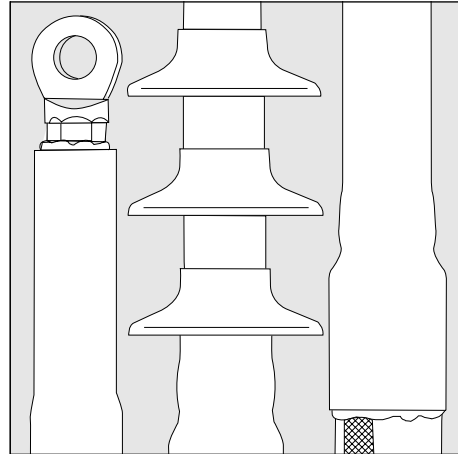




TE's Raychem Cable Accessories



Installation Instructions EPP-0403-5/19

Terminations Polymeric Insulated Cables 72 kV

OHVT/IHVT

To view the TE Energy website:



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General Instructions

Before Starting

- Check the kit label and the title of the installation instructions to prove that the cable accessory you are going to use matches the cable.
- Make sure the cable is properly sealed.
- Make sure the cable is in the final installation position.
- Make sure the cable is straight at the jointing position.
- Check the position of the cables to be in alignment to the final position of the accessories.
- Make sure the joint bay/installation area provides adequate space for the cable components to be parked on either cable for later use during the installation.
- The joint bay/Installation area must be kept clean and dry during installation. For outdoor installation use tent or other appropriate shelter.
- Carefully read and follow the steps in the installation instructions. Components or working steps may have been changed/improved since you last installed this product.
- All tools, PPE and apparatus used must be kept clean during the installation.
- Obey relevant and local security and safety rules during the installation.

Shrinking Heat-Shrink Tubing

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 adhesives.

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

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

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.

Stripping the Cable

Use appropriate stripping tools for smooth and even insulation diameter.

Adjust the stripping tool to the thickness of the semi-conductive layer. Avoid removing too much of the insulation.

Polish the stripped surface by hand using the supplied abrasive paper beginning with the lowest grid size, or by an appropriate sanding machine and abrasive paper and grades. The surface of the insulation must be even and free of all traces of conductive material.

Cables with Segmented Conductors

All cut back dimensions and information given in this instructions document refer to cables with non-segmented conductors only. In case of cables with segmented conductors, all insulation or conductive materials have to be removed from the conductor. If the removal of these materials require a longer cut back of the cable insulation, this length needs to be added to the cable cut back dimensions mentioned in the instructions.

NOTE: Special instructions for segmented conductors are available on request.

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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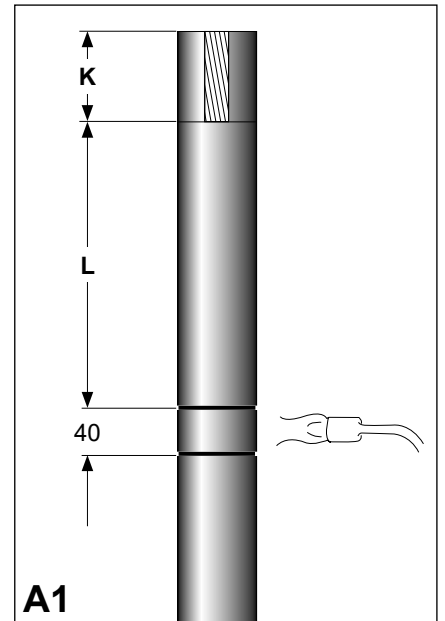
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Cable Preparation

A. Cables with wire shield and laminated foil

Table 1

L Indoor mm	L Outdoor mm	K Crimped Connection	K Mechanical Connection
750	1000	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm



Mark the oversheath segment to be removed on the oversheath.

Heat the oversheath segment with a propane flame until it is soft.

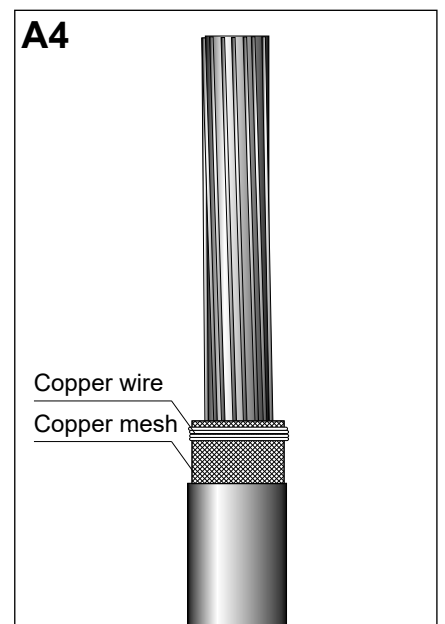
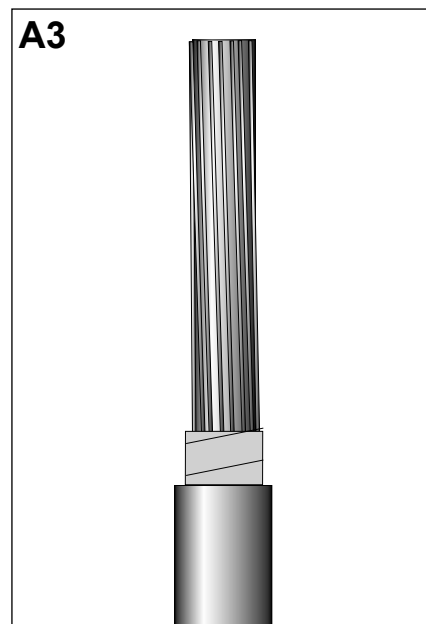
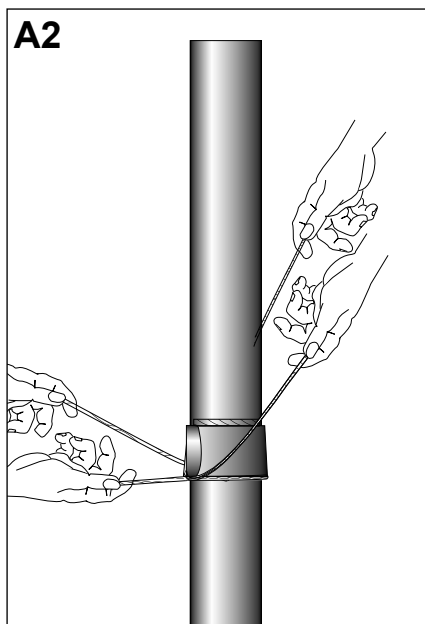
With the string, cut through the oversheath. Remove the oversheath from the metal foil by slicing segments away with the string as shown in the drawing.

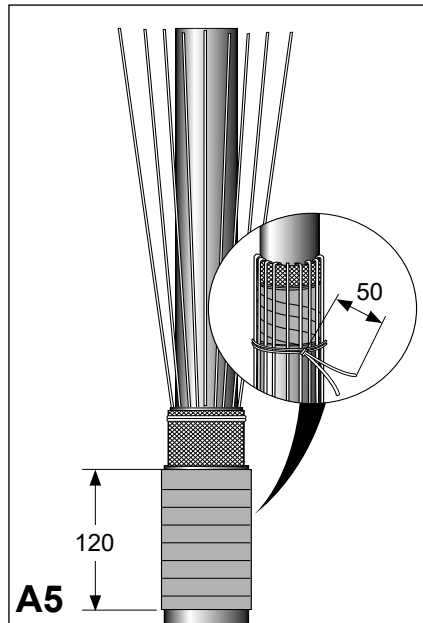
Clean the metal foil from oversheath traces.
Protect the metal foil with a PVC tape.
Remove the oversheath, foil and bedding.

For cables with graphite coating or semiconductive layer remove the conductive coating or layer for a length of about 500 mm.

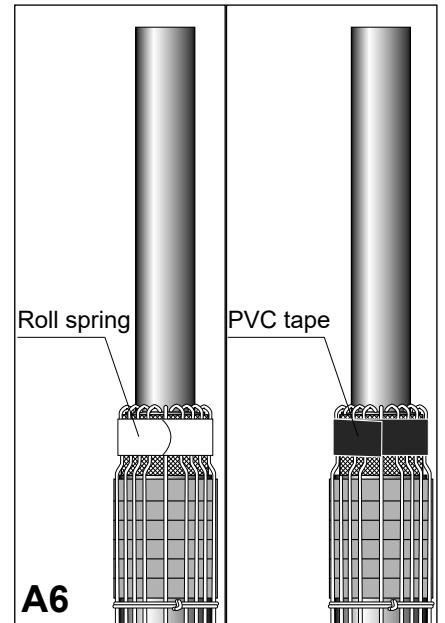
Clean the end of the oversheath for up to 200 mm.

Break the edge with a rough file. Remove the PVC tape. Smooth the surfaces of the metal foil with a very fine grinding cloth. Wrap three layers of copper mesh over the metal foil. Fix the copper mesh in place with a copper wire.





Apply red sealant with slight tension on 120 mm of the overshath. Bend the screen wire back and tie them temporarily to the overshath with a copper wire just below the red sealant. Leave the ends 50 mm long.



Install the roll spring around the screen wires. Tighten the roll spring with a twisting action. Protect the roll spring with PVC tape.

Thoroughly remove the core screen to within 100 mm of the overshath cut. The surface of the insulation should be free from all traces of conductive material.

Chamfer the core screen for 15–20 mm.

Polish the insulation up to 350 mm above the screen cut.

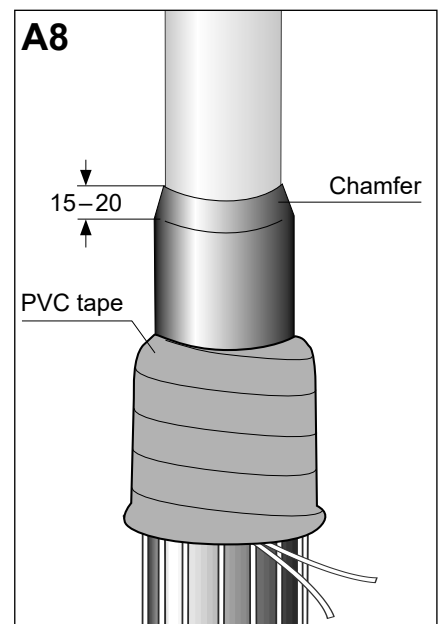
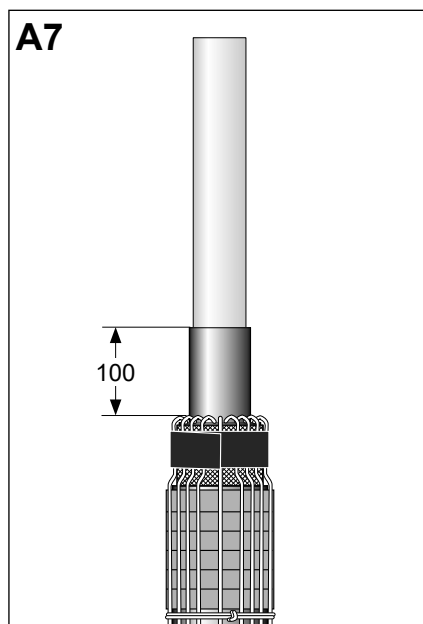
NOTE

Do not nick the insulation.

Protect the red sealant below with PVC tape from contamination.

When completed **remove** the PVC tape.

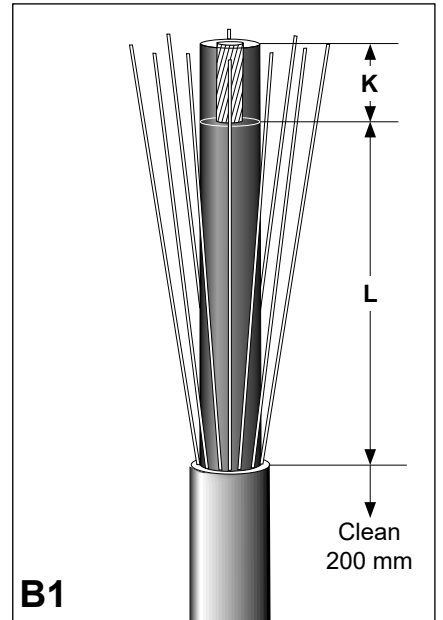
Continue with step 9.



B. Cables with wire shield

Table 2

L Indoor mm	L Outdoor mm	K Crimped Connection	K Mechanical Connection
750	1000	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm



Remove the oversheath to dimension **L + K** given in **table 2**.

For cables with graphite coating or semiconductive layer remove the conductive coating or layer for a length of about 500 mm.

Clean the end of the oversheath for up to 200 mm.

Chamfer the core screen for 15–20 mm.

Polish the insulation up to 350 mm above the screen cut.

NOTE

Do not nick the insulation. Protect the red sealant tape below with PVC tape from contamination.

When completed remove the PVC tape.

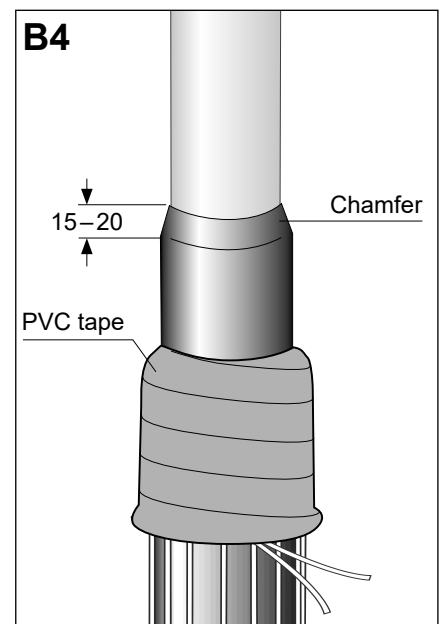
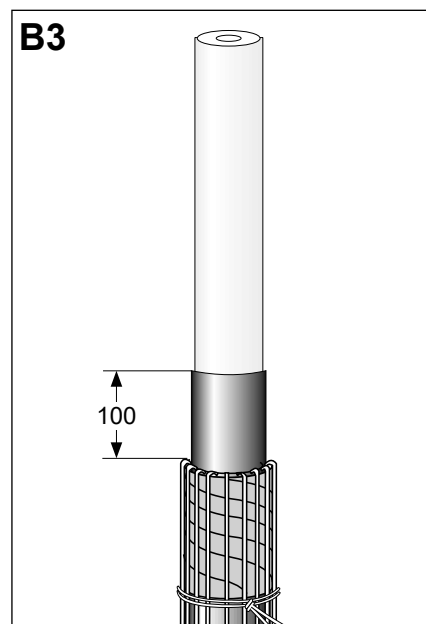
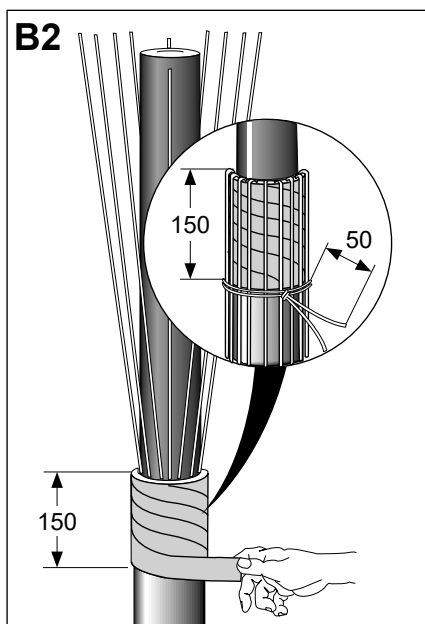
Continue with step 9.

Apply sealant (red) with slight tension over 150 mm of the oversheath.

Bend back the screen wires.

Tie the wires with a copper wire binder to the oversheath just below the red sealant tape. Leave wire ends 50 mm long.

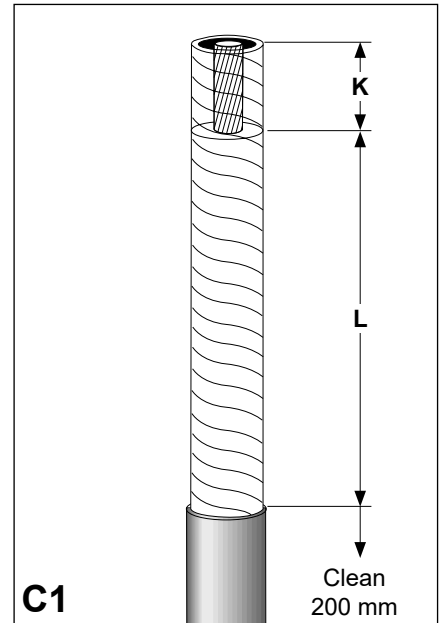
Thoroughly remove the core screen to within 100 mm of the oversheath cut. The surface of the insulation should be free from all traces of conductive material.



C. Cables with tape shield

Table 3

L Indoor mm	L Outdoor mm	K Crimped Connection	K Mechanical Connection
790	1040	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm



Remove the oversheath to dimension **L + K** given in **table 3**.

For cables with graphite coating or semiconductive layer remove the conductive coating or layer for a length of about 500 mm.

Clean the end of the oversheath for up to 200 mm.

Chamfer the core screen for 15–20 mm.

Polish the insulation up to 350 mm above the screen cut.

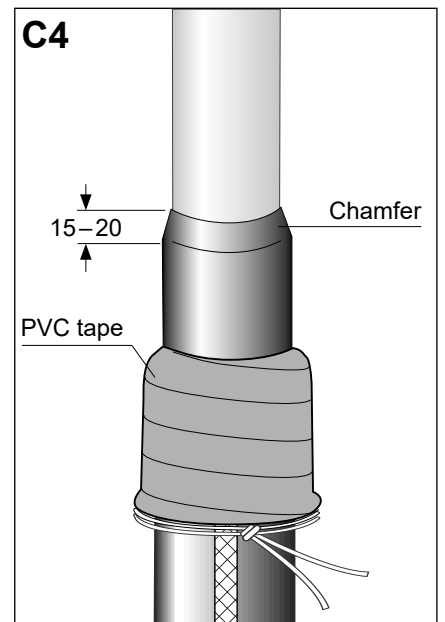
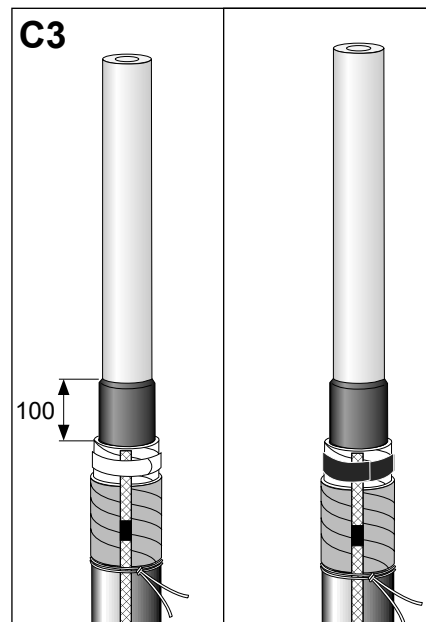
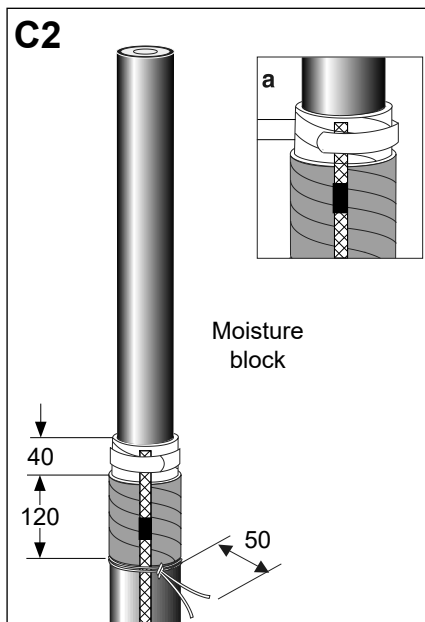
NOTE

Do not nick the insulation. Protect the sealant (red) below with PVC tape from contamination. When completed **remove** the PVC tape.

Continue with step 9.

Remove the tape screen to within 40 mm of the oversheath cut. Apply sealant (red) with slight tension over 120 mm of the oversheath. Place the copper conductor onto the metal tape shield (**detail a**). Fix the copper conductor to the tape screen with the roll spring. Tie the copper conductor with a copper wire to the oversheath just below the sealant (red) leaving the wire ends 50 mm long.

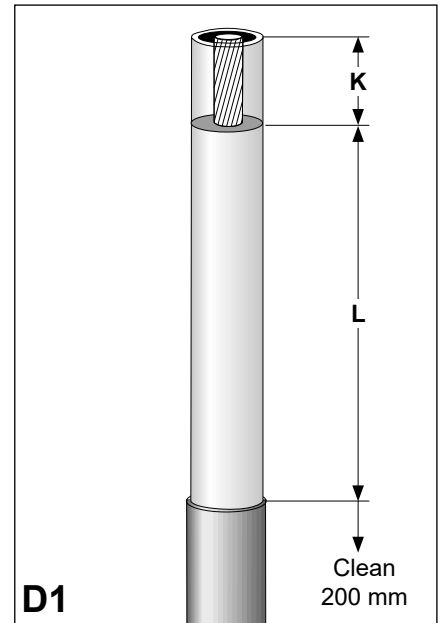
Thoroughly remove the core screen to within 100 mm of the tape screen cut. The surface of the insulation should be free from all traces of conductive material. Protect the roll spring with PVC tape.



D. Cables with lead sheath

Table 4

L Indoor mm	L Outdoor mm	K Crimped Connection	K Mechanical Connection
790	1040	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm



Remove the overshooth to dimension **L + K** given in **table 4**.

For cables with graphite coating or semiconductive layer remove the conductive coating or layer for a length of about 500 mm.

Clean the end of the overshooth for up to 200 mm.

Remove the lead sheath to within 40 mm from the overshooth. Apply sealant (red) with slight tension over 120 mm of the overshooth. Apply the copper mesh on the lead sheath. Place the copper conductor onto the copper mesh (**detail a**). Fix the copper conductor to the copper mesh with the roll spring. Tie the copper conductor with a wire binder to the overshooth just below the sealant (red). Leave the wire ends 50 mm long.

Chamfer the core screen for 15–20 mm.

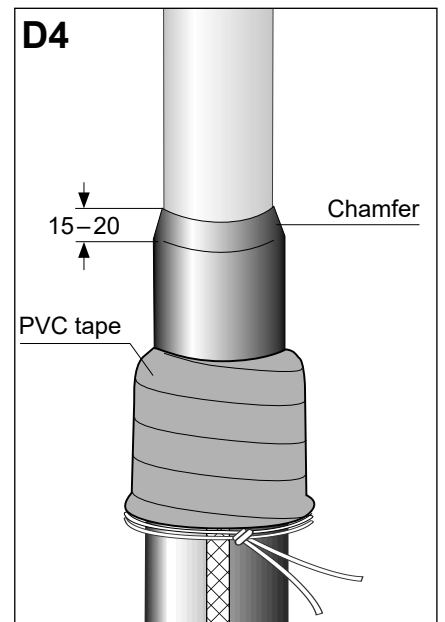
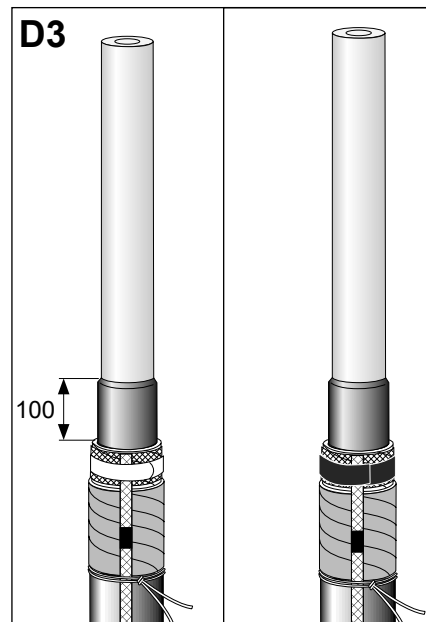
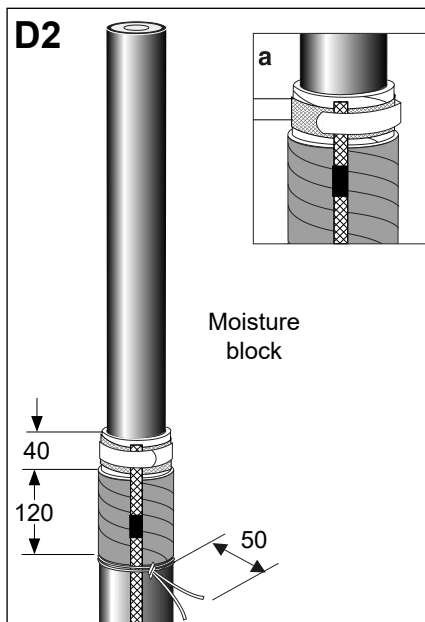
Polish the insulation up to 350 mm above the screen cut.

NOTE

Do not nick the insulation. Protect the red sealant tape below with PVC tape from contamination. When completed remove the PVC tape.

Continue with step 9.

Thoroughly remove the core screen to within 100 mm of the lead sheath cut. The surface of the insulation should be free from all traces of conductive material. Protect the roll spring with PVC tape.



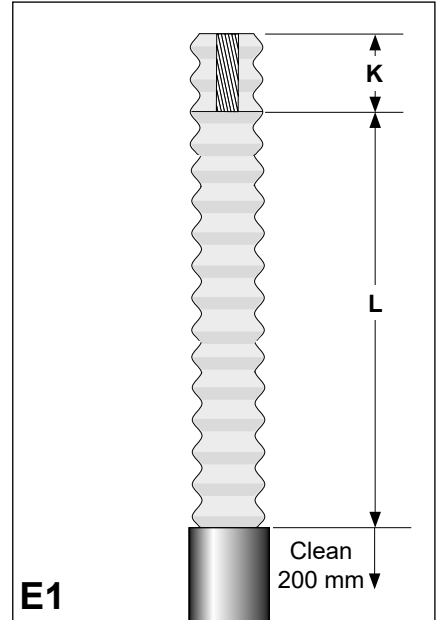
E. Cables with Corrugated Aluminium Sheath (CAS)

Table 5

L Indoor mm	L Outdoor mm	K Crimped Connection	K Mechanical Connection
790	1040	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm

Remove the CAS 40 mm from the overshooth. Thoroughly clean the exposed aluminium.
 Apply sealant (red) with slight tension over 120 mm of the overshooth.
 Overlap the sealant (red) on to the CAS by 10 mm.
 Form the punched contact plate into a circular shape and position it centrally around the exposed CAS.
 Position the copper conductor symmetrically around the cable with the copper conductor ends on the contact strip. Clamp the copper conductor to the contact plate using two hose clamps positioned centrally over the contact plate.
 Apply a tinned copper wire around the cable and copper conductor in the position as shown, leaving at least 50 mm wire tails.

Cover the sharp edges of the clamps with 3 layers of textile tape.
 Thoroughly remove the core screen to within 100 mm of the aluminium sheath cut. The surface of the insulation should be free from all traces of conductive material.

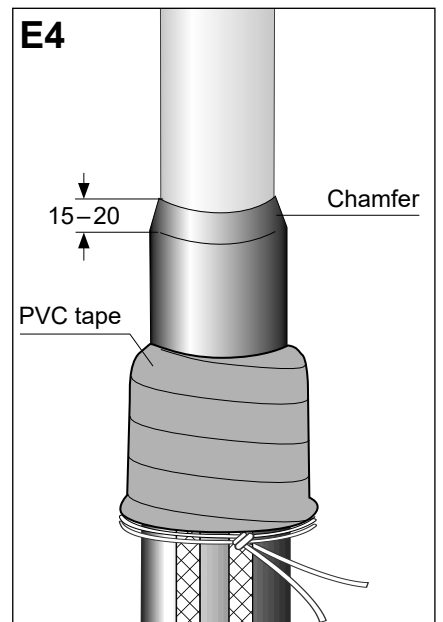
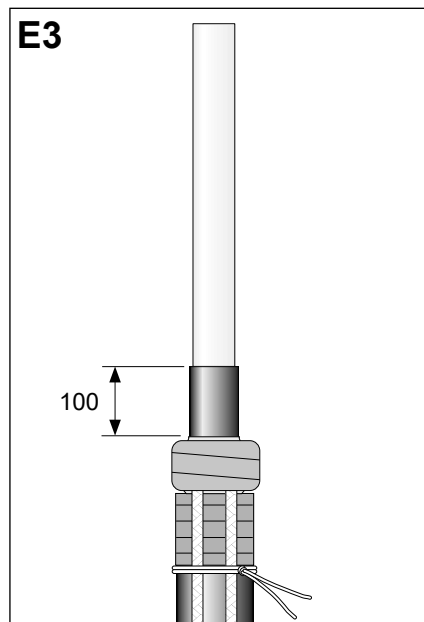
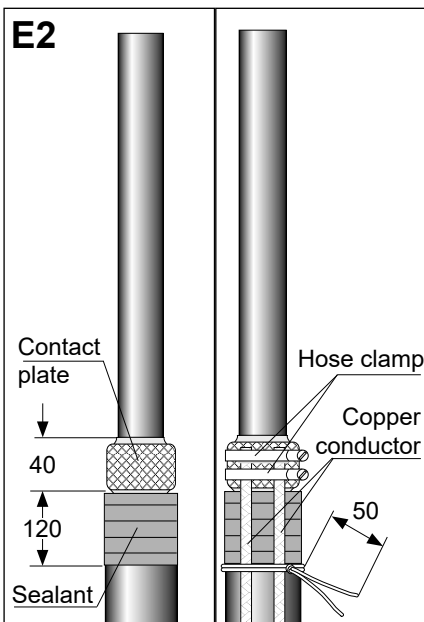


Remove the overshooth to dimension **L + K** given in **table 5**.
 For cables with graphite coating or semiconductive layer remove the conductive coating or layer for a length of about 500 mm.
 Clean the end of the overshooth for up to 200 mm.

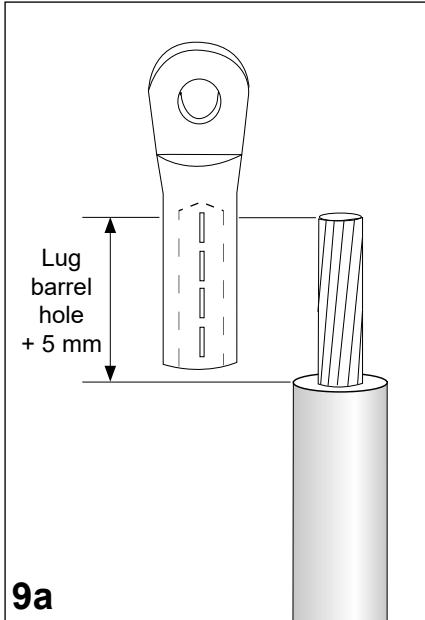
Chamfer the core screen for 15–20 mm.
 Polish the insulation up to 350 mm above the screen cut.

NOTE
 Do not nick the insulation. Protect the red sealant tape below with PVC tape from contamination. When completed **remove** the PVC tape.

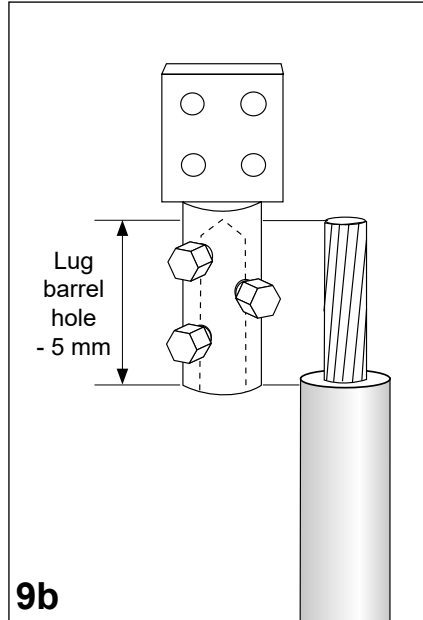
Continue with step 9.



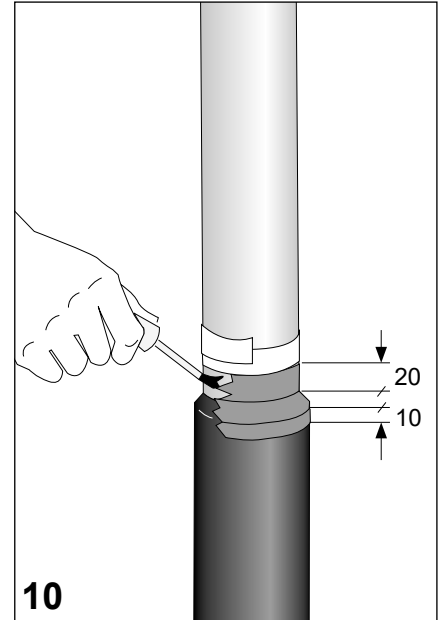
Completion of the Termination



Cut back the insulation according to cable lug barrel hole **+ 5 mm**.



Cut back the insulation according to cable lug barrel hole **- 5 mm**.



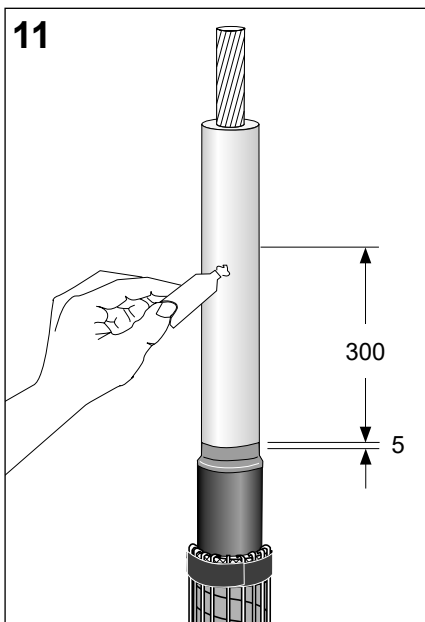
Apply PVC tape (adhesive side up) on the core insulation. Leave a distance of approx. 20 mm between the tape and core screen.

Shake the bottle of conductive paint thoroughly.

Apply the conductive paint onto 20 mm of the insulation, continue onto the screen for approx. 10 mm.

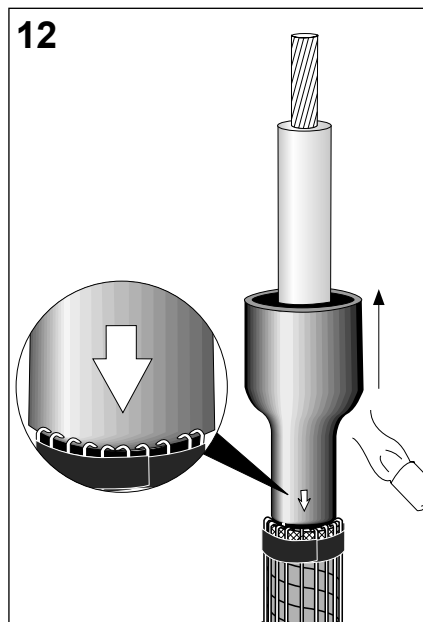
When dry remove the PVC tape.

Apply a thin film of silicone grease. Cover 5 mm of the conductive paint and 300 mm of the insulation.



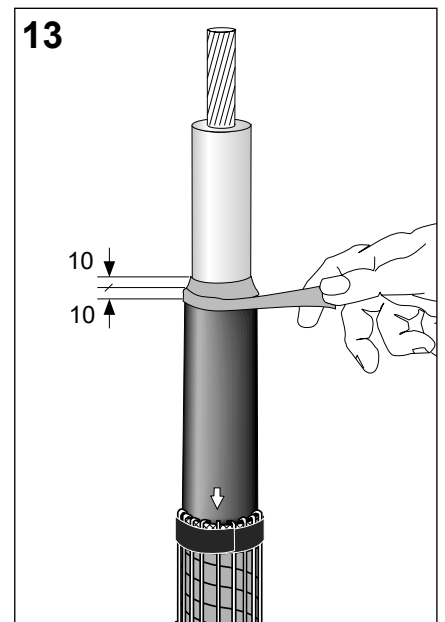
Place the long stress control tubing (black) over the 100 mm of core screen with the arrow pointing downwards. Shrink down starting at the bottom and working upwards.

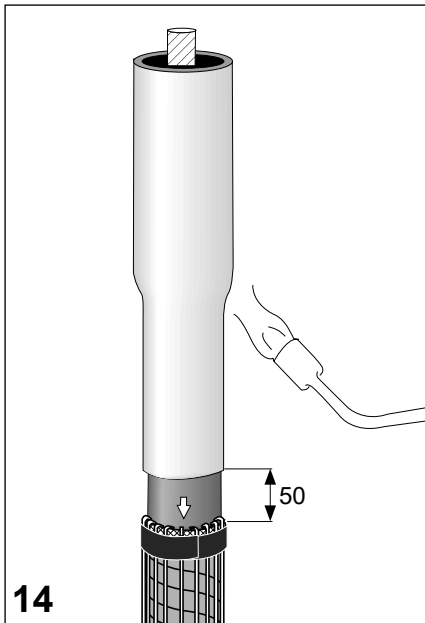
Clean the insulation from silicone grease.



Apply sealant (red) using only slight tension and a small overlap.

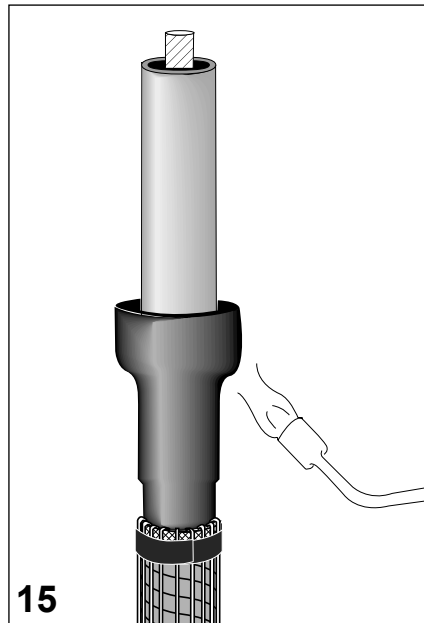
Cover 10 mm of the stress control tubing and 10 mm of the insulation.



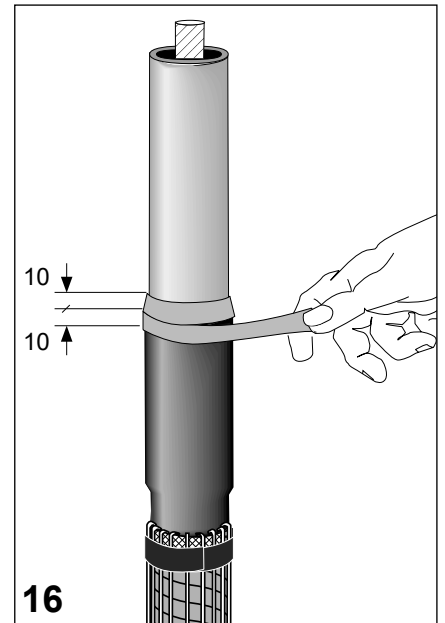


14
Place the short tubing (red) over the core 50 mm above the end of the stress control tubing with arrow.

Shrink down starting at the bottom and working upwards.

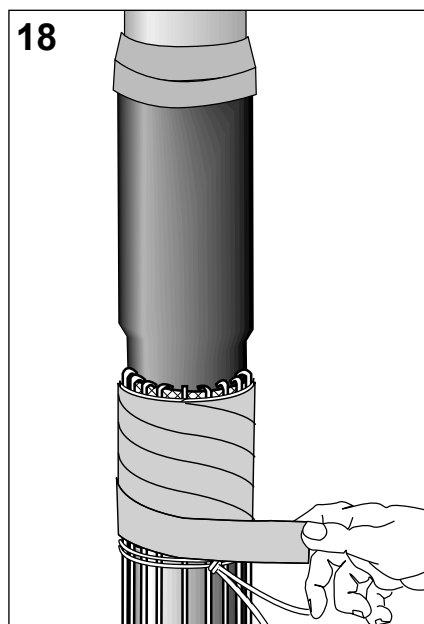
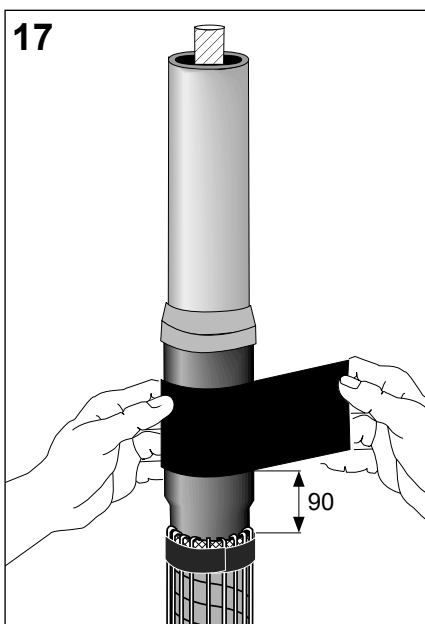


15
Place the short stress control tubing over the core at the end of the stress control tubing with arrow. Shrink down starting at the bottom and working upwards.



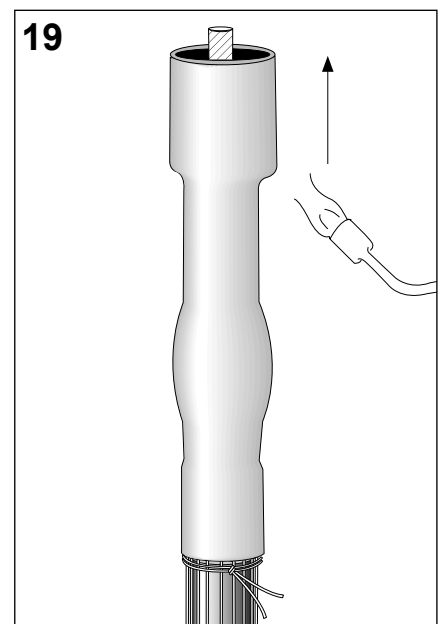
16
Apply sealant (red) using only slight tension and a small overlap. Cover 10 mm of the stress control tubing and 10 mm of the red tubing.

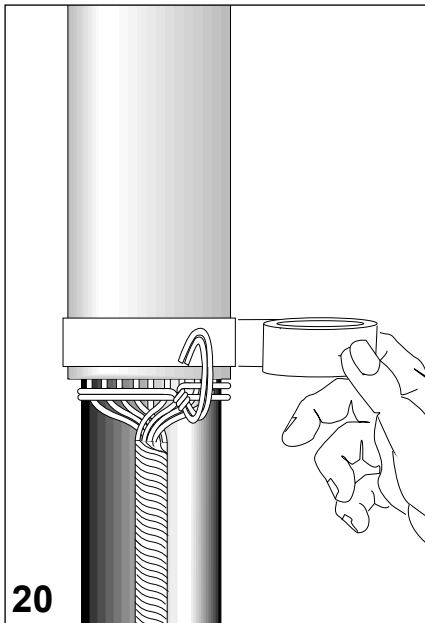
Wrap the insulating profile over the stress control tubing starting 90 mm above the end of the stress control tubing.



Wrap a layer of sealant (red) using only slight tension over the copper conductor or screen wires.

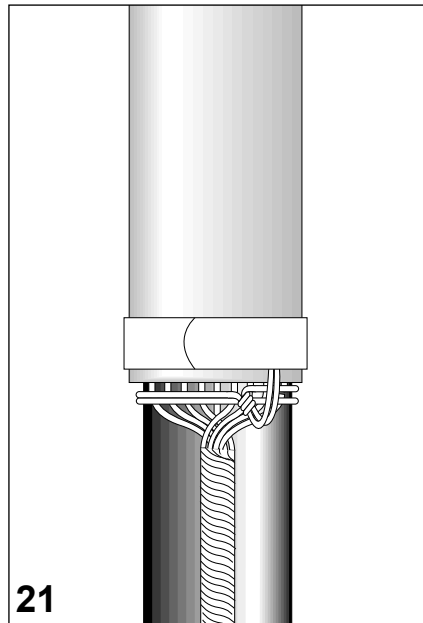
Place the long red tubing over the cable, completely covering the sealant (red). Shrink down starting at the bottom and working upwards.





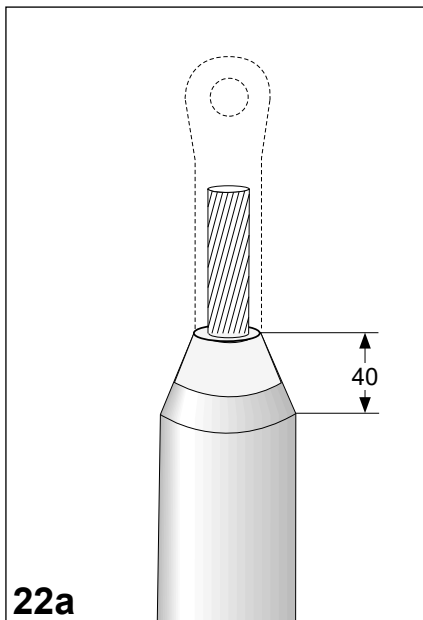
Wrap the roll spring twice over the red insulating tubing.

Position two ends of the wire binder onto the roll spring. The wire ends should not overlap the roll spring.

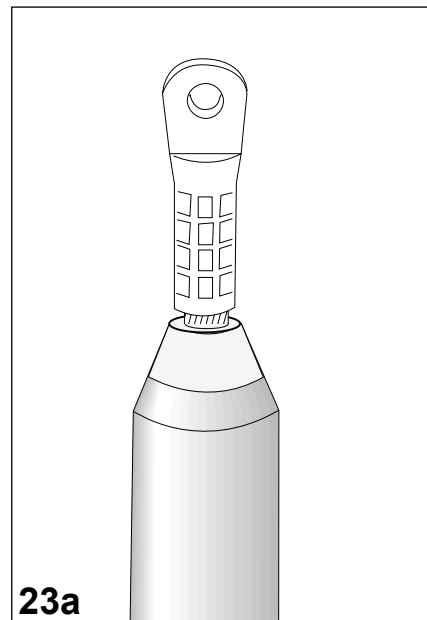


Fold the wires back and wrap the rest of the roll spring over the wire binder. Tighten the roll spring with a twisting action.

Termination with Crimp Connector

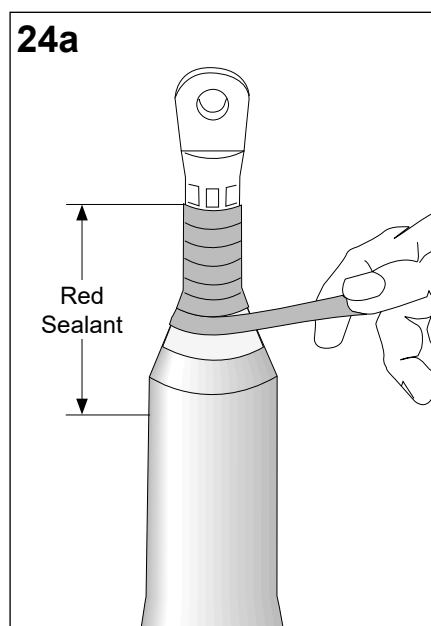


22a
Cut back the tubing onto the insulation. Chamfer the insulation to the diameter of the cable lug to achieve a smooth transition.

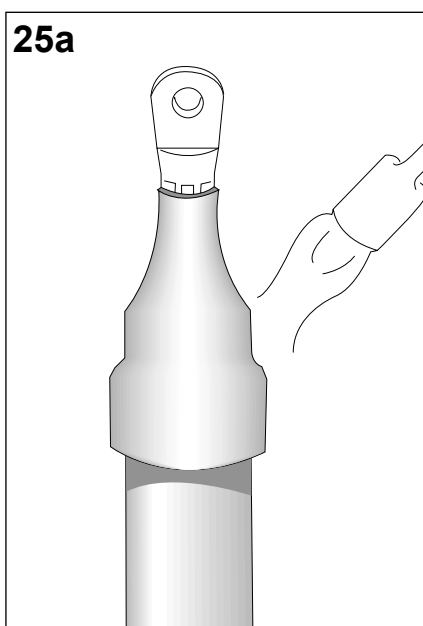


23a
Install, clean and degrease the cable lug.

Wrap sealant (red) with slight tension around the insulation and connector. Fill up any gaps between insulation and cable lug.



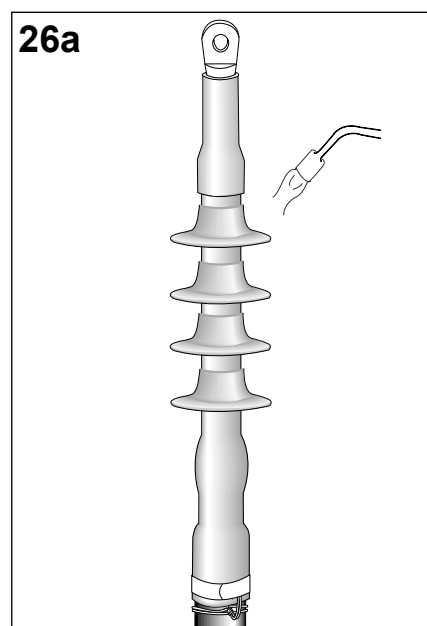
Position the sealing boot so that it covers the core and connector equally and shrink it into place, starting at the top.



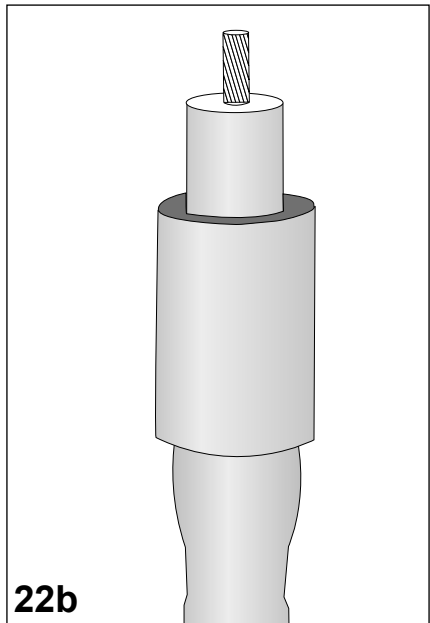
Shrink the skirts into place according to the dimensions at the last page.

Make sure that the first skirt is placed slightly above the end of the insulation profile which is located under the outer tubing.

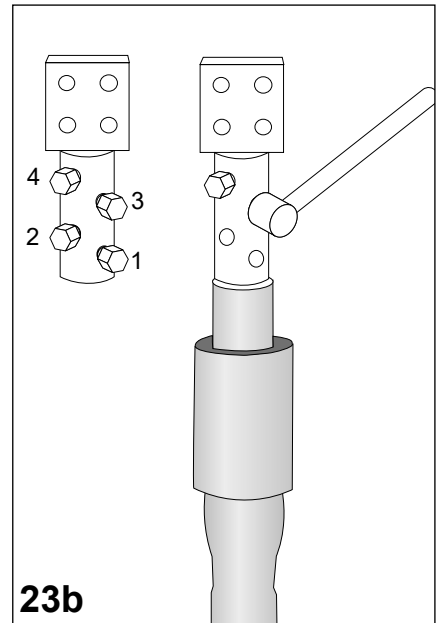
Termination completed.



Termination with Mechanical Connector



Position the short sealing tube and skirts over the cable.



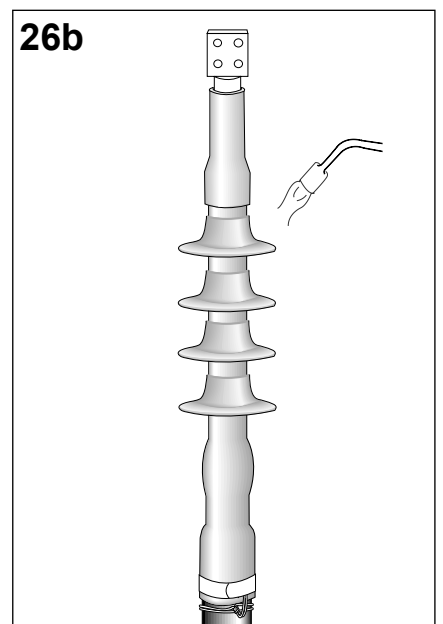
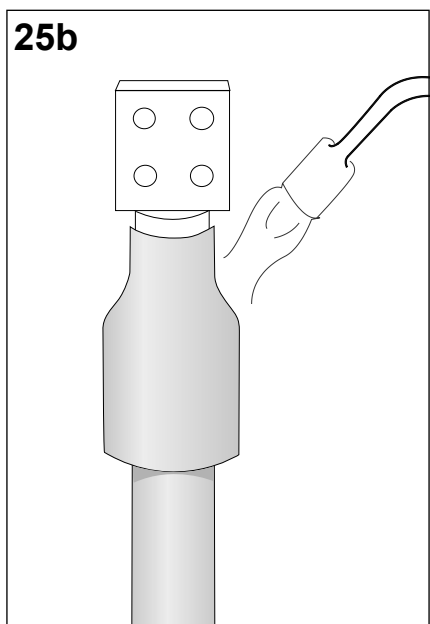
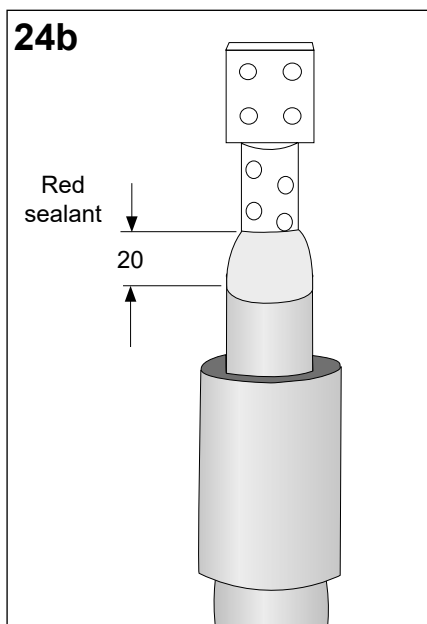
Insert the conductor completely into the lug barrel hole.
Tighten all screws by hand.
Tighten all screws with the right tool, according to the sequence given in the drawing, until the screw heads shear off.
Clean and degrease the cable lug.

For connections with cable lug diameter smaller than cable core only.

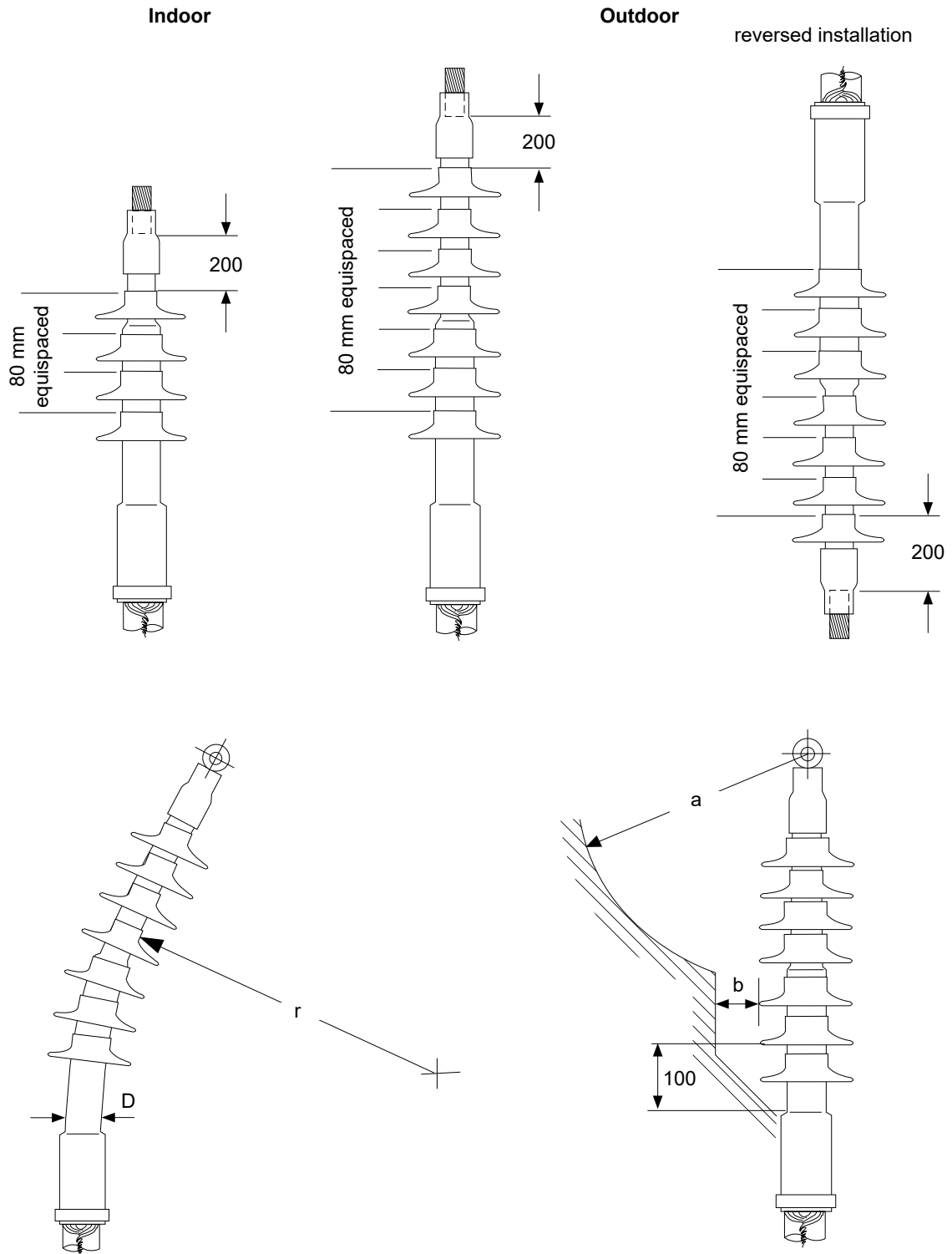
Wrap sealant tape (red) with slight tension around the insulation and connector to achieve a smooth transition.

Preheat the cable lug.
Position the sealing sleeve so that it covers the connector barrel. Shrink it into place, starting at the top.

Shrink the skirts into place according to the dimensions at the last page.
Make sure that the first skirt is placed slightly above the end of the insulation profile which is located under the outer tubing.
Termination completed.



Number of Skirts per Core		
kV	Indoor	Outdoor
72	4	7



Min. clearances	Max. system voltage 72 kV
a air clearance	according to local specifications
b between ph/ground [mm]	100
r min. bending radius $10 \times D$, before bending heat cores up to approx. 70° C	

Please dispose of all waste according to environmental regulations.

