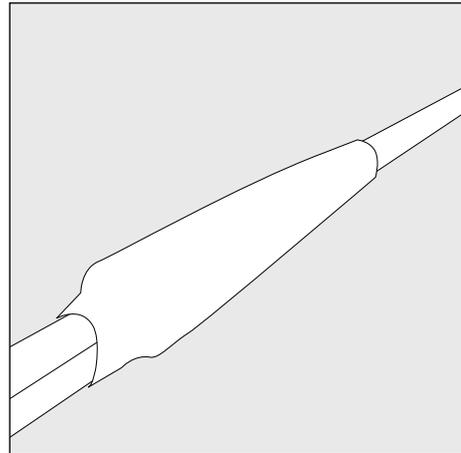




TE's Raychem Cable Accessories



Installation Instruction EPP-2024-7/16

Branch Joints for Screened Single Core Plastic Insulated Cables 12 kV & 24 kV

To view the TE Energy website:



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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, 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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Application range of the MXSB kits:

The kits application ranges are based on polymeric insulated cables for **circular conductors** and wire shielding. Due to different conductor dimensions and constructions for a given cross section the minimum and maximum application range might be extendable. Please refer to the detailed information on cable dimensions given in table 1:

Table 1

Size	Application Range mm ²	Insulation Cutback „X“ mm	Conductor Ø Aluminum		Conductor Ø Copper		Insulation Ø min.	Overall Cable Ø	
			min.	max.	min.	max.		min.	max.
MXSB 12A	35-95	40	6.1	12.9	6.6	12	14.4	23	34
MXSB 24A	35-95	40	6.1	12.9	6.6	12	18	27	38

Cable overlap

Overlap the branch cable by about 600 mm.
Mark the reference line on the cable.
Cut the main cable at the reference line.

Cable Preparation

Remove the oversheath to the dimensions given in the drawing **A**, measured from the reference line.

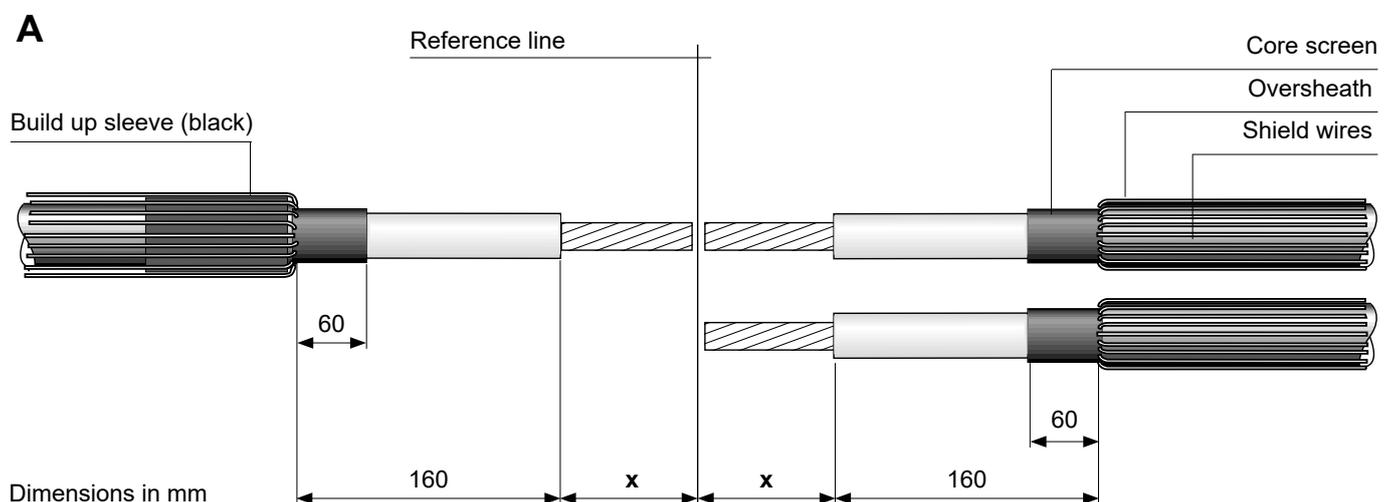
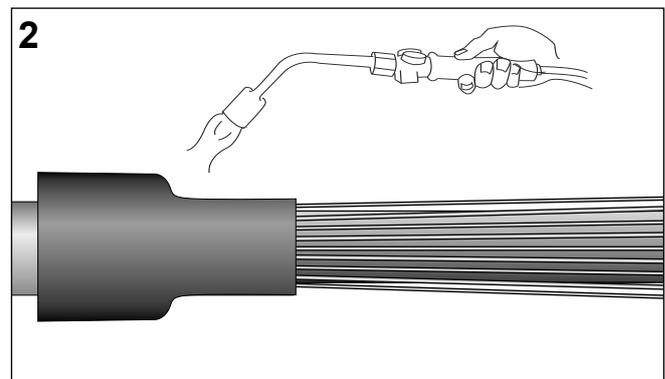
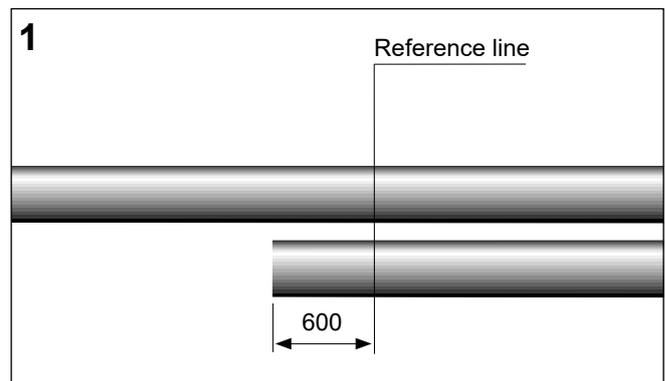
Clean all the remaining oversheaths for about 800 mm on both cable sides.

Note: If a build up sleeve is available, position it on the single core side starting from the end of the the oversheath as shown in drawing **2**. Otherwise continue with the next step.

Fold back the shield wires and hold the ends in place with PVC tape.

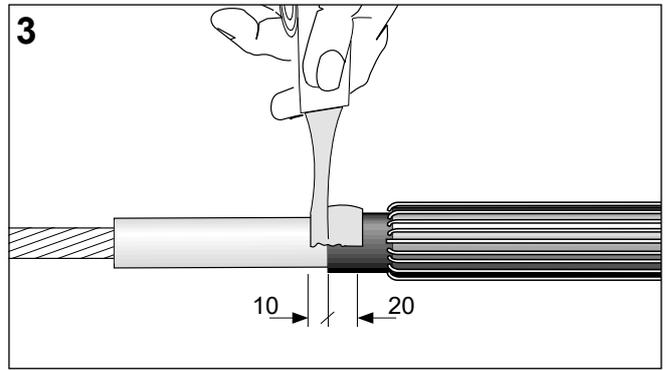
Cut the branch cable at the reference line. Remove the core screen to the dimensions given in the drawing **A**, so that the insulation surface is free from all traces of conductive material. Remove the insulation to the cutback dimension „X“ given in **Table 1**.

Note: Do not nick the insulation!

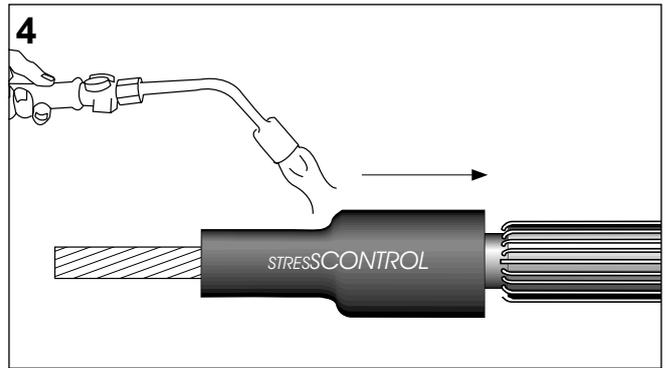


All cable ends

Remove the release paper from the shorth lengths of void filling mastic (yellow) with pointed end, wrap it around the core starting 20 mm from the end of the screen and continuing onto the insulation for 10 mm. Stretch the mastic to half of its original width to achieve a thin edge on the insulation.

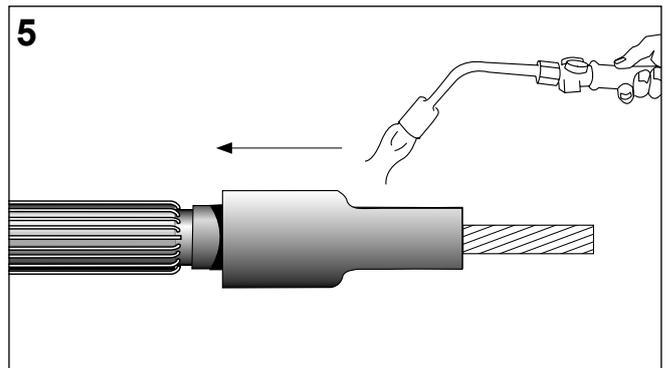


Position the stress control tubing (black) level with the insulation cutback. Shrink the tubing into position starting at the insulation cutback working towards the oversheath as shown in the drawing.



Single cable side only

Position the insulation build up sleeve (red) level with the end of stress control tubing. Shrink the tubing into position starting at the insulation cutback working towards the oversheath as shown in the drawing.

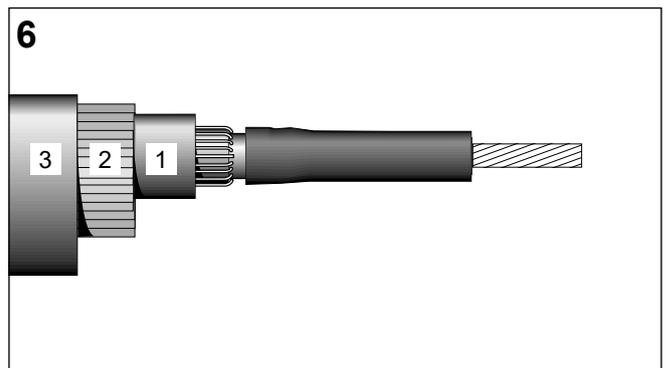


Completion of Joint

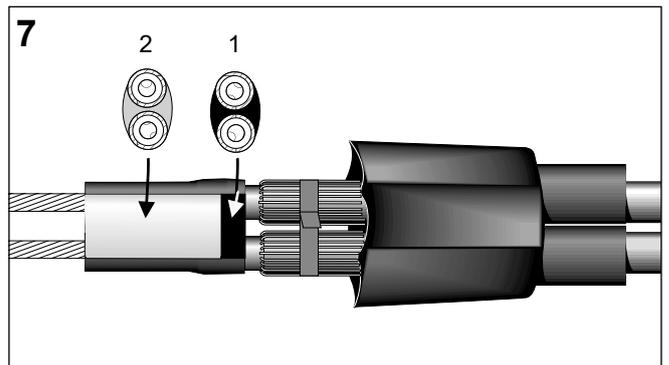
Slide the combined tubing set and the outer sleeve over the single cable end.

The plastic bag of the tubing set can be used as additional protection by placing it under the tubing set.

1. Stress control tubing (black)
2. Screened insulating sleeve (black and red)
3. Outer sleeve (black)



Slide the breakout (breakout fingers first) over the cables on the branch side of the joint. Insert the black rubber profile (1.) and the red mastic profile (2.) between the cores. Position the red mastic profile so that it is level with the insulation cutback as shown in the drawing. The black rubber profile must butt on the red mastic profile.



Installation of the mechanical connector

The connector is supplied with a centralising inserts for use on smaller cross sections on the single cable side.

Check if the conductor of the main cable fits through the hole in the plastic insert provided with the connector. In that case, insert it into the single cable side of the connector. The fitting is tight and requires complete insertion. The insert is not required if it does not fit the conductor.

Clean and abrade the surface of the exposed conductors.

Insert conductors so that the insulation butts up with the end of the connector. Hand tighten the shear bolts so that the connector stays in place.

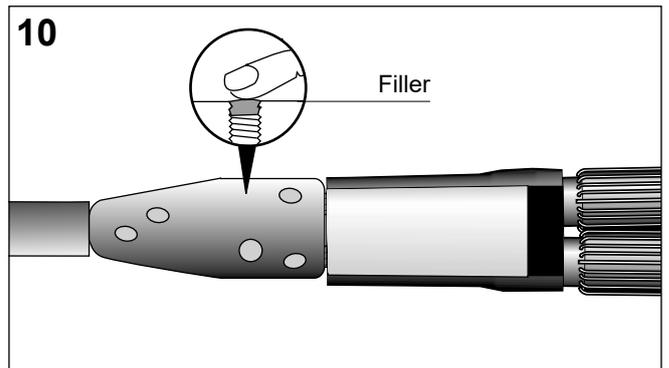
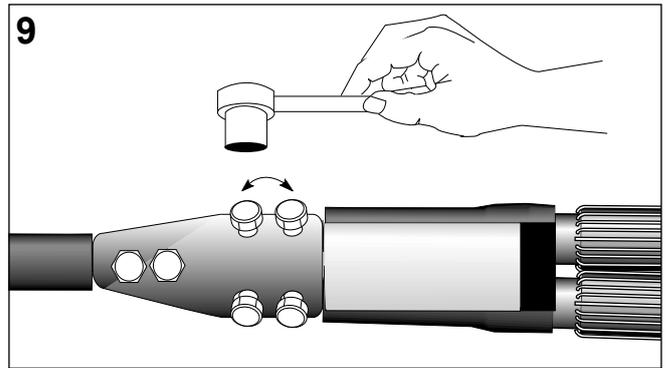
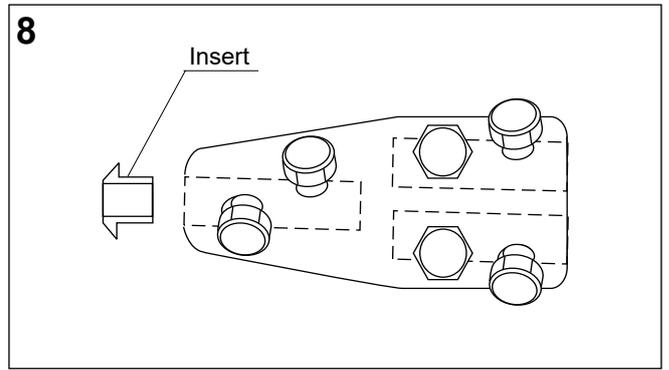
Tighten the bolts alternately and shear them off starting with the outer bolts.

Note:

- When a cordless impact wrench is in use the tightening intervals should be in the range of 2 seconds.

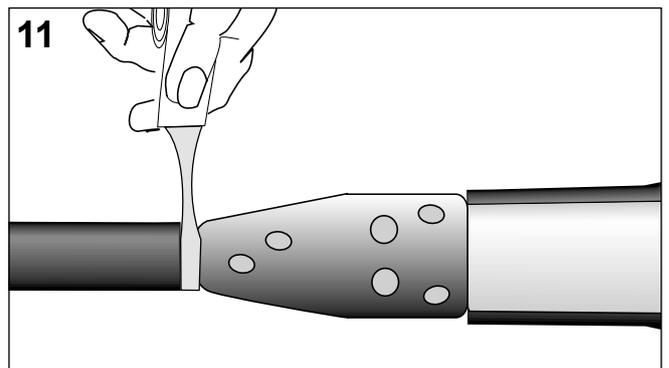
Smooth out sharp edges of protruding bolts where appropriate. Clean and degrease the connector area and the insulation with a cleaning wipe.

Fill each of the remaining holes with clay to obtain a smooth finish.



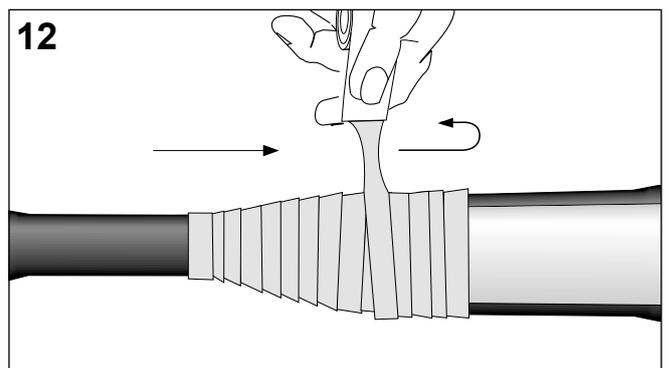
Remove one release paper from the long void filling mastic (yellow) and roll it up. Starting from the single core side, wrap it around the core with a 50% overlap stretching it to about half of its original width.

Carefully fill all gaps. Continue across the connector.

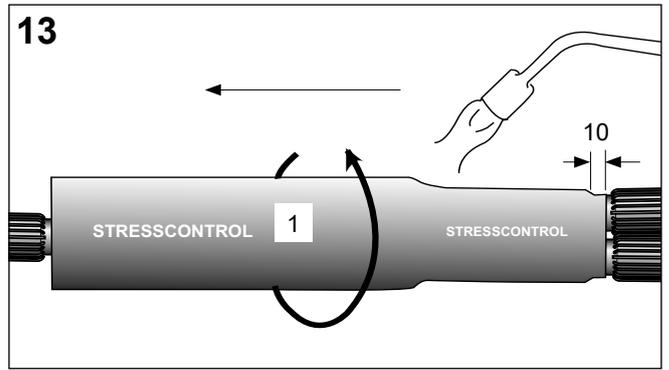


Apply a total of two thin layers of void filling mastic (yellow) over the connector, forming a smooth profile between the end of the stress control tubing on the single core side and the red mastic profile on the other side. Overlap the stress control tubing and the red mastic profile for 5 mm.

Lubricate only the void filling mastic with the silicone tissue.



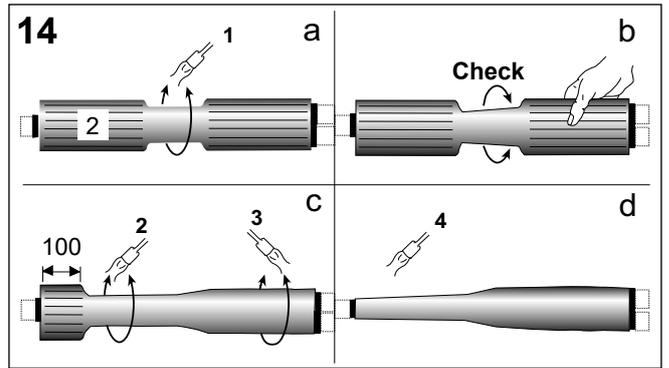
Pull the stress control tubing (black) from inside the tubing set and position it with 10 mm overlap at the rubber profile. Start shrinking from the branch cable side working towards the single core side. The tubing should be fully shrunk and wrinkle free.



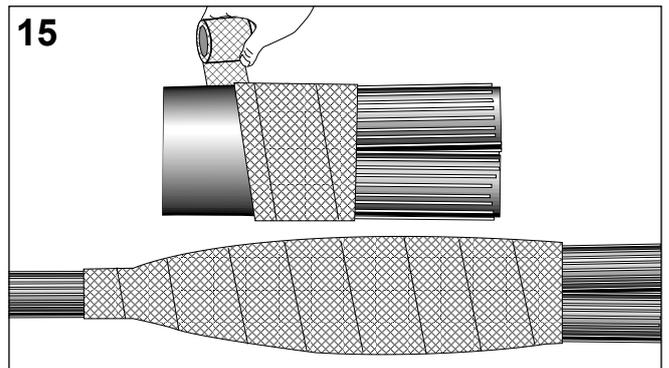
Attention! It is important to shrink slowly and to use plenty of heat whilst following the steps below.

Position the screened insulating sleeve (black and red) centrally over the stress control tube.

- Start shrinking the sleeve in the centre over the connector (1). Shrink carefully and slowly.
- Check if fully shrunk down preferably by looking inside from the single core side. No gap should be visible around the connector.
- Continue slowly shrinking by working towards the single core side (2) stopping 100 mm from the end. Then slowly shrink the other side completely (3).
- Finally shrink down the second end (4). The sleeve should be fully shrunk without leaving ridges.



Starting from the branch side, apply the copper mesh with a 50% overlap around the previously installed tube so that the whole joint area is covered.

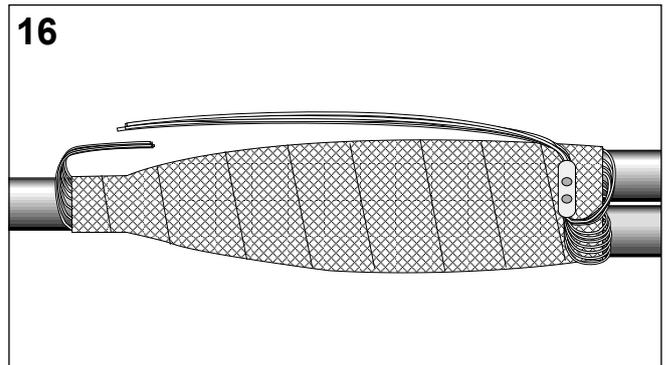


On the branch side insert main and branch wires into the first connector.

Tighten the bolts until the heads shear off.

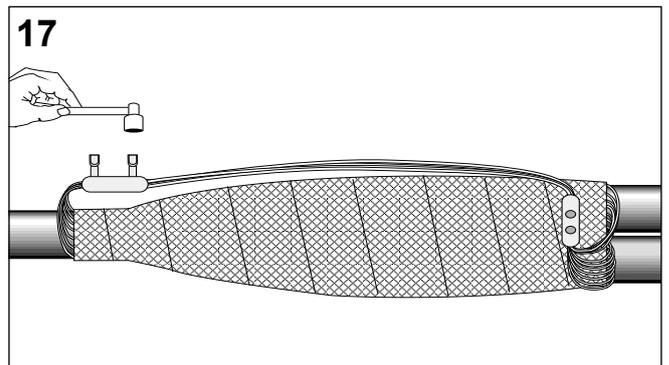
Position the connector perpendicular to the cable overshooth on the branch side.

The shielding wires of the branch cable should extend beyond the single cable side.

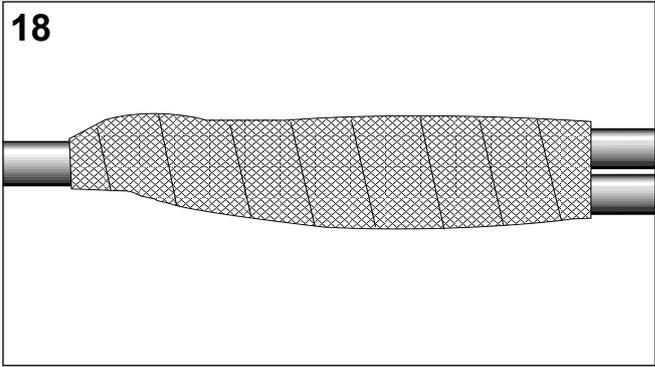


Form an earth lead of the shield wires and insert both ends into the second mechanical shield connector supplied.

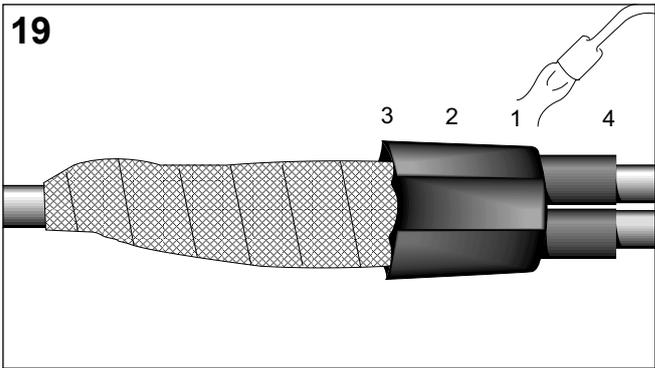
Tighten the bolts until the heads shear off.



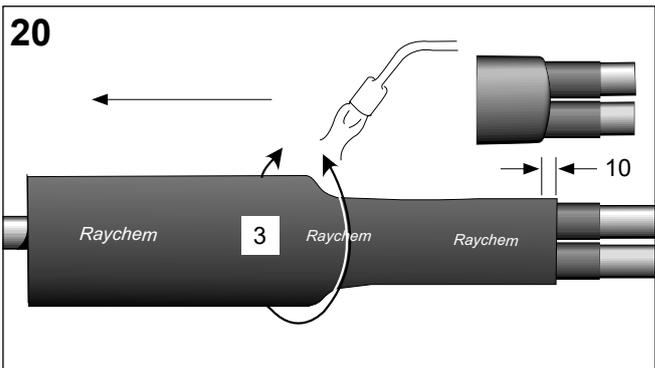
Wrap a second layer of copper mesh round the joint with a 50% overlap. Cover the complete joint area including the mechanical shield connector.



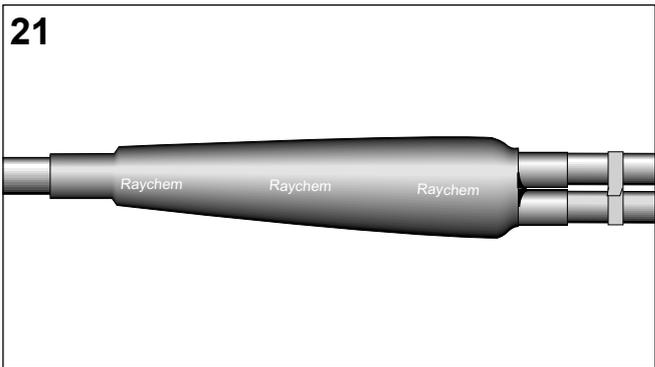
Clean and degrease all oversheath ends. Push the breakout down into the crutch. Shrink it into place starting at the centre. The numbers in the drawing indicate the shrink sequence.



Position the outer sealing sleeve across the joint overlapping the base of the breakout turrets for 10 mm as shown in the drawing. Start shrinking from the branch cable side working towards the single core cable side.



Secure the main and branch cable close to the joint area with a cable tie or PVC tape and allow the joint to cool before applying any mechanical strain.



Please dispose of all waste according to environmental regulations.

