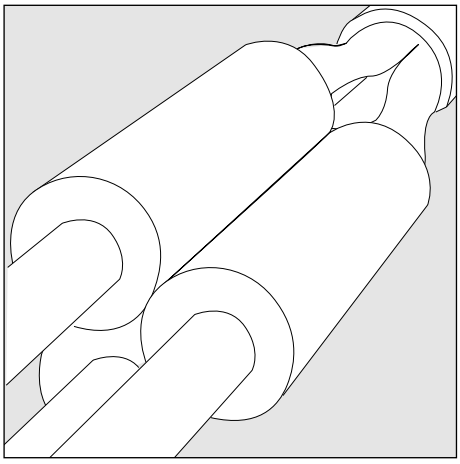
TE´s Raychem Cable Accessories



Installation Instructions EPP-2130-2/19

Joint for Single-Core Polymeric Insulated Cables 36 kV with Aluminium Wire Armour

Type: MXAW

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 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 MXAW-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 1** below.

Table 1

36 kV	
Kit number	**Range [mm²]**
MXAW-6121	**70 - 150**
MXAW-6131	**150 - 300**
MXAW-6141	**240 - 400**

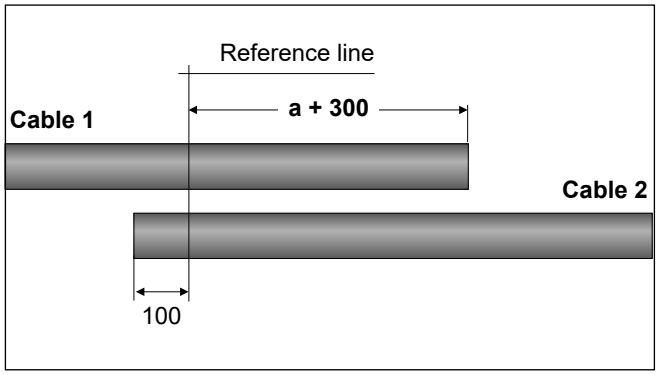
Table 2: Admissible Cable Dimensions for MXAW-Joints

Kit number	Conductor Ø		Core insulation Ø		Outer cable Ø	
	minimum	maximum	minimum	maximum	minimum	maximum
	mm	mm	mm	mm	mm	mm
MXAW-6121	**8.7**	**15.0**	**26.2**	**34.5**	**39**	**49**
MXAW-6131	**13.9**	**21.6**	**31.1**	**39.6**	**43**	**55**
MXAW-6131	**17.8**	**24.6**	**36.2**	**42.8**	**45**	**58**

Cable Overlap

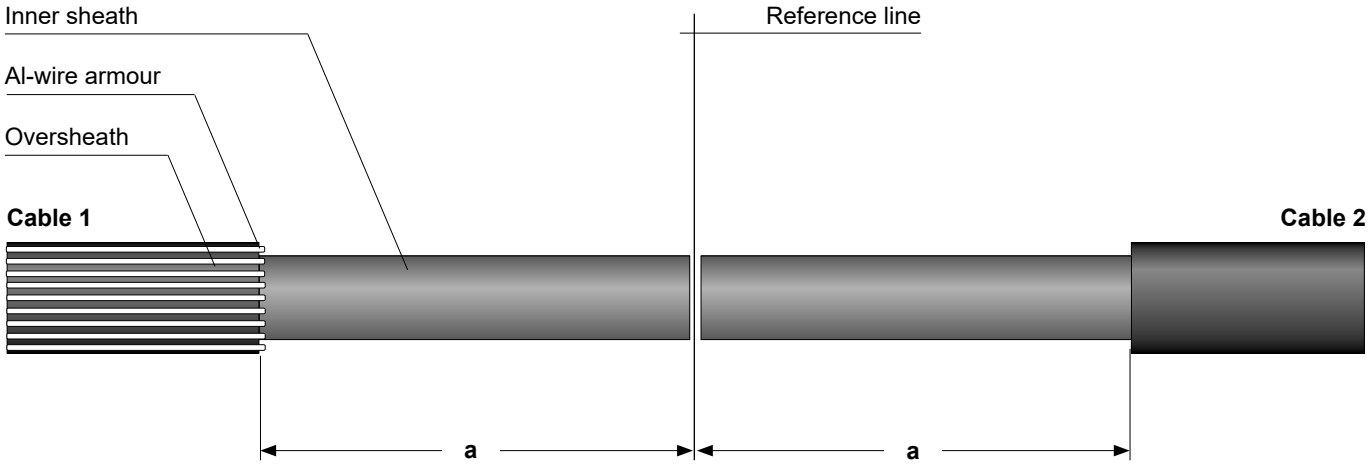
Overlap the cables to be jointed according to dimensions in drawing. For dimension **a** see **table 3** below.

Mark the reference line as shown in drawing.



Cable Preparation

Dimensions in mm



Remove the oversheath of both cables to dimension **a**, measured from the reference line.
Clean the remaining oversheath of both cables for about 600 mm.

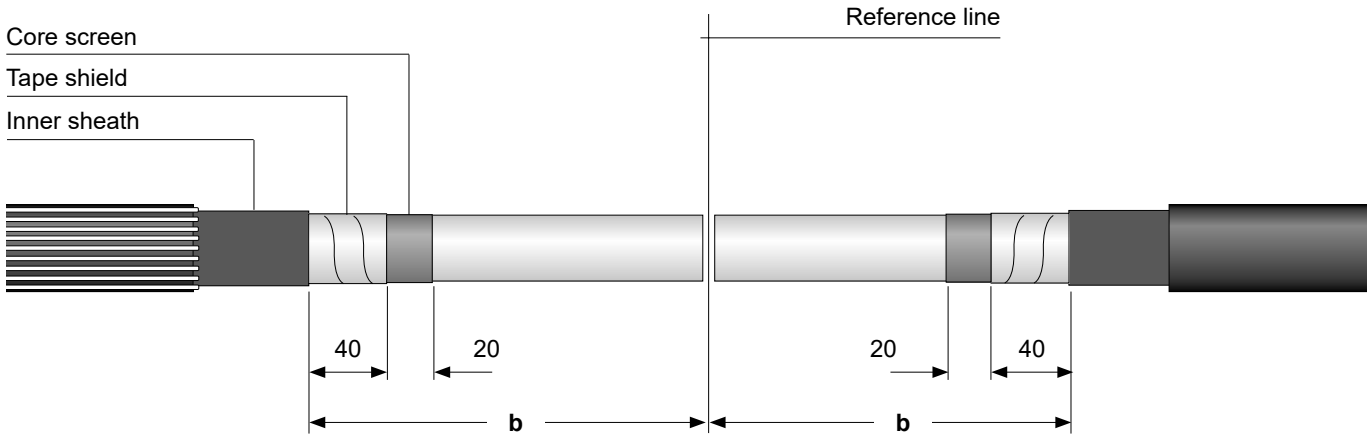
Cable 1: Do not cut the armour wires. Carefully bend them back away from the joint area.

Cable 2: Cut partly through the armour wires at the oversheath cut. Bend and break them off at this position.

Table 3

Voltage	Kit No.	Kit Range [mm²]	a [mm]	b [mm]	c [mm]
36 kV	MXAW-6121	70-150	310	210	200
36 kV	MXAW-6131	150-300	330	230	220
36 kV	MXAW-6141	240-400	330	240	220

A. Cable with Tape Shield

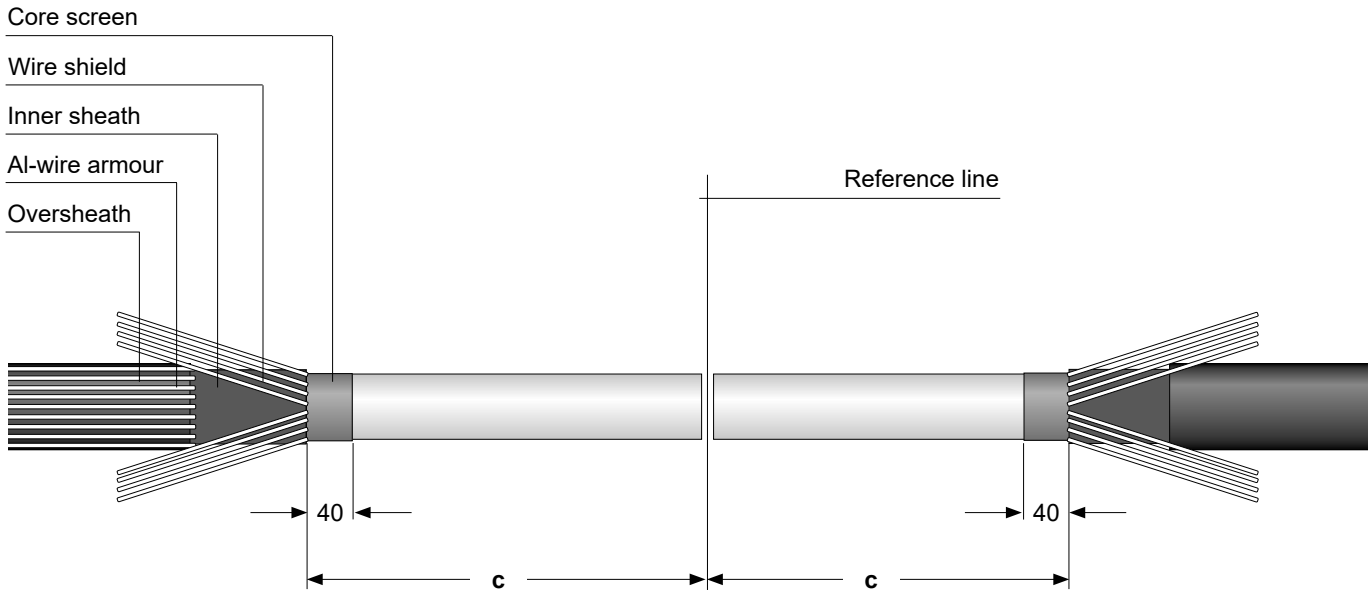


Cut the cores at the reference line. Remove the inner sheath to dimension **b** (see **table 3**).

Place a wire binder temporarily over the tape shield 40 mm away from the inner sheath cut.
Remove the tape shield against the wire binder.

Thoroughly remove the core screen to the dimension given in drawing, so that the insulation surface is free from all traces of conductive material.
Note: Do not nick the insulation!

B. Cable with Copper Wire Shield



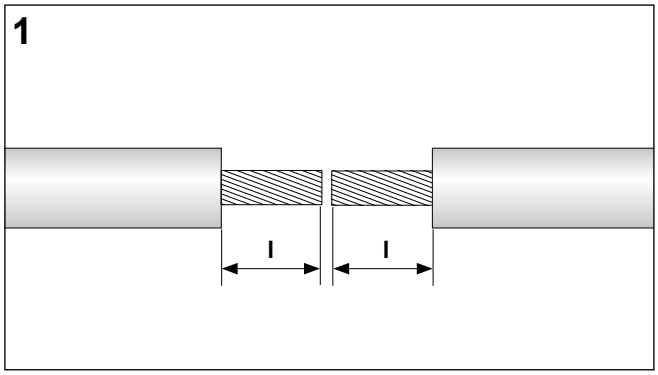
Remove the inner sheath to dimension **c** (see **table 3**). Bend back the shield wires onto the oversheath. Cover the sharp wire ends with plastic tape. Cut the cores at the reference line.

Thoroughly remove the core screen to the dimension given in drawing, so that the insulation surface is free from all traces of conductive material.
Note: Do not nick the insulation!

Remove the insulation on both cores equal to the insert depth of the connector **l** (see **table 4**).

Table 4

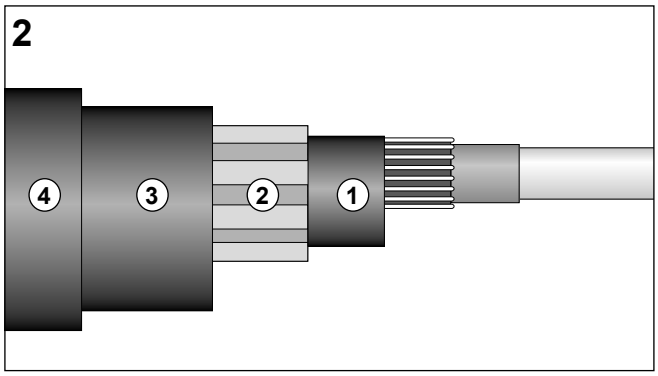
36 kV		
Kit number	**Kit range [mm²]**	**l [mm]**
MXAW-6121	**70-150**	**35**
MXAW-6131	**150-300**	**65**
MXAW-6141	**240-400**	**80**



Completion of Joint

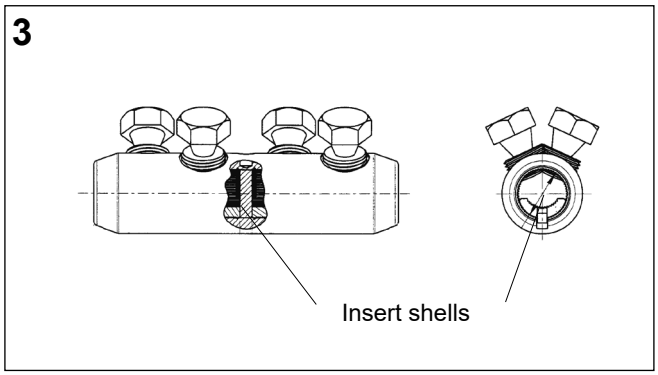
Slide the screened insulation sleeve, the inner sleeve and the outer sealing sleeve **over the cable end where the armour wires are still covered.**
The plastic bag of the tubing set can be used as an additional protection by placing it under the tubing set.
1. Stress control sleeve (black)
2. Screened insulation sleeve (black/red)
3. Inner sealing sleeve (black)
4. Outer sleeve (black)

Note: If the tubings cant all be nested together as shown, position them behind each other, so that they can be installed in the sequence 1 - 2 - 3 - 4.
Do not park any tubings on the other cable side.

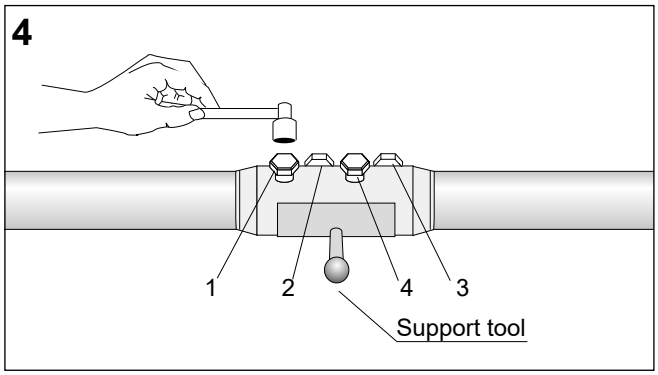


Installation of the mechanical connector

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 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).

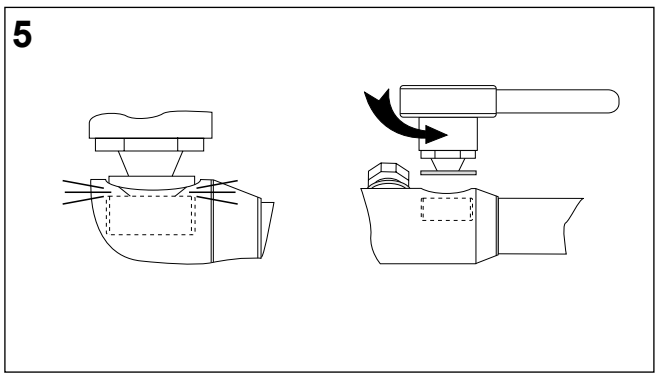


Note:

- 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.

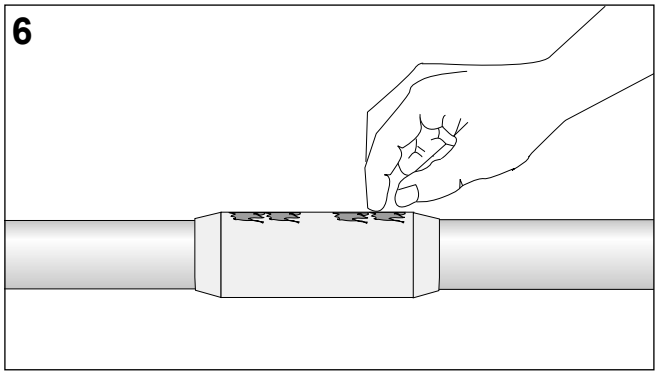
Smooth out any sharp edges of protruding bolts where appropriate. Clean and degrease the connector area and the insulation with a cleaning wipe.

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.



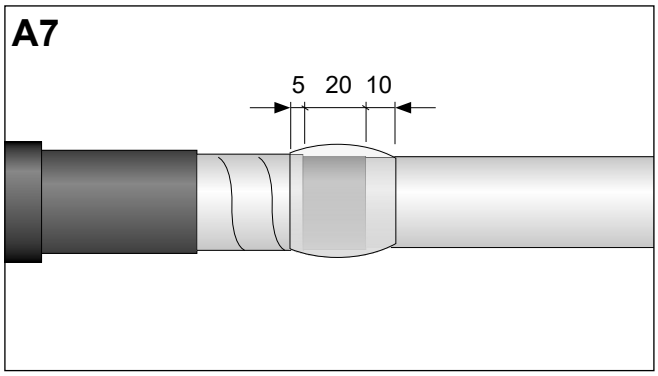
Clean and degrease the cable cores and the connector.

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



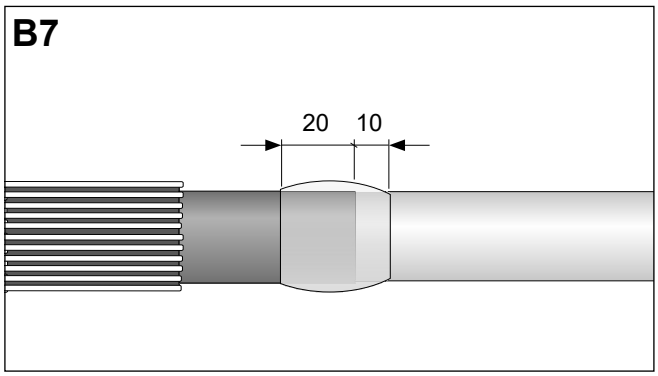
A. Cable with Tape Shield

Remove the wire binder from the end of the tape shield.
Take the yellow void filling strip from the aluminium foil bag. Remove the release papers from the strip with the pointed ends.
Fix the metal tape shield into place by wrapping the yellow void filler for 5 mm around it.
Continue over the core screen covering the insulation for 10 mm. Stretch the strip to half of its original width to achieve a fine thin edge.

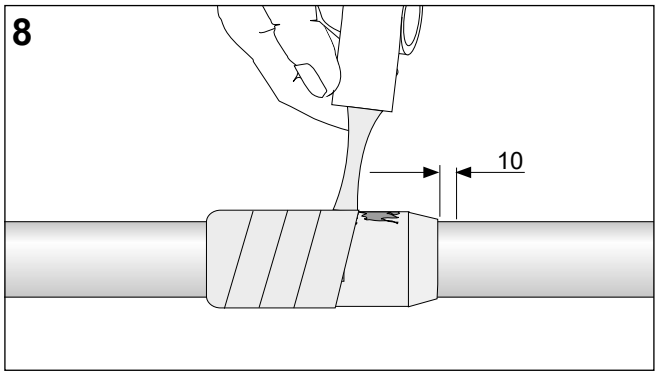


B. Cable with Wire Shield

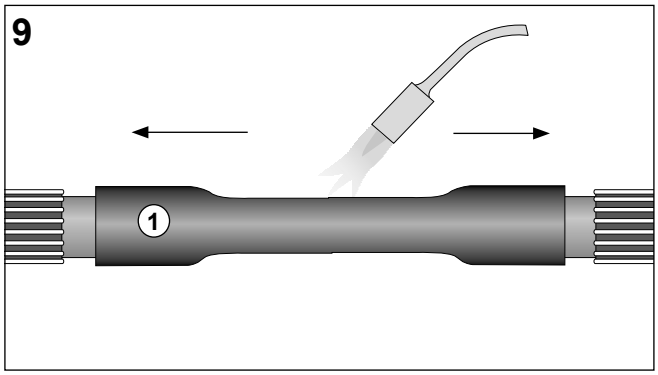
Take the yellow void filling strip from the aluminium foil bag. Remove the release papers from the strip with the pointed ends.
Wrap the void filler around the core screen, starting 20 mm from the end of the screen and continue onto the insulation for 10 mm.
Stretch the strip to half of its original width to achieve a fine thin edge.



Remove the printed release paper from the void filling tape (yellow). Apply the tape 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. Use the filler to achieve a smooth transition from the connector onto the insulation.
Note: Do not use too much void filler, max. 2 mm over the connector



Pull the stress control sleeve (black) from the inside of the tubing set and position it centrally over the connector. Start shrinking in the centre working towards the ends. The tubing should be fully shrunk and wrinkle free.



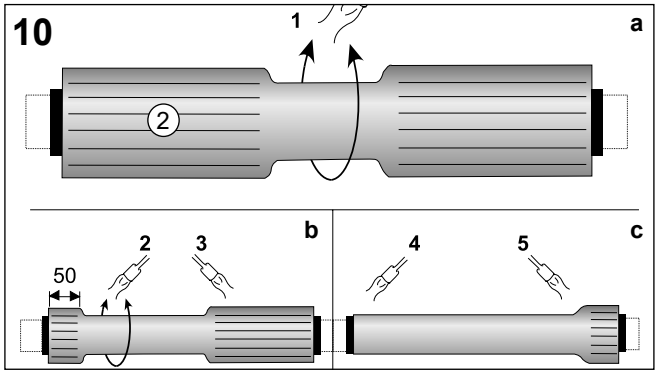
Position the screened insulating sleeve (black and red) centrally over the connector area.

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**).

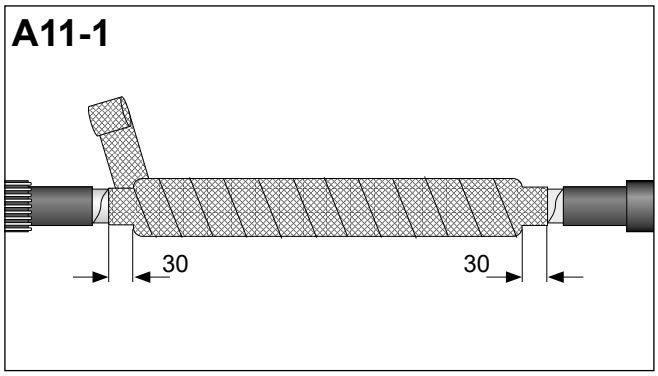
c. Shrink down the first end (**4**) and finally the second end (**5**).

The sleeve should be fully shrunk without leaving ridges.



A. Cable with Tape Shield

Wrap two layers of copper mesh with a 50 % overlap round the joint area, continuing for 30 mm onto the tape shield.

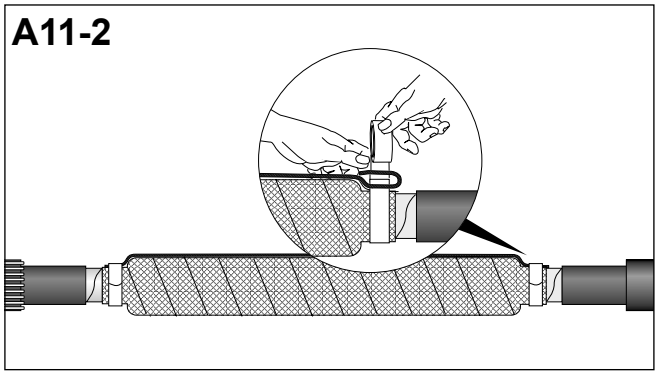


Position the earth lead across the joint and secure temporarily with an adhesive tape.

Fix a roll spring over the copper mesh and the earth lead where they cover the tape shield of the cable.
Wrap the roll spring twice over the copper mesh and the individual earth lead.

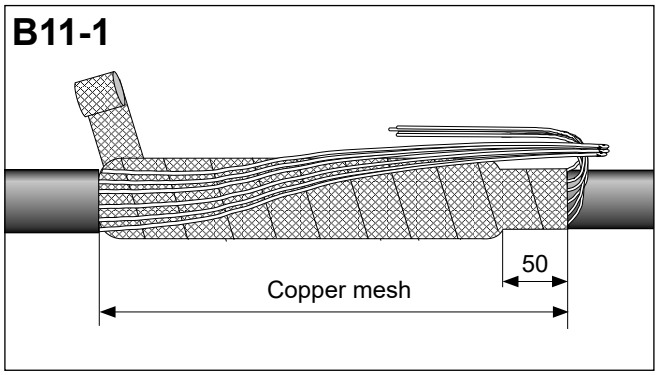
Fold the end of the earth lead back over the roll spring.
Wrap the rest of the roll spring over the earth lead and tighten with a twisting action.

Fix it into place with two layers of adhesive tape.



B. Cable with Wire Shield

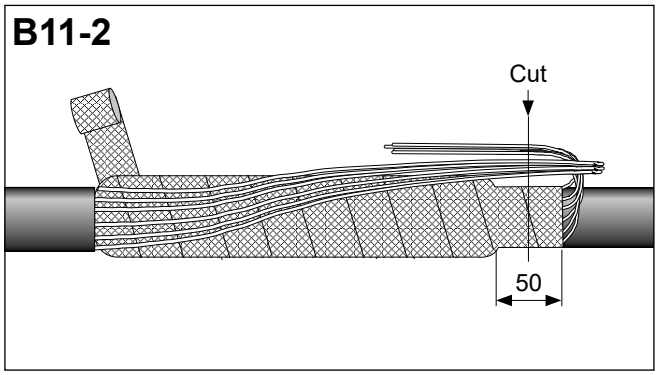
Starting with a 50 mm overlap onto the oversheath of the cable side with the short shield wires, wrap one layer of copper mesh round the joint with a 50% overlap.



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.

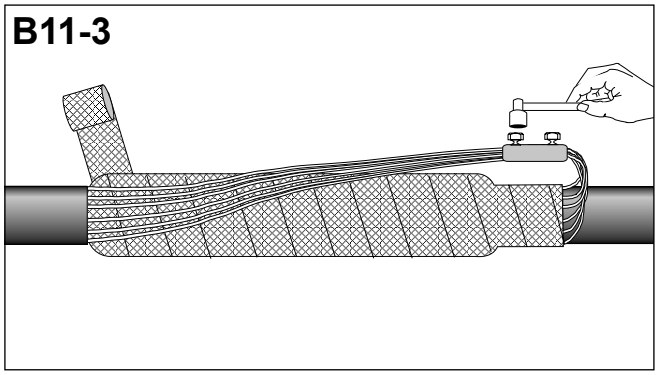
Gather the wires together and cut them centrally above the 50 mm copper mesh overlap on the cable oversheath.



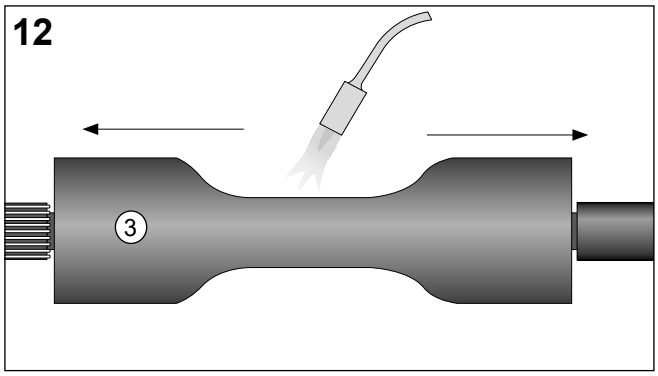
Connect the shield wires by crimping or any other equivalent method.

Distribute the shield wires evenly over the joint area.

Wrap a second layer of copper mesh tape round the joint with a 50% overlap so that the whole joint area is covered.

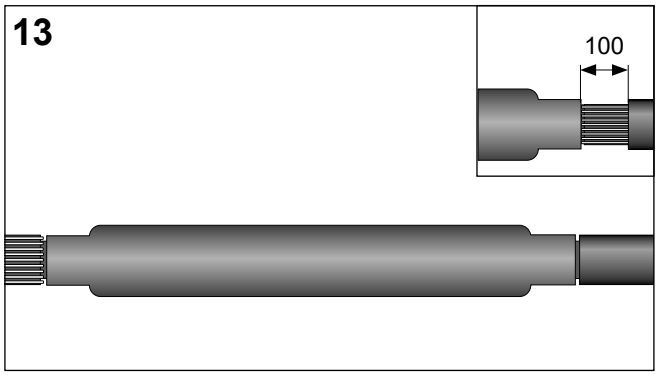


Centre the inner sealing sleeve (black) over the joint area. Start shrinking in the centre, working towards the ends. This sleeve is to seal on to the cable inner sheath.

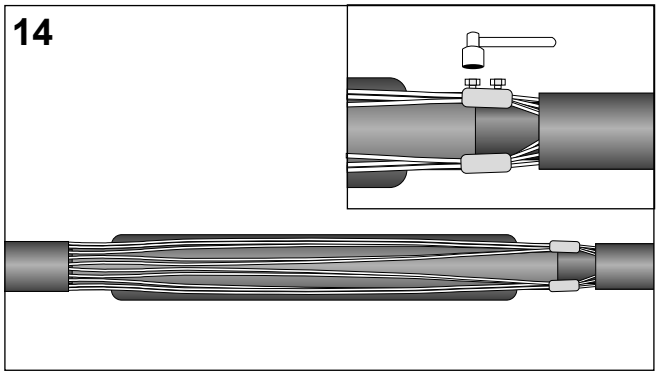


Carefully remove 100 mm of the oversheath on cable 2. Do not cut the armour wires.

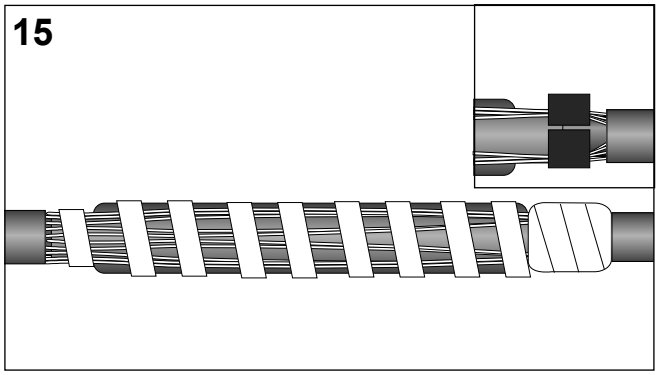
Lift the armour wires and thoroughly clean them. Separate the armour wires and form equal bunches to suit the number of armour wire connectors included in the joint kit.



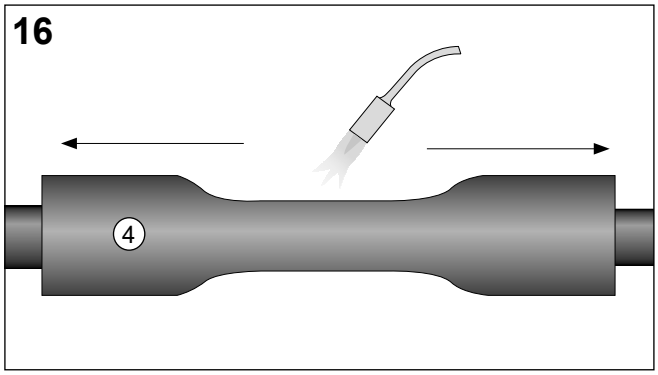
Thoroughly clean the armour wires from cable 1. Separate the armour wires and form equal bunches, according to the number of the mechanical connectors supplied with the kit.
Fold back the long armour wires tightly across the joint, cut to length, and connect them using the mechanical connectors provided. Shear off the connector bolts.



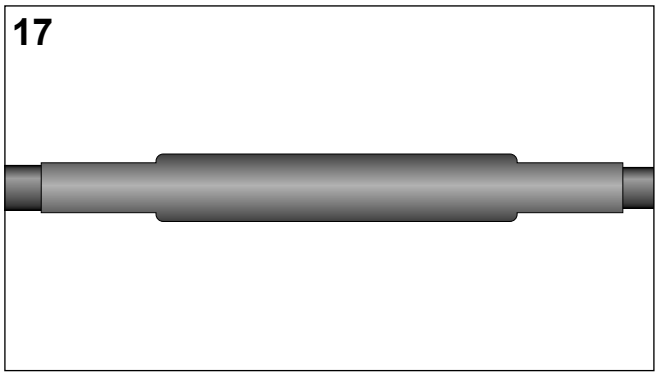
Wrap a piece of the inner bedding or of the cable sheath over the connectors.
Using the adhesive cotton tape provided, ensure all the wires are close to the cable and tubing set over the length of the joint and that there are no sharp edges.



Abrade and degrease the cable jacket for 100 mm at both sides of the joint.
Position the outer sealing sleeve centrally, then shrink the outer sleeve (black) down starting in the centre and working towards the ends.



The joint is now completed.
Allow to cool before moving.



Please dispose of all waste according to environmental regulations.