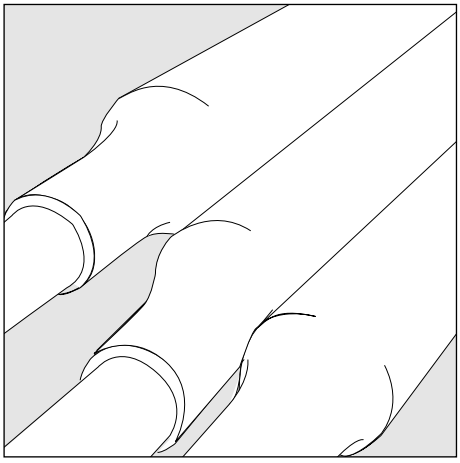
TE´s Raychem Cable Accessories



Installation Instruction EPP-0790-5/18

Joint for Single Core Polymeric Insulated Cables with Wire Screen 12 kV to 24 kV

Type: MXSU

Scan the Codes to get video support.

This installation manual contains video instructions.
Scan the QR Codes to get video support.

In the case of any inconsistency, the written installation instruction shall prevail.

To view the TE Connectivity 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 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-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.
In case of deviations in **table B**, please contact your sales representative.

Table A

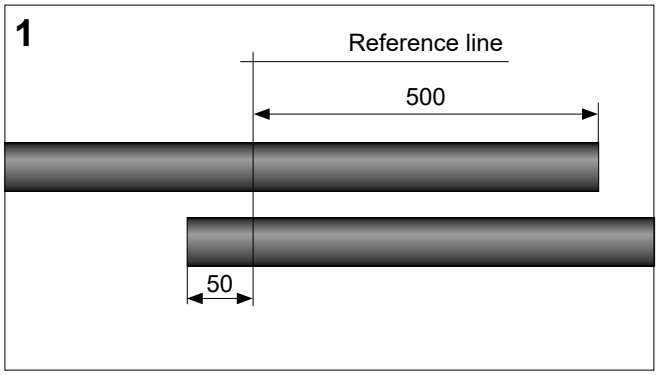
12 kV		17,5 kV		24 kV	
Kit number	**Kit range (mm^2)**	**Kit number**	**Kit range (mm^2)**	**Kit number**	**Kit range (mm^2)**
				MXSU-5101	10–35
MXSU-3111	25–95	**MXSU-4111**	50–95	**MXSU-5111**	25–95
MXSU-3121	70–150	**MXSU-4121**	70–150	**MXSU-5121**	50–150
MXSU-3131	95–240	**MXSU-4131**	120–240	**MXSU-5131**	95–240
MXSU-3132	150–300	**MXSU-4132**	150–300	**MXSU-5132**	150–300
MXSU-3141	240–400	**MXSU-4141**	240–400	**MXSU-5141**	240–400
MXSU-3151	500	**MXSU-4151**	500	**MXSU-5151**	500

Table B: Admissible cable dimensions for MXSU-joints

Kit number	Conductor Ø		Core insulation Ø		Outer cable Ø	
	min	max	min	max	min	max
	mm	mm	mm	mm	mm	mm
MXSU-3111	5.2	12.0	13.2	21.8	23.0	32.0
MXSU-3121	8.7	15.0	17.6	24.5	26.0	37.0
MXSU-3131	10.3	19.2	18.6	29.4	26.0	41.0
MXSU-3132	12.9	21.6	21.6	31.4	29.0	43.0
MXSU-3141	17.8	24.6	25.0	34.6	33.0	47.0
MXSU-3151	25.5	27.6	33.8	37.2	44.0	50.0
MXSU-4111	7.2	12.0	17.6	24.0	24.0	38.0
MXSU-4121	8.7	15.0	19.9	27.5	28.0	39.0
MXSU-4131	11.0	19.2	22.0	31.6	28.0	44.0
MXSU-4132	12.9	21.6	23.5	32.6	31.0	45.0
MXSU-4141	17.8	24.6	28.4	36.8	35.0	50.0
MXSU-4151	25.5	27.6	36.2	39.6	48.0	56.0
MXSU-5101	3.7	7.5	15.0	22.0	17.0	33.0
MXSU-5111	5.2	12.0	17.6	26.0	24.0	38.0
MXSU-5121	7.2	15.0	19.5	29.5	27.0	41.0
MXSU-5131	10.3	19.2	22.5	33.6	31.0	44.0
MXSU-5132	12.9	21.6	25.0	34.6	32.0	46.0
MXSU-5141	17.8	24.6	29.4	38.8	38.0	50.0
MXSU-5151	25.5	27.6	37.2	41.6	48.0	54.0

Cable Overlap

Overlap the cables as shown in the drawing.
Mark the reference line.



Cable Preparation

Remove the oversheath to dimension shown in Table 1.
Clean the remaining oversheath for about 1 m.
Bend back the shield wires onto the oversheath.
Fix the ends of the shield wires temporarely in place.

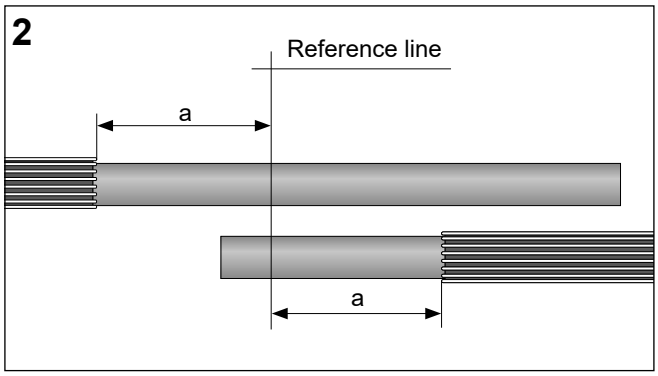


Table 1

12 kV			
Kit number	**Kit range (mm²)**	**a (mm)**	**l (mm)**
MXSU-3111	25–95	140	30
MXSU-3121	70–150	160	35
MXSU-3131	95–240	170	60
MXSU-3132	150–300	170	65
MXSU-3141	240–400	190	80
MXSU-3151	500	170	70

17.5 kV			
Kit number	**Kit range (mm²)**	**a (mm)**	**l (mm)**
MXSU-4111	50–95	140	30
MXSU-4121	70–150	160	35
MXSU-4131	120–240	170	60
MXSU-4132	150–300	190	65
MXSU-4141	240–400	190	80
MXSU-4151	500	190	70

24 kV			
Kit number	**Kit range (mm²)**	**a (mm)**	**l (mm)**
MXSU-5101	10–35	160	20
MXSU-5111	25–95	160	30
MXSU-5121	50–150	160	35
MXSU-5131	95–240	190	60
MXSU-5132	150–300	190	65
MXSU-5141	240–400	210	80
MXSU-5151	500	190	70

Video information:

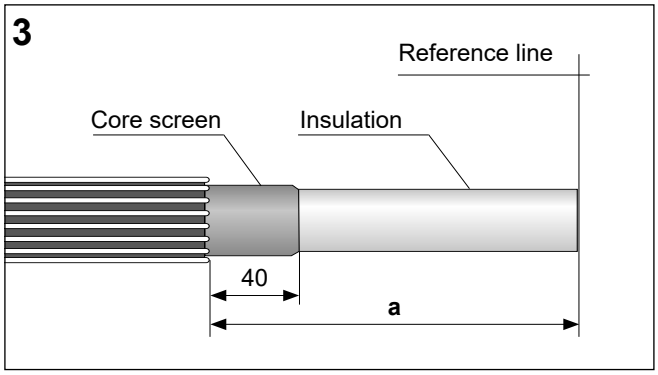
Core Preparation

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

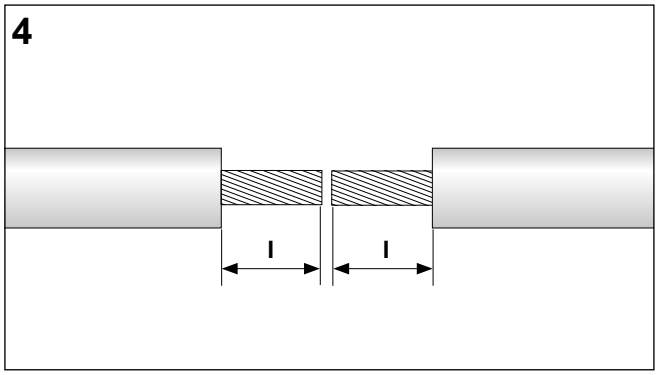
Thoroughly remove the core screen to the dimensions given in the drawing, so that the insulation surface is free from all traces of conductive material.

Clean and degrease the insulation.

Note: Do not nick the insulation!



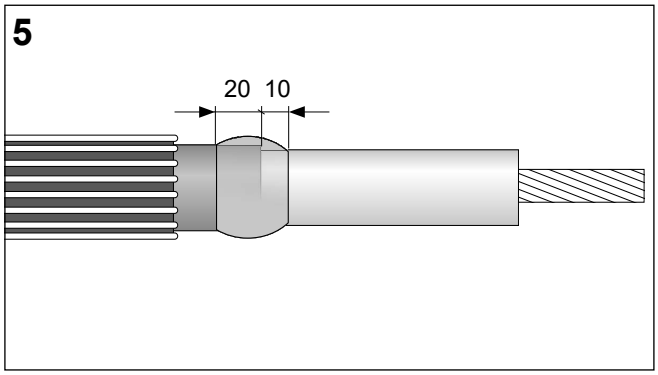
Remove the insulation on both cores equal to the insert depth **l** (see Table 1).



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

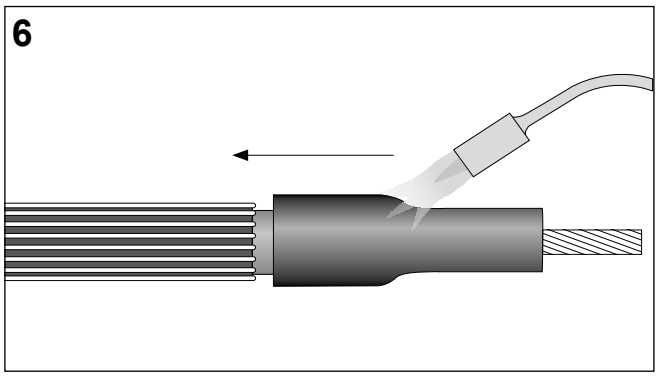
Wrap the void filler around the core screen starting 20 mm from the end of the screen and continue onto the insulation for 10 mm.

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



Slide the stress control tubing (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 drawing.

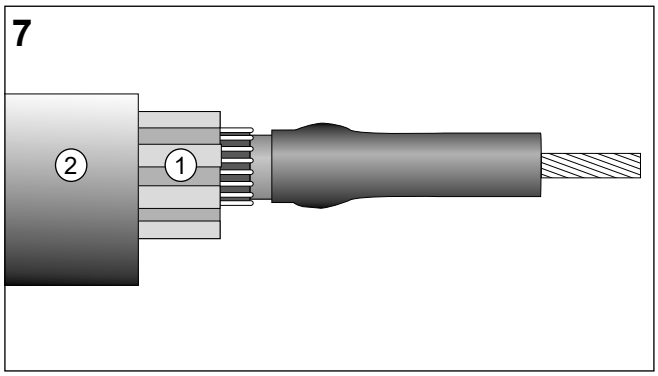


Completion of Joint

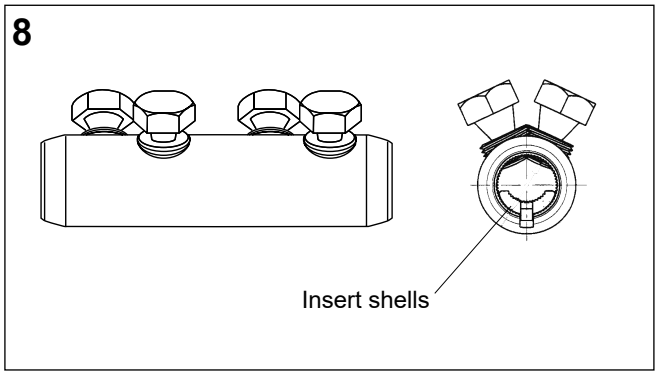
Slide a combined tubing set over one plastic cable core.

1 - Screened insulation sleeve (black and red)

2 - Outer sleeve (black)



Video information:



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 can not be inserted, remove the inserts from the connector bore.

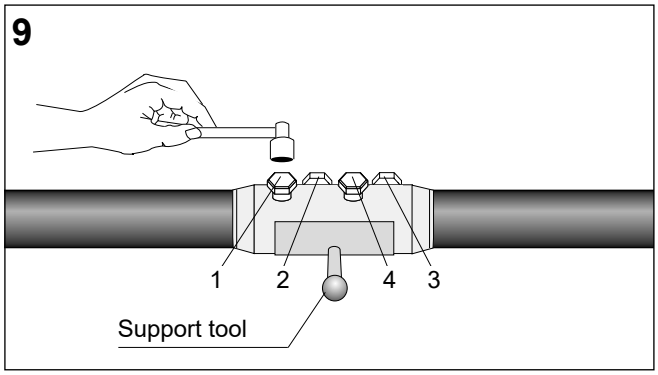
Clean and abrade the surface of the exposed conductor.

Insert the conductor so that the insulation butts against 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).

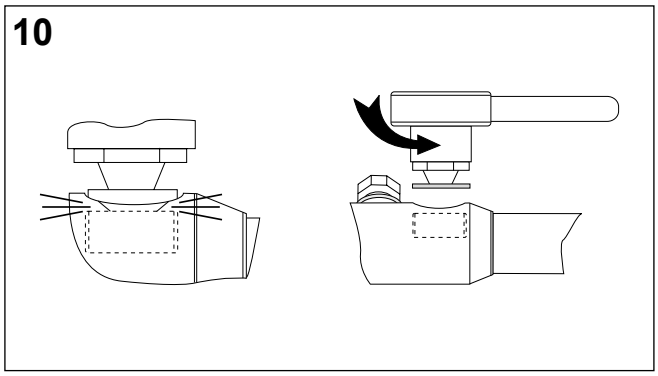
Notes:

- 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.



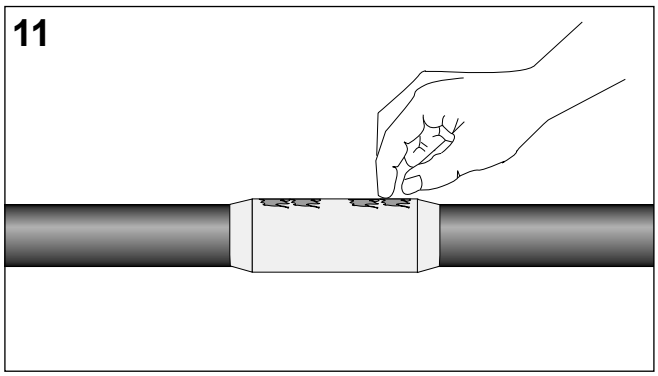
Smooth out any sharp edges of protruding bolts where appropriate. Clean and degrease the connector area and the insulation with a cleaning wipe.

It could be possible that the bolt shears but the top is retained in the connector body. In that case unscrew the head of the bolt until it is removed from the connector.



Clean and degrease the cable cores and the connector.

Fill TE´s Raychem clay over the sheared off bolts to obtain a smooth finish.

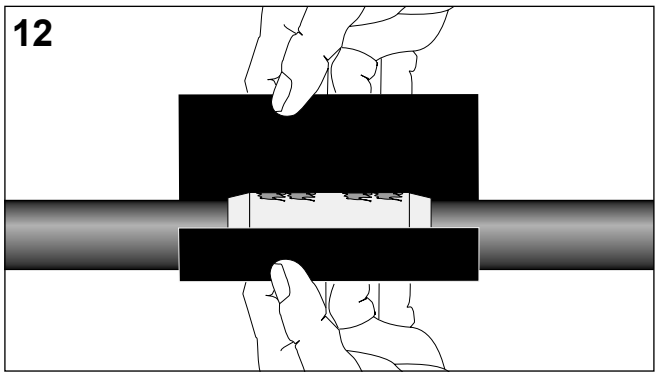


Remove the release paper from the stress grading patch (black). Position the patch centrally over the connector area.

Note: In case of a rectangular patch apply the long side across the connector.

Wrap the patch over the connector area starting at the connector bolts.

Note: Do not stretch the patch.



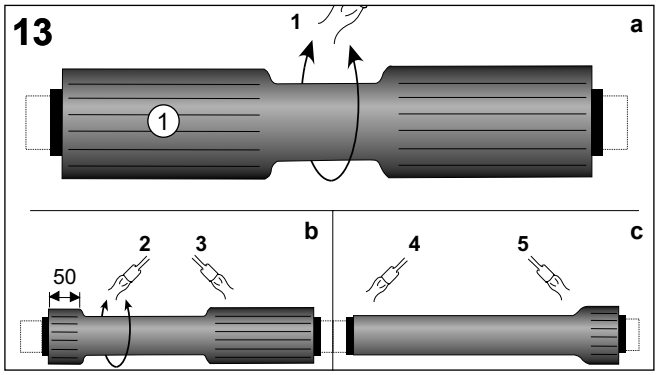
Video information:

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

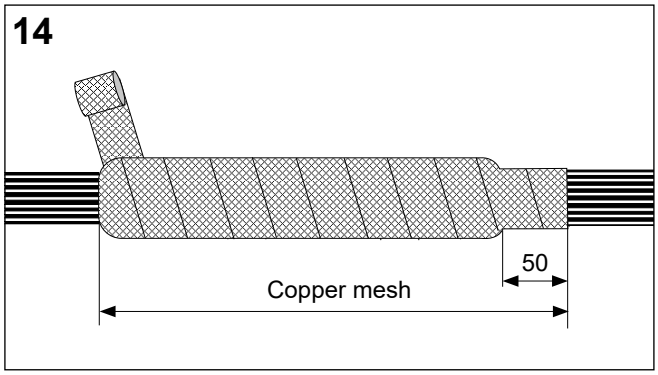
a. Start shrinking the sleeve in the centre (1).

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.



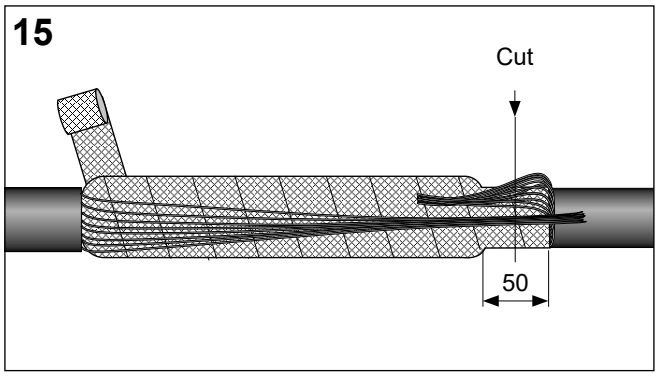
Starting with a 50 mm overlap onto the oversheath of the cable side with the short shield wires, wrap one layer of copper mesh round the joint with a 50% overlap.



Cable side with long shield wires:
Bend the shield wires back over the joint area.

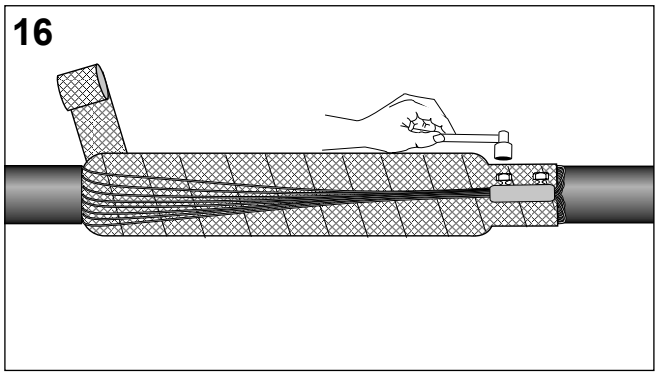
Cable side with the short shield wires:
Bend the shield wires back over the joint area close to the copper mesh.

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

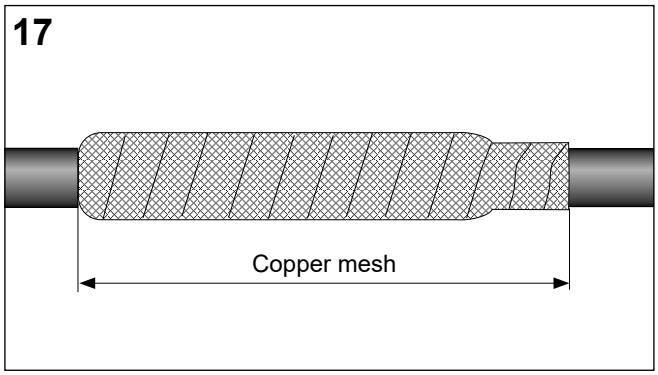


Form an earth lead of the shield wires and insert both ends into the mechanical shield connector supplied.

Tighten the bolts until the heads shear off.



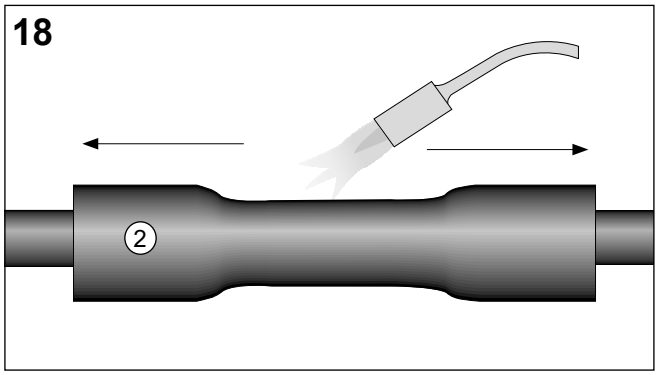
Wrap a second layer of copper mesh round the joint with a 50% overlap. Cover the complete joint area including the mechanical shield connector.



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

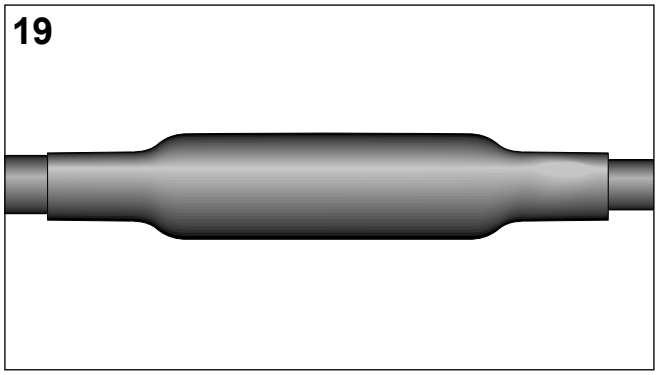
Centre the outer sleeve (black) over the copper mesh area.

Start shrinking in the centre, working towards the ends.



Joint completed.

Allow the joint to cool before applying any mechanical strain.



Please dispose of all waste according to environmental regulations.