

**Installation Instruction
ESD-4245-6/08**

**Raychem Joint
for Polymeric Insulated
Cables with Wire Shield
and Al-Tape
72 kV**

EHVS

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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 instruction.

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

Carefully read and follow the steps in the installation instruction.

General Instructions

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 adhesive.

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

Tubing should be cut smoothly with a sharp knife leaving no jagged edges.

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

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.

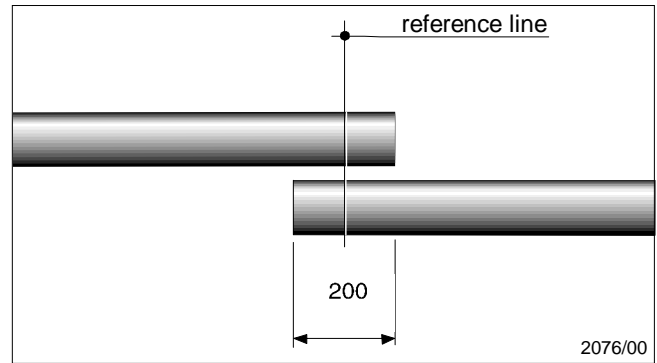
The Information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, Tyco Electronics has no control over the field conditions which influence product installation. It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. Tyco Electronics' only obligations are those in Tyco Electronics' standard Conditions of Sale for this product and in no case will Tyco Electronics be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products. Raychem, TE Logo and Tyco Electronics are trademarks.

	Item	Description
Accessories	EPPA-007	Silicone grease
	EPPA-009	Copper mesh
	EPPA-013	Copper braid
	EPPA-034	Roll spring
	EPPA-043	Textile tape
	EPPA-202	PVC insulating tape
	EPPA-220(C40)	Conductive paint
	EXRM-0764	Kevlar string
	H019-PAPIER-HANDTUCH	Cleaning tissue
	S1061	Sealant (red)
	EPPA-047	Connector
	HEL	Ferrules
Tubes	JSCH	Stress control tube (black)
	ICIC	Insulating tube (red)
	ECIC	Screened insulating tube (red/black)
	WCSM	Insulating tubing (black)

Preparation of Cables

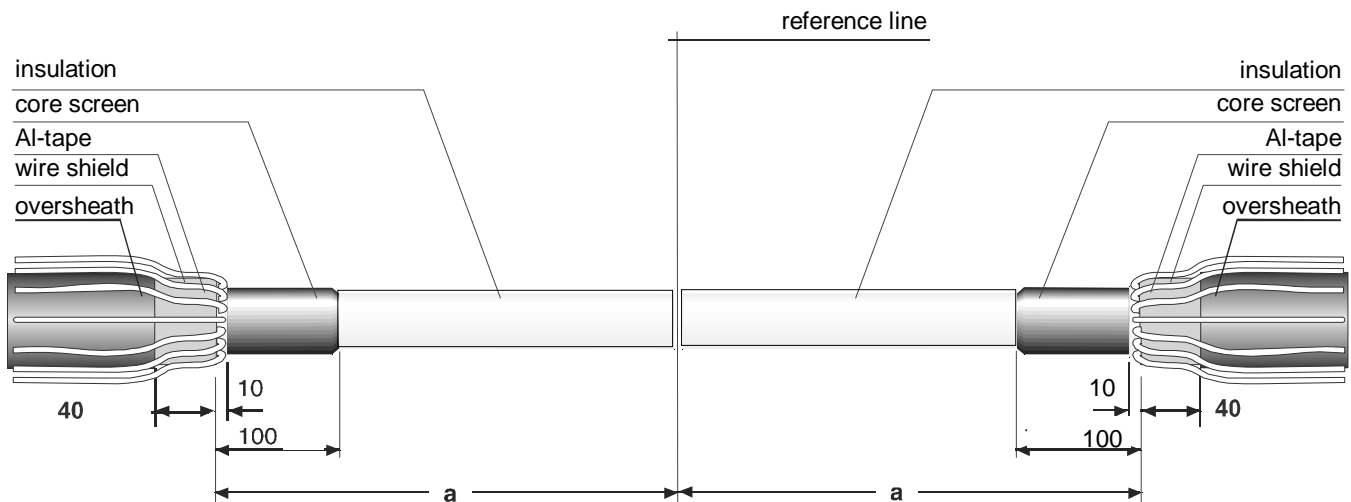
Ensure that the cables to be jointed are straight and level.

Cut the cables leaving an overlap of about 200 mm.
Mark reference line (middle of overlap).



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For cut back dimensions choose dimensions according to Kit number on packaging label.
Remove the oversheath to the dimensions given in drawing **A**, measured from the reference-line.
Clean the remaining oversheath for about 1 m.

For cables with a graphite coated oversheath apply protection tape for a length of about 1 m on the side where the tubings are parked until required.

Bend back the shielding wires onto the over sheaths.
Cover the sharp wire ends with plastic tape.
Remove Cu tape (if any) to the dimensions given in drwg. **A**.
Thoroughly remove the core screen to within 100 mm of the oversheath cut. The surface of the insulation should be free from all traces of conductive material.
Chamfer the core screen. Abrade and smooth out the insulation.

Note: Do not nick the insulation.

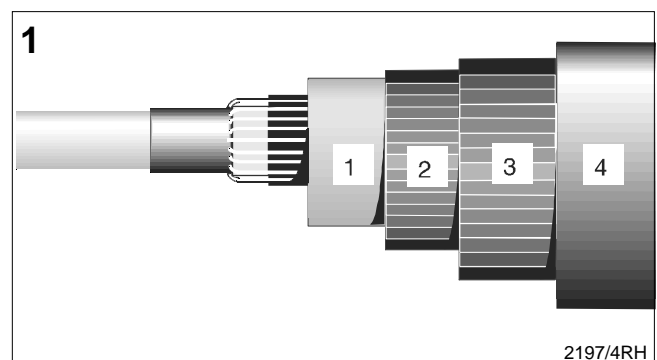
Cut both cables at the reference line (middle of overlap) using a hacksaw.

Slide the combined tubing set over the cable core.

- 1 - Stress control tube (black)
- 2 - Insulating tube (red)
- 3 - Screened insulating tube (black and red)
- 4 - Insulating tube (black)

If sufficient space is available components should be distributed equally over both cables.

Connector length mm	Cut back dimensions a (mm)
130	400
180	440
230	470



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Completion of Joint

Remove the insulation on all cores to dimension l = half the connector lengths - 5 mm.

Fit the conductors into the connector so that the connector end lines up with the insulation (do not shear bolt heads at this stage).

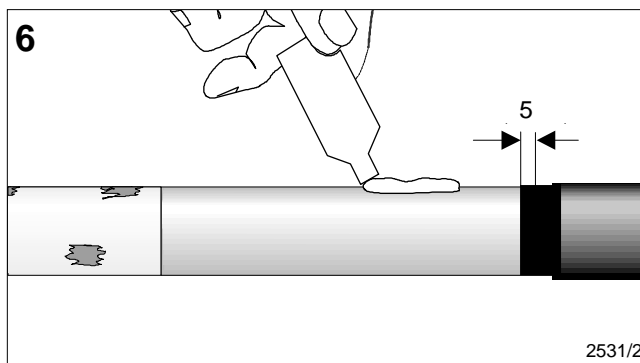
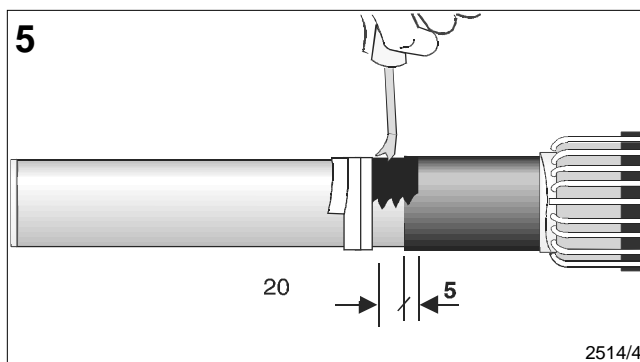
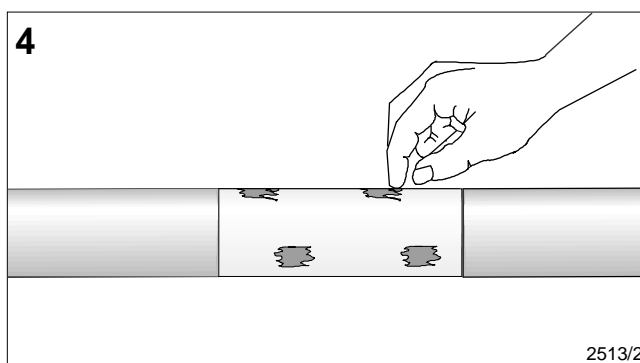
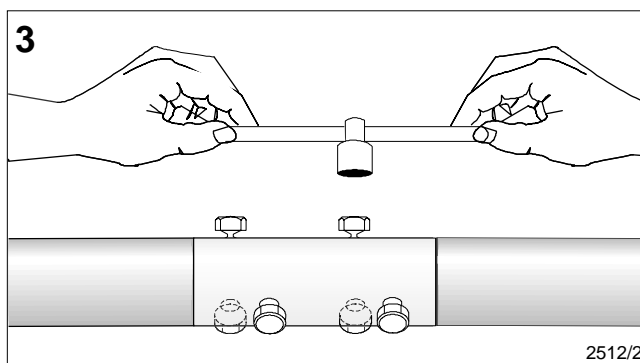
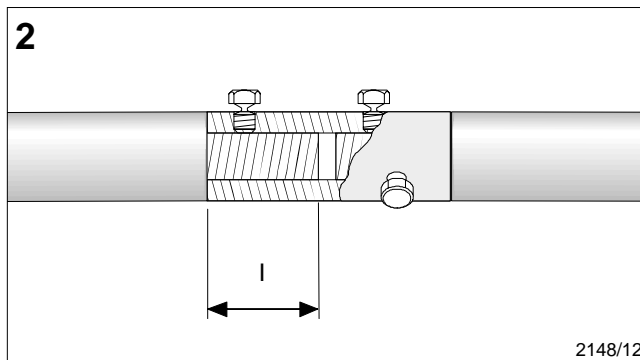
Note: No gap should be left between connector and insulation.

Take up the tension equally on all bolts, using a box spanner (do not shear bolt heads at this stage). Starting at the centre of the connector, tighten bolts until heads shear off.

Rub Raychem clay over the sheared bolts to obtain a smooth finish.

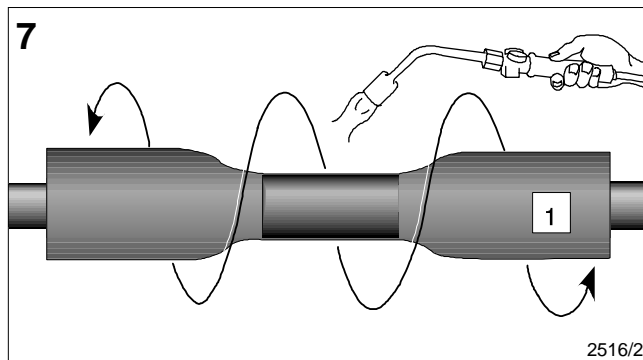
Apply a PVC tape (adhesive side up) on the core insulation to leave a distance of approx. 20 mm between tape and core screen. Shake bottle of conductive paint thoroughly. Apply the conductive paint onto the 20 mm length of core insulation overlapping the core screen by approximately 5 mm. When dry remove the PVC tape.

Cover the insulation and connector surface with a thin film of silicon grease, overlapping it onto the conductive paint for approximately 5 mm.

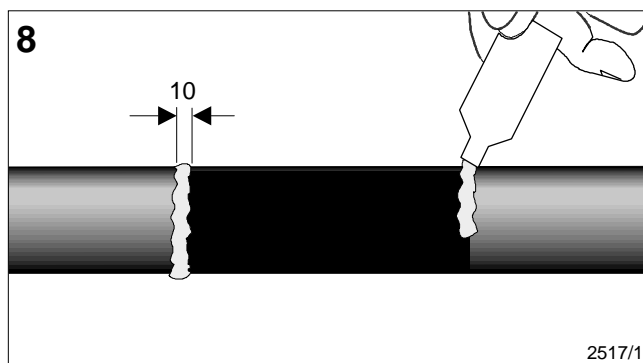


Preheat the connector until warm.

Position the stress control tube 1 (black) centrally over the joint. Start shrinking in the centre working towards the ends.

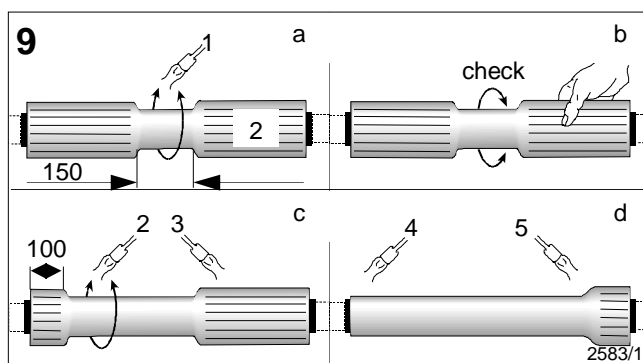


Apply a thin film of approx. 10 mm width of silicon grease around the edges of the matt surface in the centre of the stress control tube.



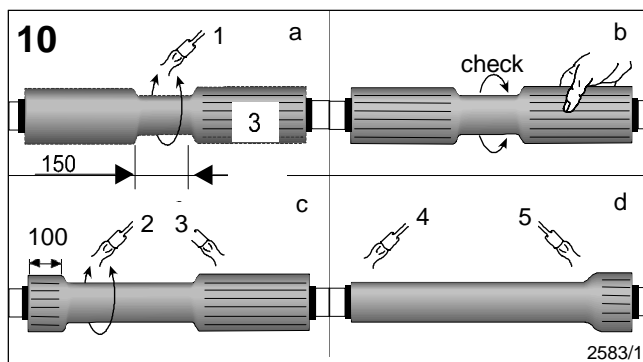
Position the insulating tube (red) centrally over the previously installed tubing.

- a. Start shrinking the tube in the centre for a length of approximately 150 mm.
- b. Check if fully shrunk by twisting the end. The tube should not move from its position.
- c. Continue shrinking by working towards one side (2), stopping 100 mm from the end. Shrink the other half in the same way (3).
- d. Shrink down the first end (4) and finally the second (5). The tube should be fully shrunk without leaving ridges.

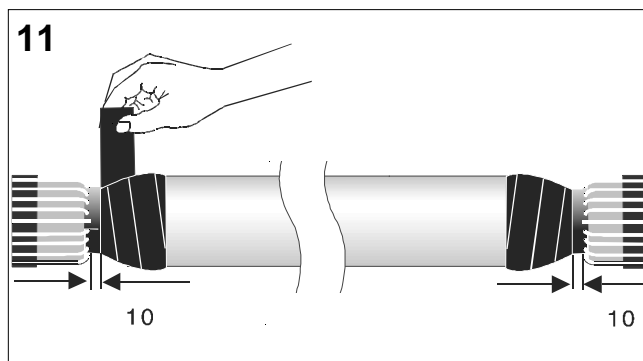


Position the insulating sleeve (black and red) centrally over the previously installed tubing.

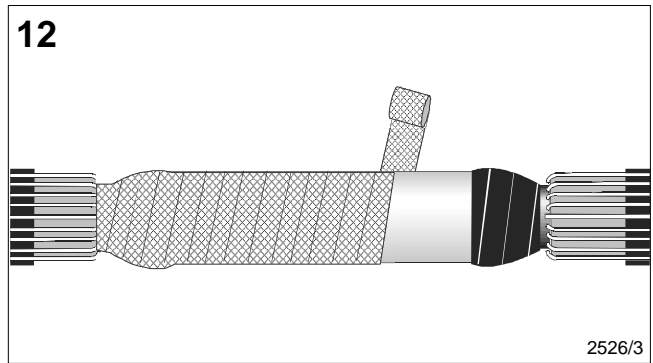
- a. Start shrinking the tube in the centre for a length of approximately 150 mm.
- b. Check if fully shrunk by twisting the end. The tube should not move from its position.
- c. Continue shrinking by working towards one side (2), stopping 100 mm from the end. Shrink the other half in the same way (3).
- d. Shrink down the first end (4) and finally the second (5). The tube should be fully shrunk without leaving ridges.



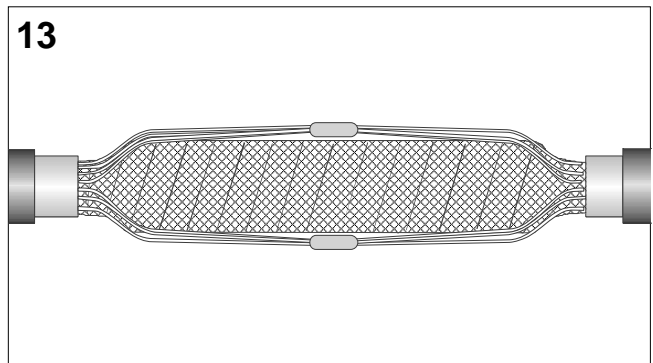
Smooth out the steps at the tube ends with mastic tape (black). Leave approx. 10 mm of the metal tape shield core exposed.



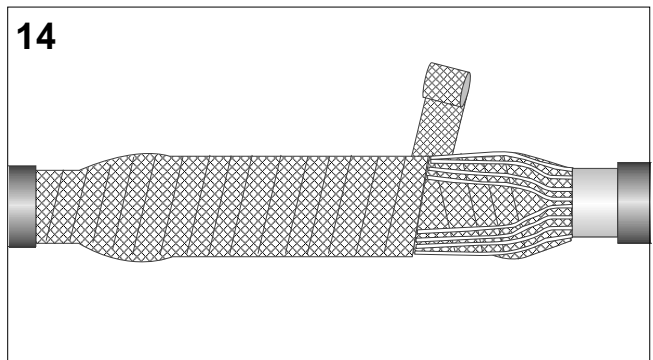
Wrap one layer of tinned copper braid with a 50 % overlap around the joint area, completely covering the screen on both sides.



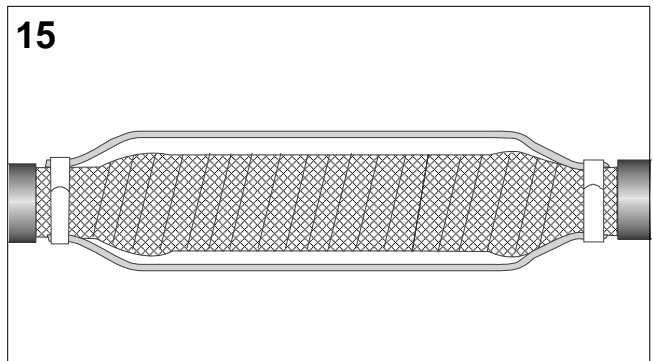
Gather the shield wires together in two or more equal strands. Join the strands by crimping. Protect the crimp area with textile tape.



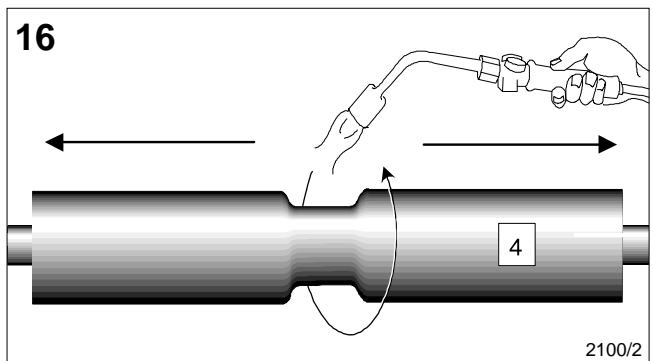
Wrap one layer of tinned Cu-mesh with a 50 % overlap around the joint area, completely covering the Cu-tape on both sides.



Lay the earth braid across the joint and connect the braids with a roll spring the metal tape shields. Apply textile tape over the roll spring area. Cut excess braid-length.



Remove the protection tape from the cable oversheath. Abraid oversheath for a distance of approx. 150 mm. Position the outer tube 4 (black) centrally over the joint. Start shrinking in the centre working towards the ends.



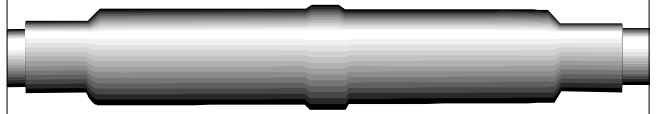
Joint completed.

Allow the joint to cool before applying any mechanical strain.

Please dispose of all waste according to environmental regulations.



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