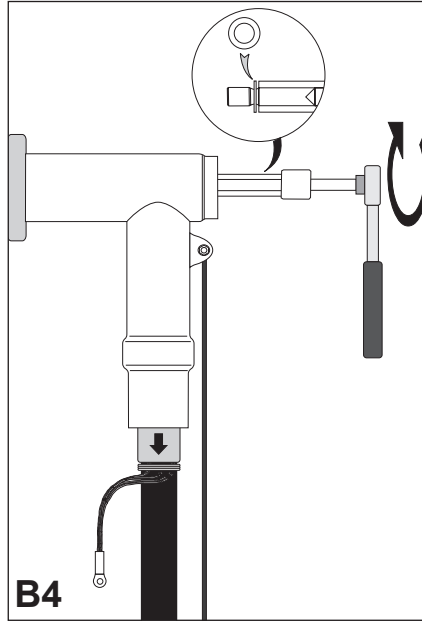
B. Installation of Coupling Connector

For cable preparation and core preparation please refer to installation instruction of coupling connector



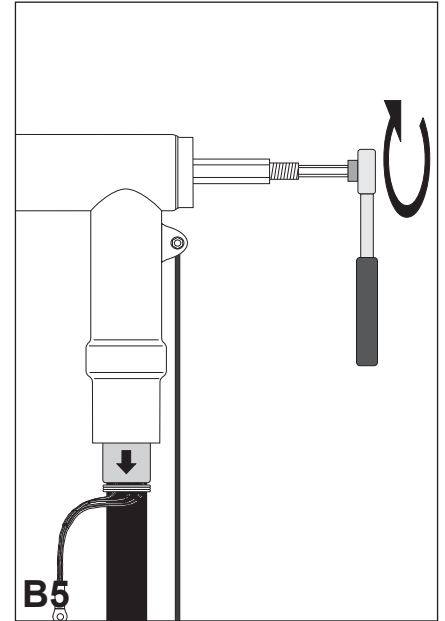
B3
Remove from the installed connector hexagon nut, washer, threaded pin and save it in a clean container.

Ensure that the rear end of the already installed connector is lubricated with a thin layer of assembly lubricant.



B4
Insert coupling stud with tinned Cu-washer (see detail) into the rear end of the connector and tighten it up with a torque wrench (27 mm).

Maximum torque: **35 Nm**.



B5
Insert a new threaded pin M16 marked EXRM-1885 into the rear end of the coupling stud and tighten it up with an Allen key (8 mm). Maximum torque: **30 Nm**.

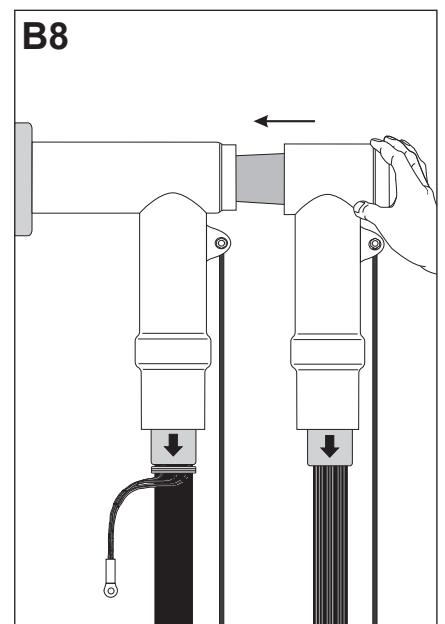
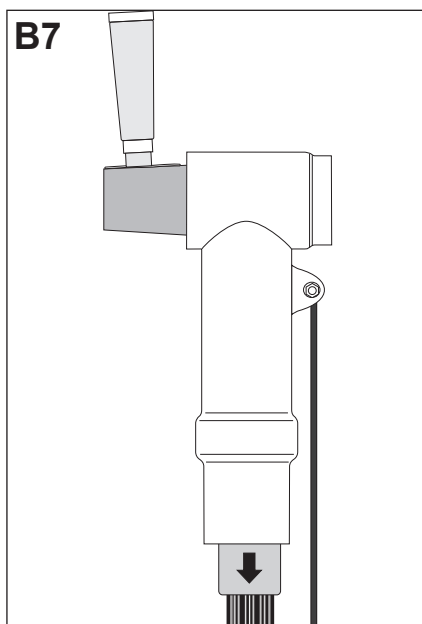
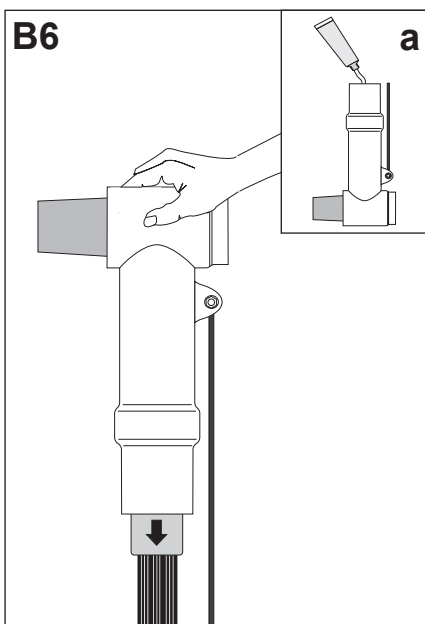
Clean the coupling connector body at the bottom end and apply a thin layer of lubricant onto the inner surface without the sponge top as shown in detail a.

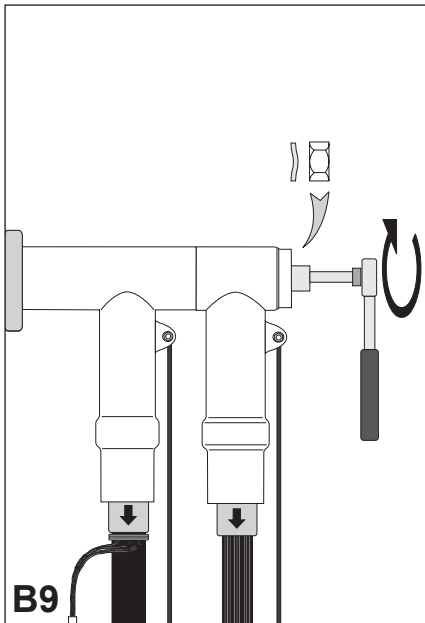
Note: Use one way glove to evenly lubricate the inner surface at a length of approx. 50 mm.

Push the coupling connector body with no interruption onto the stress cone and hold it.

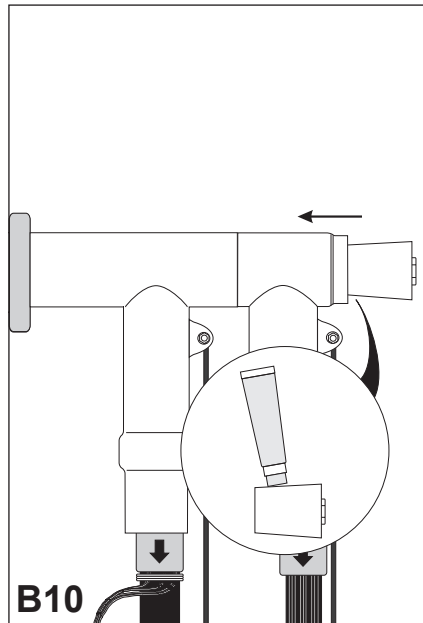
Clean the conical front end of the coupling connector and apply a thin layer of lubricant onto the outer surface of the cone with the sponge top. Continue **immediately** with the next step.

Align the conical front end of the coupling connector with the rear end of the already installed connector and push the coupling connector in position.

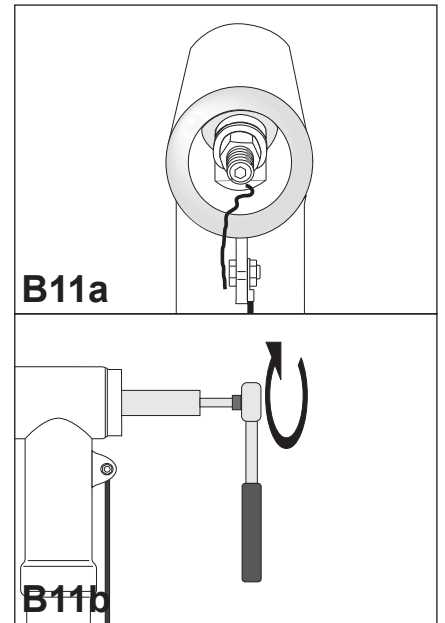




B9
 Insert the spring washer and hex nut. Tighten the hex nut onto the stud with a torque wrench (24 mm) at a torque of **30 Nm**.



B10
 Clean the inner surface of connector back end and apply a thin layer of assembly lubricant. Do the same with the conical interface of the back plug as shown in detail.



B11a

B11b

- a. Place a string into the rear entry of the connector as shown.
- b. Insert the back plug and screw it into place using a spanner (19 mm) at a torque of **30 Nm**.

Remove the string prior to the last two turns.

Note: Back plug has to be flush with connector end. In case of protrusion of back plug check steps B3 - B5 for correct installation of components.

- a. Flip-back the endcap as shown in detail a. Position the protruding ring onto test point.
- b. Flip the endcap into final position with your finger as shown in detail b.

Ensure that the grounding lead is fastened tightly.

Fix the shielding wires with a wire binder (four layers) at the end of the stress cone.

Gather the wires together to form an earth lead. Install at the end of the shielding wires the connection lugs supplied in the kit.

Perform connection to ground.

Note: Ensure that each cable is fixed with suitable cable cleats onto cable rack at a distance of 400 mm from the center of the bushing.

Screened separable coupling connector completed.

Please dispose of all waste according to environmental regulations.

