

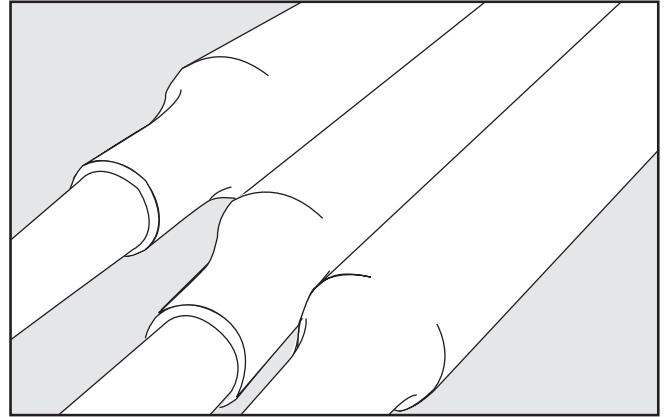
INSTALLATION INSTRUCTIONS

EPP-1211-6/24

MXSU-x1x1-Tx

**Size Transition Joint for Single Core
Polymeric
Insulated Cables
with Wire Screen**

12 kV to 24 kV



TE's Raychem Cable Accessories

Please dispose of all waste according to environmental regulations.



For more information: te.com/energy

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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.

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.
- 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.

Application Range of the MXSU-x1x1-Tx Kits

The kit is based on polymeric insulated cables for **stranded circular conductors** and wire shielding.

Application range for aluminium or copper conductors are mentioned in **table A** below.

Table A

12 kV	
Kit number	Range (mm ²)
MXSU-3131-T2	25/95 - 95/240
MXSU-3141-T4	95/240 - 185/400
MXSU-3151-T6	185/400 - 500
MXSU-3161-T6	185/400 - 630
MXSU-3161-T7	500 - 630
MXSU-3181-T8	630 - 1000

24 kV	
Kit number	Range (mm ²)
MXSU-5131-T2	25/95 - 95/240
MXSU-5141-T4	95/240 - 240/400
MXSU-5151-T6	185/400 - 500
MXSU-5161-T6	185/400 - 630
MXSU-5161-T7	500 - 630
MXSU-5171-T8	630 - 800
MXSU-5181-T8	630 - 1000
MXSU-5181-T9	800 - 1000

Admissible Cable Dimensions for MXSU-x1x1-Tx lower range (smaller size 12 kV - 24kV):

Table B

Kit number	Conductor Ø	Core Insulation Ø	Outer Cable Ø
	min. - max.	minimum	minimum
	(mm)	(mm)	(mm)
MXSU-3131-T2	5.2 - 12.0	13.2	23.0
MXSU-3141-T4	10.3 - 19.2	17.6	26.0
MXSU-3151-T6	15.5 - 24.6	23.2	33.0
MXSU-3161-T6	15.5 - 24.6	23.2	33.0
MXSU-3161-T7	25.5 - 27.6	33.8	44.0
MXSU-3181-T8	29.3 - 32.5	38.0	47.0
MXSU-5131-T2	5.6 - 12.0	17.9	25.0
MXSU-5141-T4	10.3 - 19.2	23.0	30.0
MXSU-5151-T6	15.5 - 24.6	27.4	35.0
MXSU-5161-T6	15.5 - 24.6	27.4	35.0
MXSU-5161-T7	25.7 - 27.6	37.2	48.0
MXSU-5171-T8	29.0 - 32.5	39.2	50.0
MXSU-5181-T8	29.0 - 32.5	39.2	50.0
MXSU-5181-T9	33.0 - 33.8	43.9	56.0

Admissible cable dimensions for MXSU-x1x1-Tx larger range (larger size 12 kV - 24 kV):

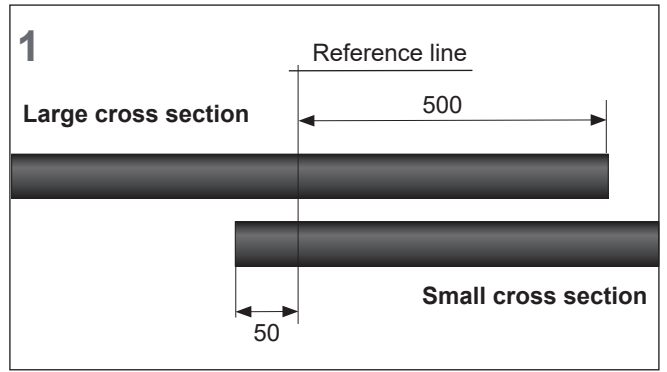
Table C

Kit number	Conductor Ø	Core Insulation Ø	Outer Cable Ø
	min. - max.	minimum	minimum
	(mm)	(mm)	(mm)
MXSU-3131-T2	10.3 - 19.2	17.6	23.0
MXSU-3141-T4	15.5 - 24.6	23.2	26.0
MXSU-3151-T6	25.5 - 27.6	33.8	33.0
MXSU-3161-T6	29.0 - 32.5	37.5	33.0
MXSU-3161-T7	29.0 - 32.5	37.5	44.0
MXSU-3181-T8	38.5 - 39.2	45.0	59.0
MXSU-5131-T2	10.3 - 19.2	23.0	25.0
MXSU-5141-T4	17.8 - 24.6	29.9	30.0
MXSU-5151-T6	25.5 - 27.6	37.2	35.0
MXSU-5161-T6	29.0 - 32.5	39.2	35.0
MXSU-5161-T7	29.0 - 32.5	39.2	48.0
MXSU-5171-T8	32.5 - 35.3	44.2	50.0
MXSU-5181-T8	38.5 - 39.2	49.4	50.0
MXSU-5181-T9	38.5 - 39.2	49.4	64.0

Cable Overlap

Overlap the cables as shown in drawing.

Mark the reference line.



Cable Preparation

Remove the oversheath to dimension shown in table 1 below.

Clean the remaining oversheath for about 1 m.

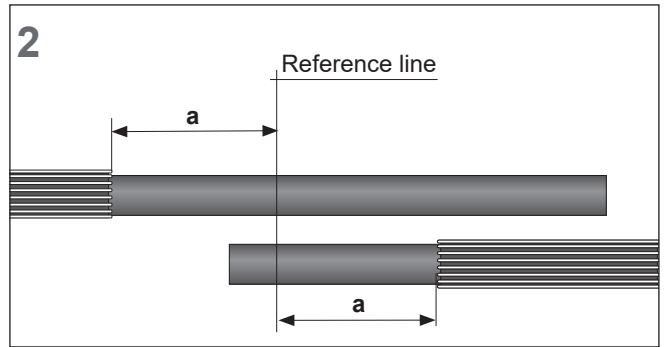
Bend back the shield wires onto the oversheath.

Fix the ends of the shield wires temporarily in place.

Table 1

12 kV			
Kit number	Cross section (mm ²)	a (mm)	l (mm)
MXSU-3131-T2	25/95 - 95/240	170	60
MXSU-3141-T4	95/240 - 185/400	190	80
MXSU-3151-T6	185/400 - 500	190	80
MXSU-3161-T6	185/400 - 630	190	80
MXSU-3161-T7	500 - 630	170	70
MXSU-3181-T8	630 - 1000	200	85

24 kV			
Kit number	Cross section (mm ²)	a (mm)	l (mm)
MXSU-5131-T2	25/95 - 95/240	190	60
MXSU-5141-T4	95/240 - 240/400	210	80
MXSU-5151-T6	185/400 - 500	210	80
MXSU-5161-T6	185/400 - 630	210	80
MXSU-5161-T7	500 - 630	200	70
MXSU-5171-T8	630 - 800	210	85
MXSU-5181-T8	630 - 1000	210	85
MXSU-5181-T9	800 - 1000	210	85



Core Preparation

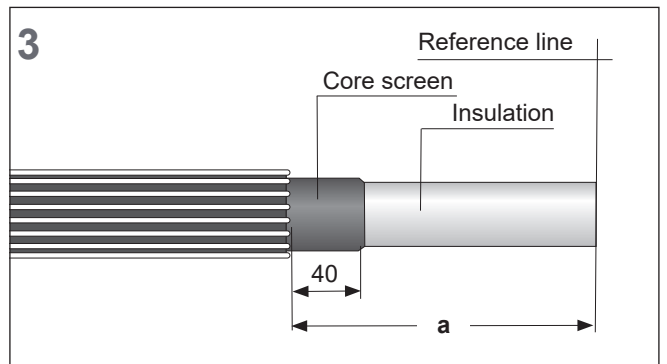
Cut the cores at the reference line using a hacksaw (see Table 1).

Thoroughly remove the core screen to the dimensions given in the drawing, so that the insulation surface is free from all traces of conductive material.

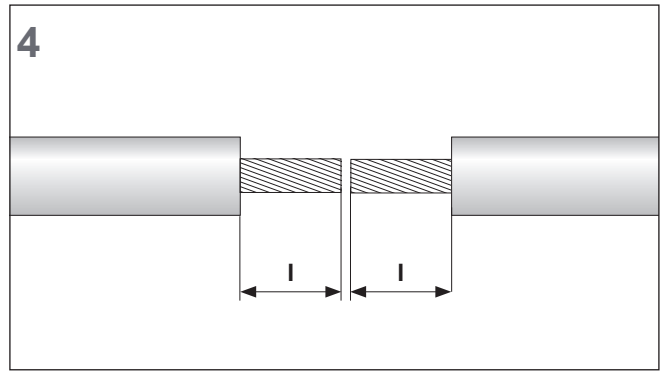
Clean and degrease the insulation.

NOTE

Do not nick the insulation!



Measure the conductor bore depth of the connector and remove the insulation on both cores equal to the insert depth I (see Table 1).

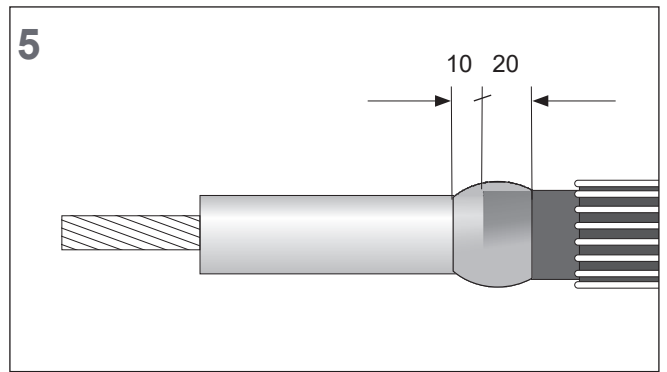


Small Cross Section

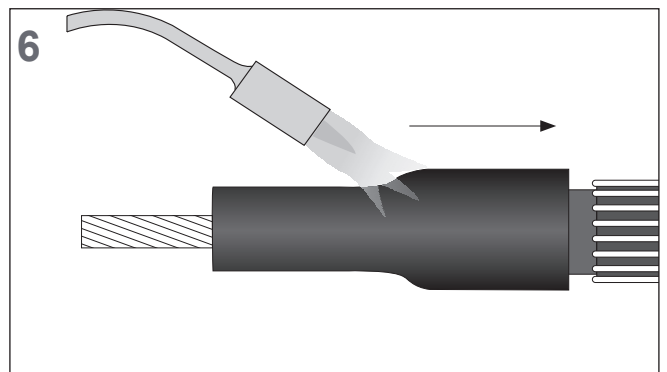
Take one short yellow void filling strip from the alu foil pocket. Remove the release papers from the strip with the pointed ends.

Wrap the void filler around the core screen starting 20 mm from the end of the screen and continue onto the insulation for 10 mm.

Stretch the strip to half of its original width to achieve a fine thin edge.

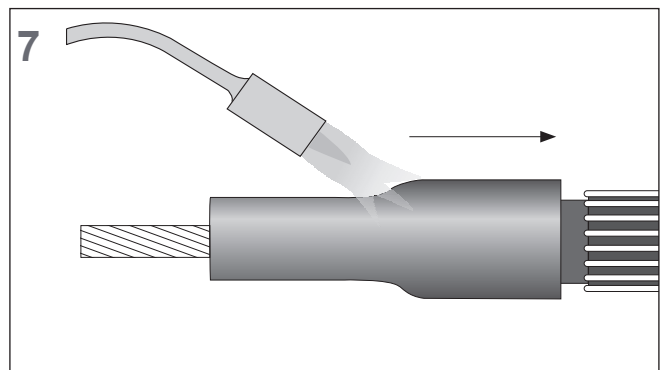


Take one stress control sleeve from the kit content or from the poly bag with the inscription "Buildup set" (if available) and slide it over the plastic cable core level with the end of the insulation cut back. Shrink down starting from the insulation cut back towards the oversheath as shown in drawing.



If poly bag with the inscription "Buildup set" is available, otherwise go to next step.

Slide the insulating tubing (red) from the poly bag with the inscription "Buildup set" over the stress control tubing level with the end of the insulation cut back. Shrink down starting from the insulation cut back towards the oversheath as shown in drawing.

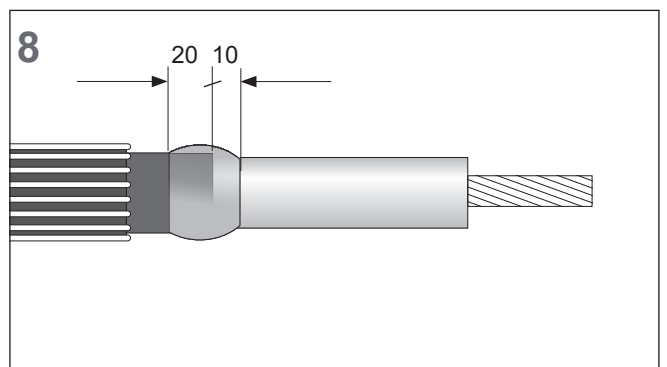


Large Cross Section

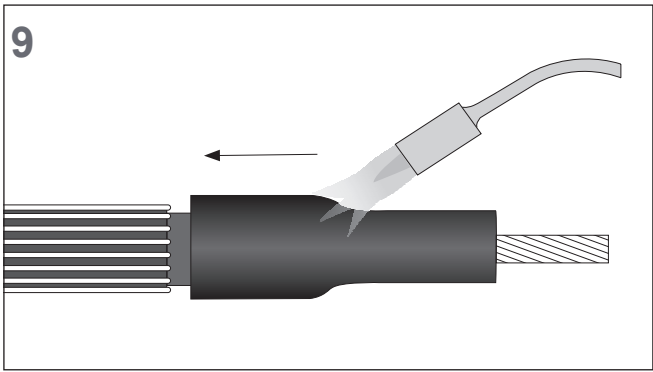
Take one short yellow void filling strip from the alu foil pocket. Remove the release papers from the strip with the pointed ends.

Wrap the void filler around the core screen starting 20 mm from the end of the screen and continue onto the insulation for 10 mm.

Stretch the strip to half of its original width to achieve a fine thin edge.



Slide the stress control tube (black) over the plastic cable core level with the end of the insulation cut back. Shrink down starting from the insulation cut back towards the oversheath as shown in the drawing.

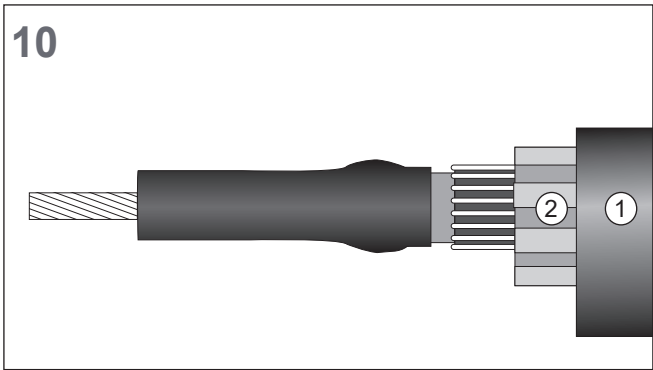


Completion of the Joint

Slide the tubings over the small cross section cable end.

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

1. Outer sleeve (black)
2. Screened insulation sleeve (black and red)

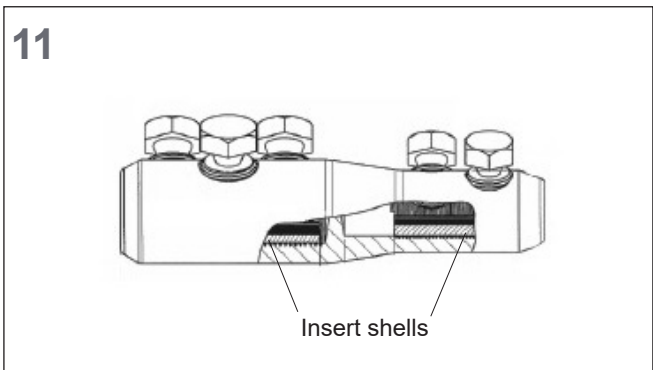


Installation of the mechanical connector

The connector is supplied with insert half shells which have to be used on small cross sections.

Check before installation if the conductor can be inserted into the connector with the half shells installed.

In case the conductor cannot be inserted, remove the inserts from the connector bore.



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.

For connectors using more than one shear bolt per side, tighten the bolts alternately and shear them off starting with the outer bolts (see also sequence shown in the drawing).

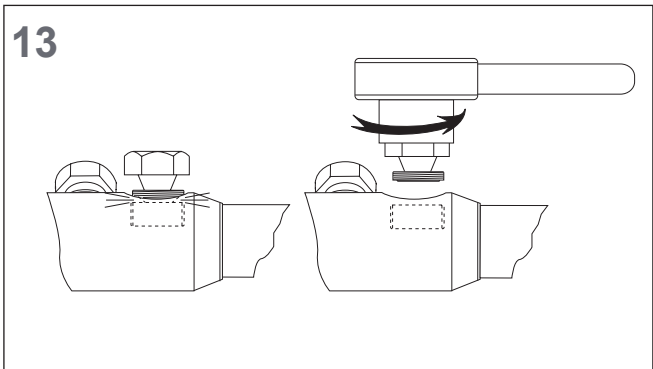
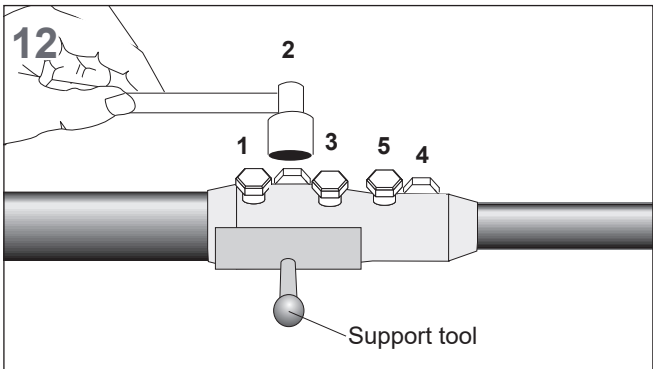
NOTE

- When a cordless impact wrench is in use the tightening intervals should be in the range of 2 seconds.
- Avoid core bending on smaller cross sections by using a support tool available such as IT-1000-019 or similar.

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

NOTE

In the event the bolt shears off but the top is retained in the connector body, unscrew the head of the bolt until it is removed from the connector.



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

Fill up any irregularities over the sheared off bolts with the putty supplied with the kit.

Open the large aluminium foil bag. Take out the long yellow void filling strips. Remove one release paper from the void filling tape (yellow) and roll it up.

Wrap it around the connector with a 50 % overlap. Stretching it to about half of its original width.

Fill up the connector area continuing onto the insulation for not more than 10 mm.

NOTE

Do not use too much void filling tape.

The final diameter should be only slightly greater than the core or connector diameter, whichever is larger.

Position the screened insulating sleeve (black and red) centrally over the connector area.

- a. Start shrinking the sleeve in the centre (1).
- b. Continue shrinking by working towards one side (2), stopping 50 mm from the end. Shrink the other half in the same way (3).
- c. Shrink down the first end (4) and finally the second (5). The sleeve should be fully shrunk without leaving ridges.

Starting with a 50 mm overlap onto the oversheath of the cable side with the short shield wires, wrap one layer of copper mesh round the joint with a 50 % overlap.

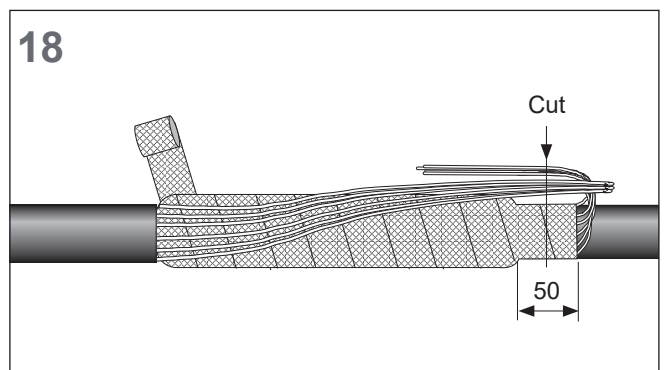
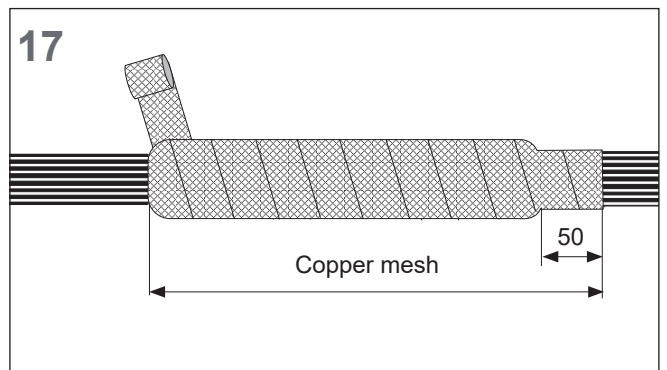
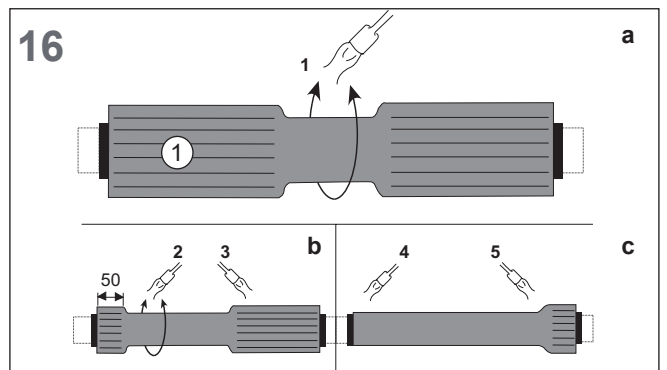
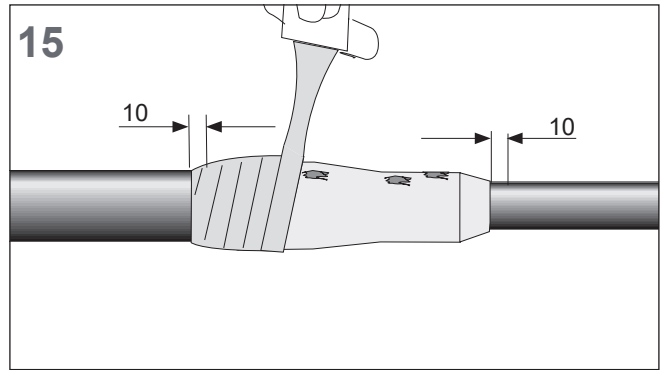
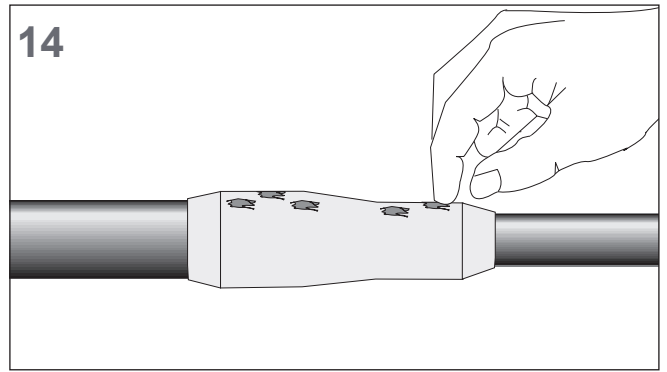
Cable side with long shield wires:

Bend the shield wires back over the joint area.

Cable side with the short shield wires:

Bend the shield wires back over the joint area close to the copper mesh.

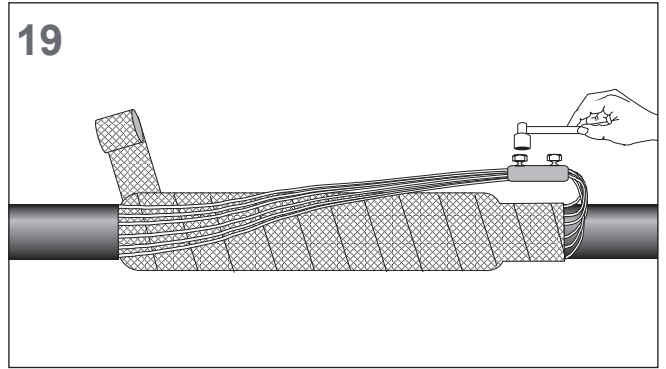
Gather the wires together and cut them centrally above the 50 mm copper mesh overlap on the cable oversheath.



0 cm

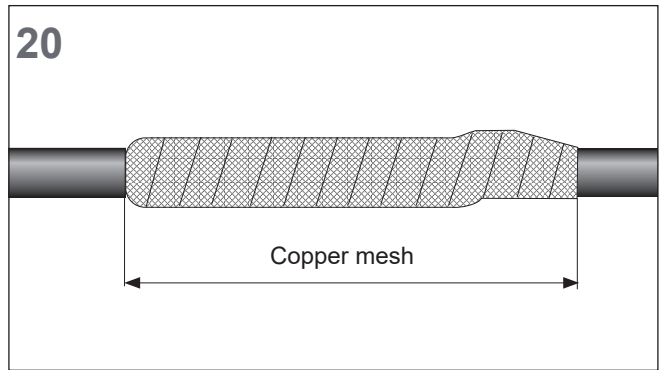
Form an earth lead of the shield wires and insert both ends into the mechanical shield connector supplied.

Tighten the bolts with an Allen key until the heads shear off.



5

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

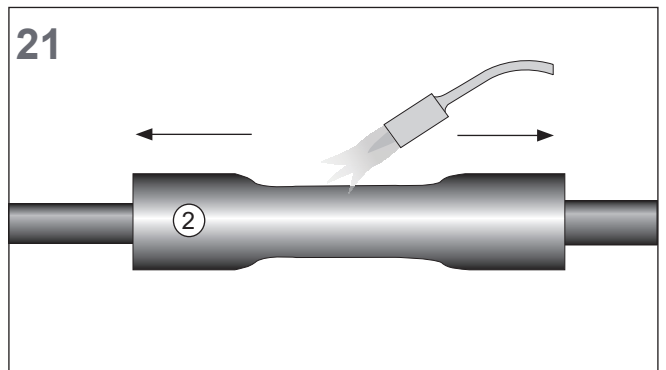


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Clean and degrease the ends of the oversheath for a length of about 150 mm.

Centre the outer sleeve (black) over the copper mesh area.

Start shrinking in the centre, working towards the ends.



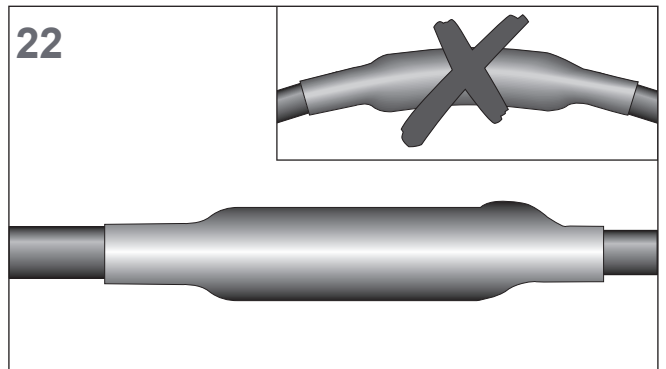
15

Joint completed.

Allow the joint to cool before applying any mechanical strain.

NOTE

Joint must be maintained straight.



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