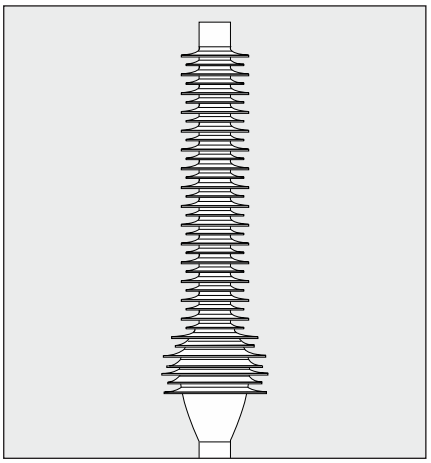
TE´s Raychem Cable Accessories



Installation Instructions EPP-3376-6/19

Dry Type Flexible Termination for Polymeric Insulated Cables 145 kV

OHVT-F

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

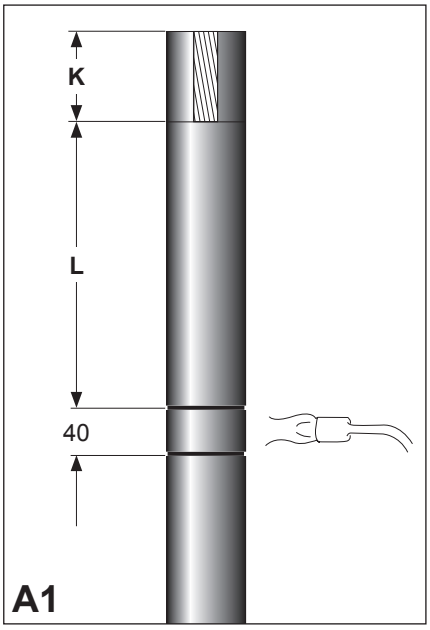
All cut back dimensions and information given in this instructions document refer to cables with non-segmented conductors only. In case of cables with segmented conductors, all insulation or conductive materials have to be removed from the conductor. If the removal of these materials require a longer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

Cable Preparation

A. Cables with Wire Shield and Laminated Foil

Table 1

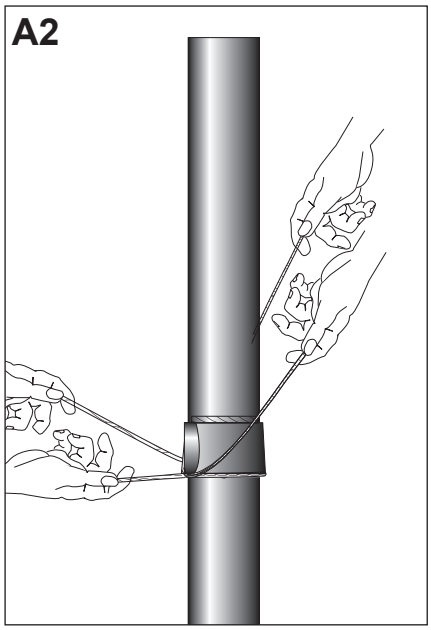
L mm	K Crimped Connection	K Mechanical Connection
1700	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm



Mark the oversheath segment to be removed on the oversheath.

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

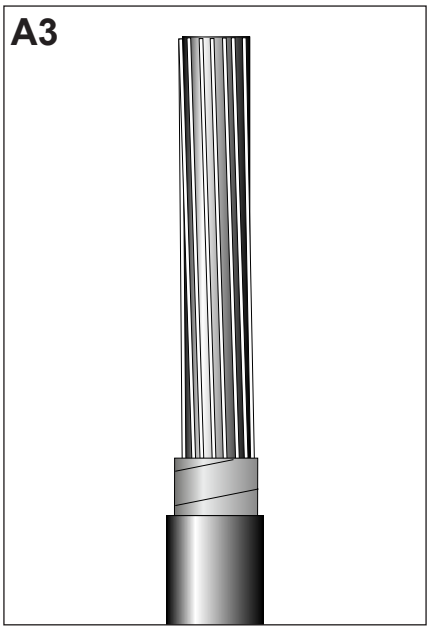
With the string, cut through the oversheath. Remove the oversheath from the metal foil by slicing segments away with the string as shown in the drawing.



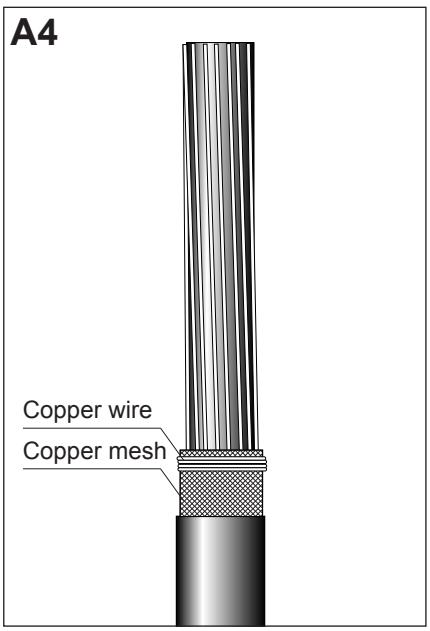
Clean the metal foil from oversheath traces.
Protect the metal foil with a PVC tape. Remove the oversheath, foil and bedding.

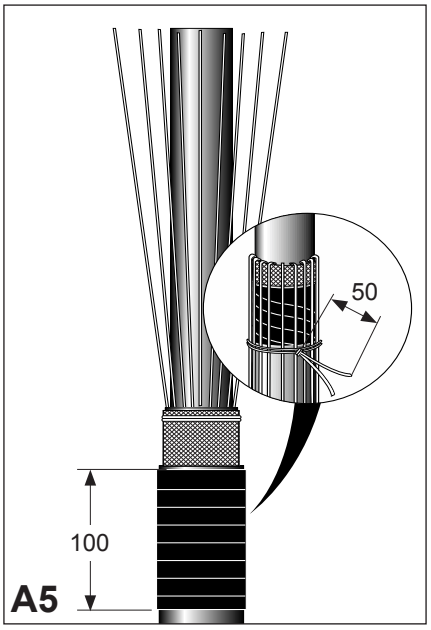
For cables with graphite coating or semiconductive layer remove the conductive coating or layer for a length of about 500 mm.

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

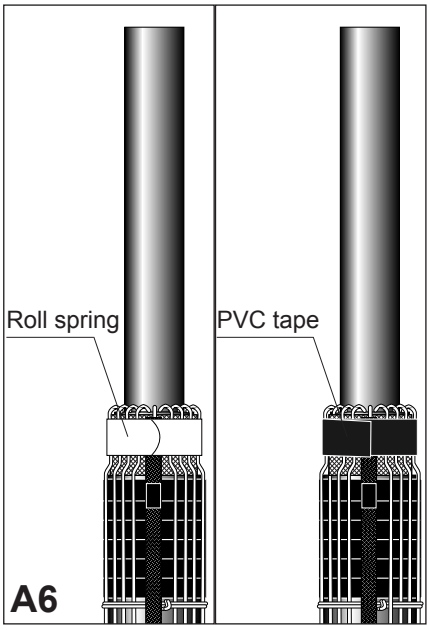


Break the edge with a rough file. Remove the PVC tape. Smooth the surfaces of the metal foil with a very fine grinding cloth. Wrap three layers of copper mesh over the metal foil. Fix the copper mesh in place with a copper wire.



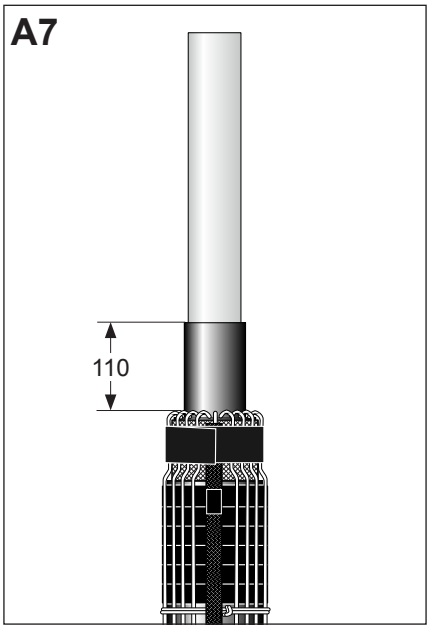


Apply black sealant with slight tension on 100 mm of the oversheath.
Bend the screen wire back and tie them temporarily to the oversheath with a copper wire just below the black sealant.
Leave the ends 50 mm long.



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

Thoroughly remove the core screen to within 110 mm of the oversheath 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.

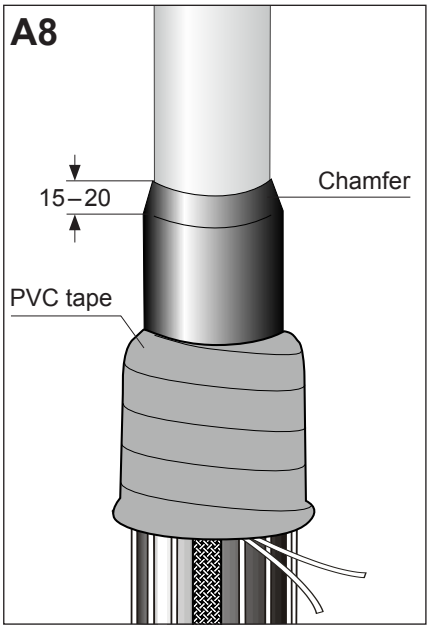
NOTE

Do not nick the insulation.

Protect the black sealant below with PVC tape from contamination.

When completed **remove** the PVC tape.

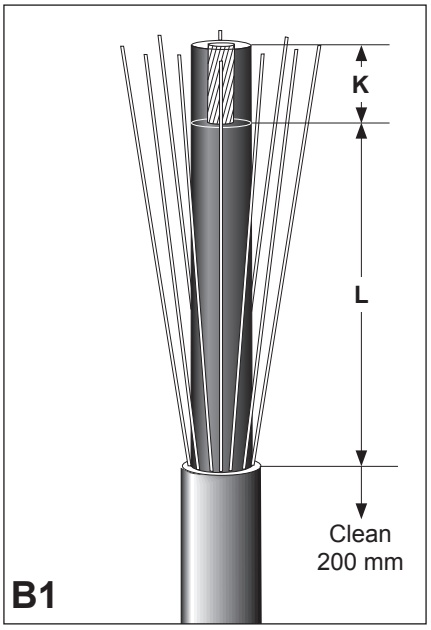
Continue with step 9.



B. Cables with Wire Shield

Table 2

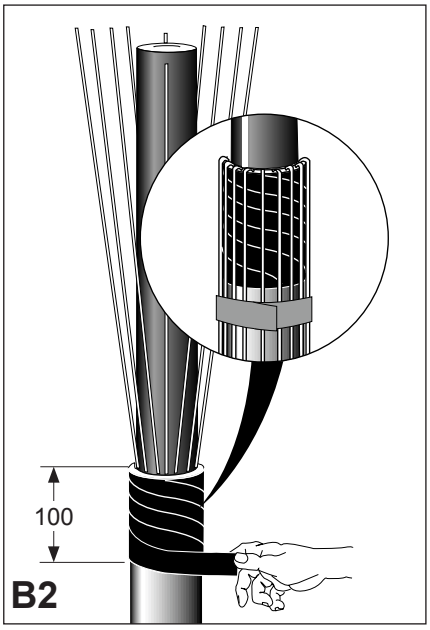
L mm	K Crimped Connection	K Mechanical Connection
1700	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm



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.



Apply sealant (black) with slight tension over 100 mm of the oversheath.

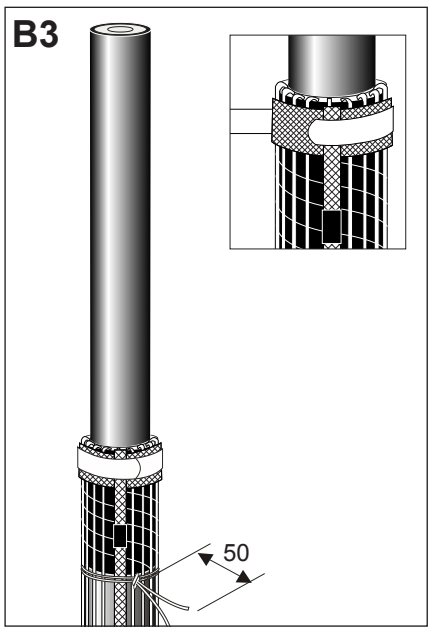
Bend back the screen wires.

Fix the wires with a PVC tape to the oversheath just below the black sealant tape.

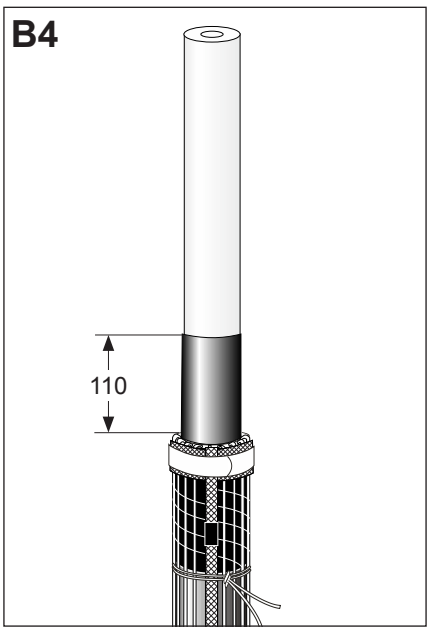
Apply one layer of copper mesh around the oversheath cut covering the screen wires.

Fix the copper conductor and the wires to the copper mesh with the roll spring.

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



Thoroughly remove the core screen to within 110 mm of the oversheath cut. The surface of the insulation should be free from all traces of conductive material.



Chamfer the core screen for 15 – 20 mm.

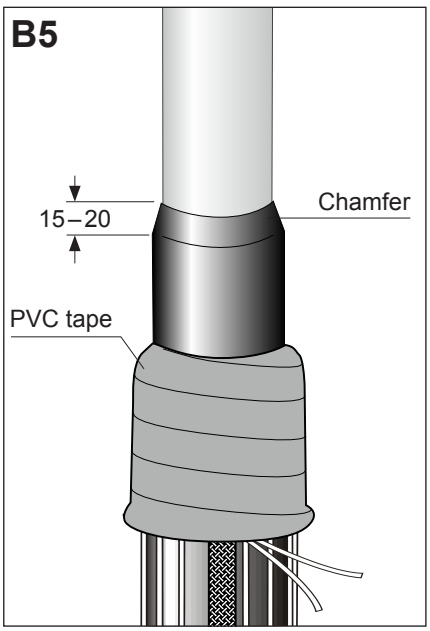
Polish the insulation up to 350 mm above the screen cut.

NOTE

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

When completed remove the PVC tape.

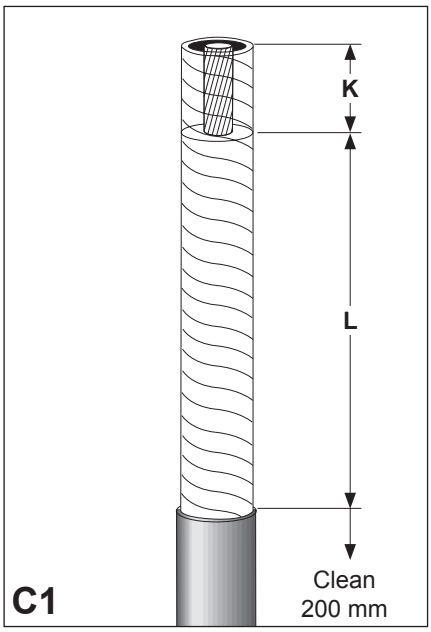
Continue with step 9.



C. Cables with Tape Shield

Table 3

L mm	K Crimped Connection	K Mechanical Connection
1700	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.

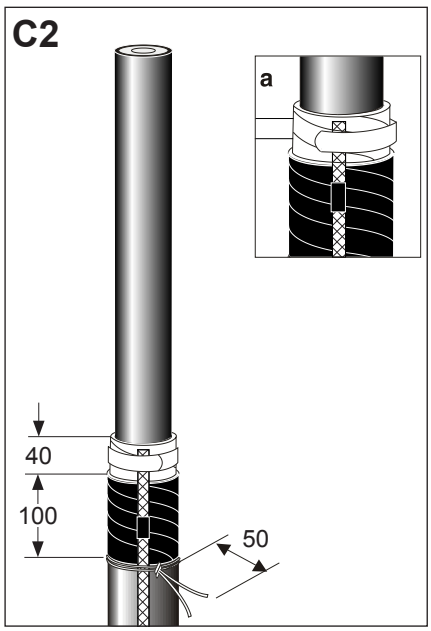
Polish the insulation up to 350 mm above the screen cut.

NOTE

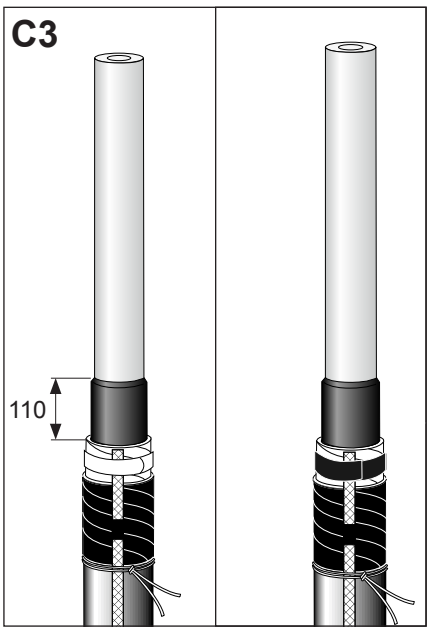
Do not nick the insulation.
Protect the sealant below with PVC tape from contamination.
When completed **remove** the PVC tape.

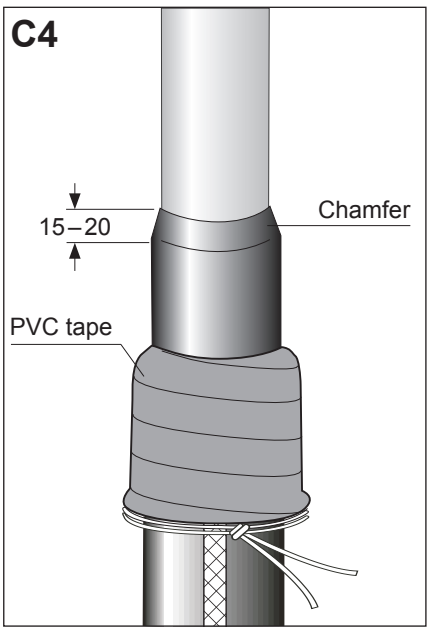
Continue with step 9.

Remove the tape screen to within 40 mm of the oversheath cut.
Apply sealant (black) with slight tension over 100 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 leaving the wire ends 50 mm long.



Thoroughly remove the core screen to within 110 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.

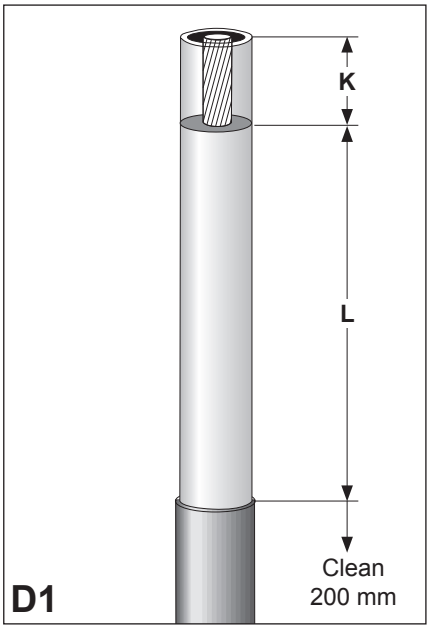




D. Cables with Lead Sheath

Table 4

L mm	K Crimped Connection	K Mechanical Connection
1700	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm

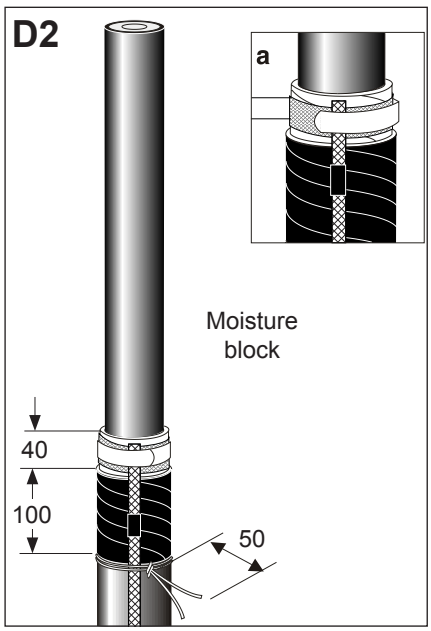


Remove the oversheath to dimension **L** + **K** given in **Table 4**.

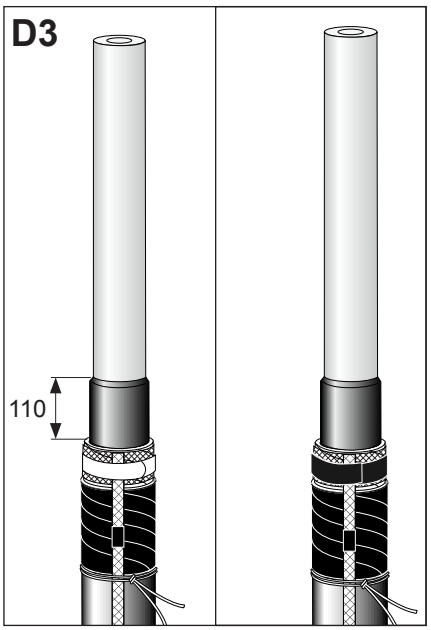
For cables with graphite coating or semiconductive layer remove the conductive coating or layer for a length of about 500 mm.

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

Remove the lead sheath to within 40 mm from the oversheath. Apply sealant (black) with slight tension over 100 mm of the oversheath.
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 oversheath just below the sealant.
Leave the wire ends 50 mm long.



Thoroughly remove the core screen to within 110 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.



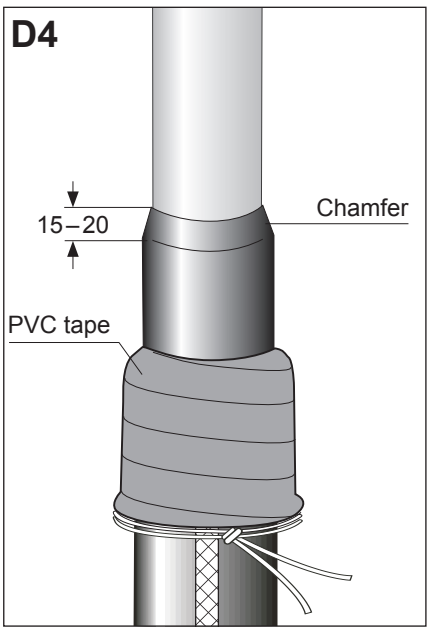
Chamfer the core screen for 15 – 20 mm.

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

NOTE

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

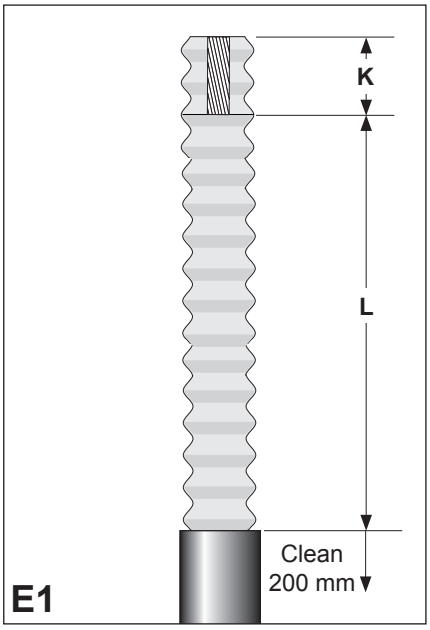
Continue with step 9.



E. Cables with Corrugated Aluminium Sheath (CAS)

Table 5

L mm	K Crimped Connection	K Mechanical Connection
1700	according to cable lug barrel + 5 mm	according to cable lug barrel - 5 mm



Remove the oversheath 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 oversheath for up to 200 mm.

Chamfer the core screen for 15 – 20 mm.

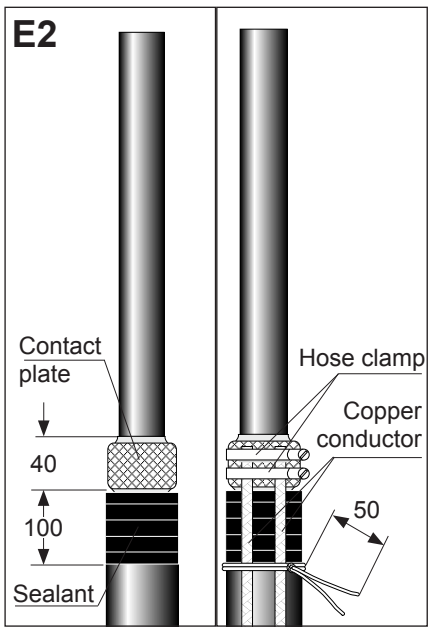
Polish the insulation up to 350 mm above the screen cut.

NOTE

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

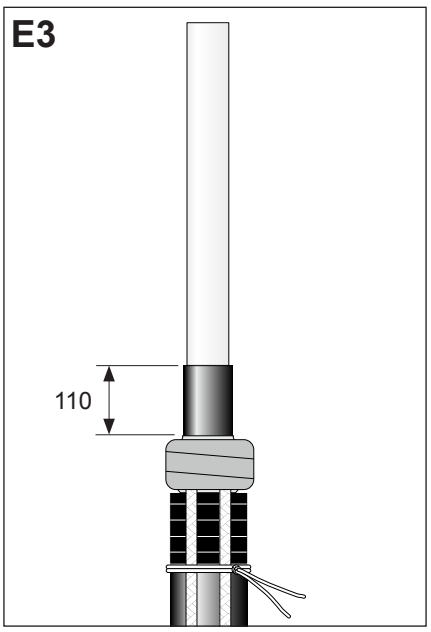
Continue with step 9.

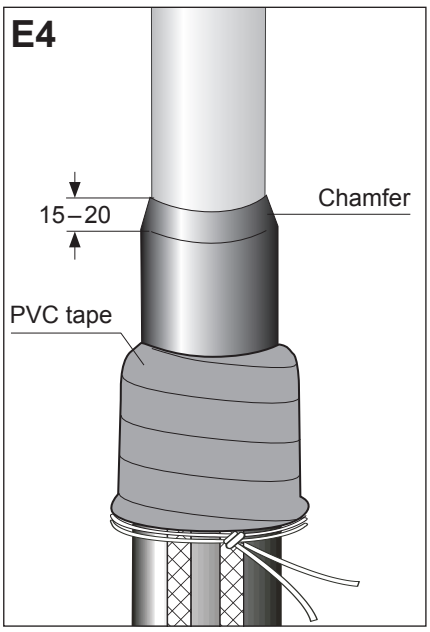
Remove the CAS 40 mm from the oversheath. Thoroughly clean the exposed aluminium.
Apply sealant (black) with slight tension over 100 mm of the oversheath.
Overlap the sealant (black) on to the CAS by 10 mm.
Form the punched contact plate into a circular shape and position it centrally around the exposed 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.



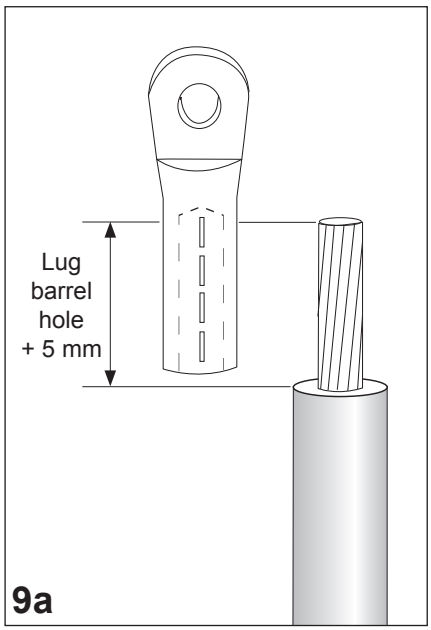
Cover the sharp edges of the clamps with 3 layers of textile tape.

Thoroughly remove the core screen to within 110 mm of the aluminium sheath cut. The surface of the insulation should be free from all traces of conductive material.

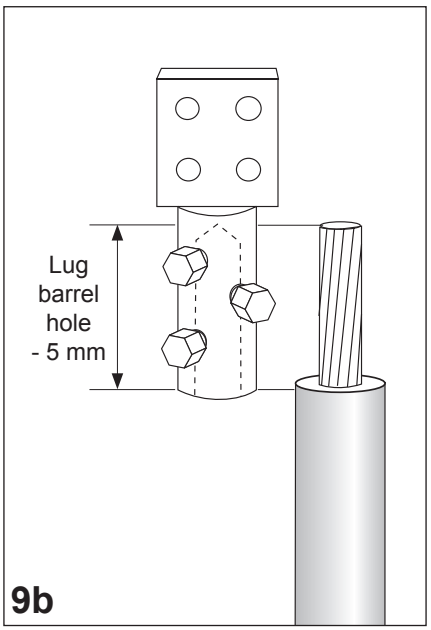




Completion of the Termination



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

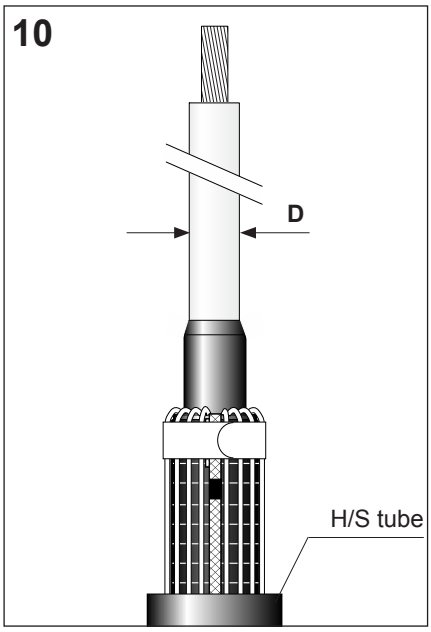


Cut back the insulation according to cable lug barrel hole **- 5 mm**.

TE Kit Description	Cable Core D* Application range over prepared insulation
HVCA-OHVT145DFBODY-49.5/57	49.5 - 57.0 mm
HVCA-OHVT145DFBODY-56/63	56.6 - 63.5 mm
HVCA-OHVT145DFBODY-63/71	63.5 - 71.3 mm
HVCA-OHVT145DFBODY-71/78	71.0 - 78.7 mm

Slide the heat shrink tube over the outer sheath.

Measure the diameter **D** over the prepared insulation and verify if the measured value lies within the application range for the silicone body.



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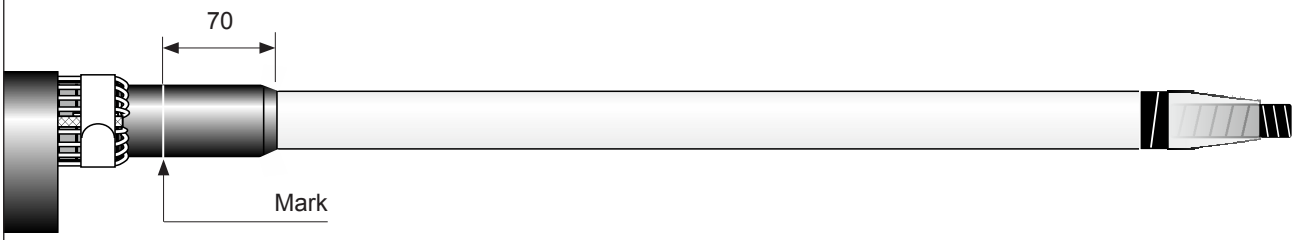
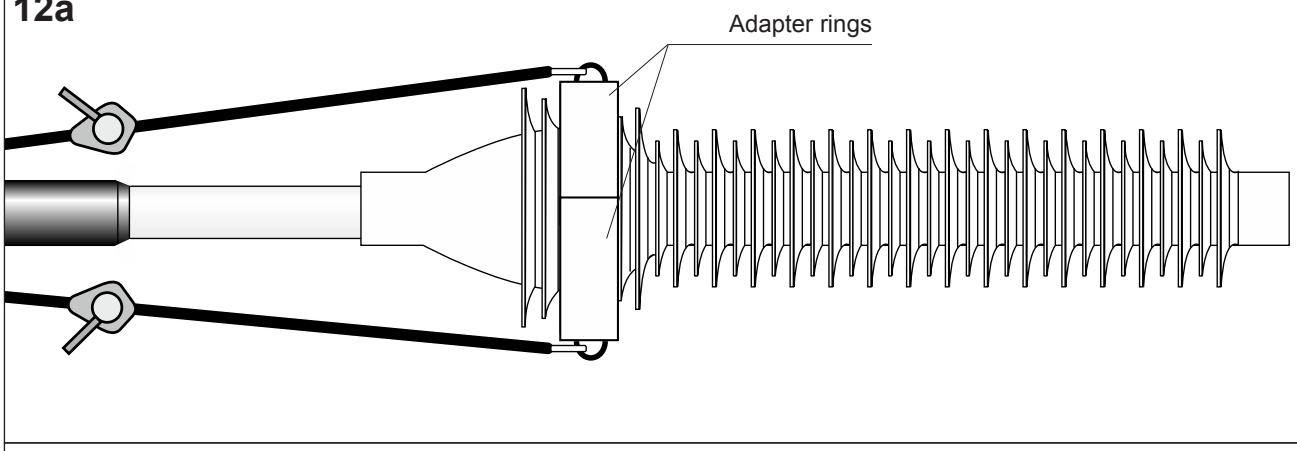
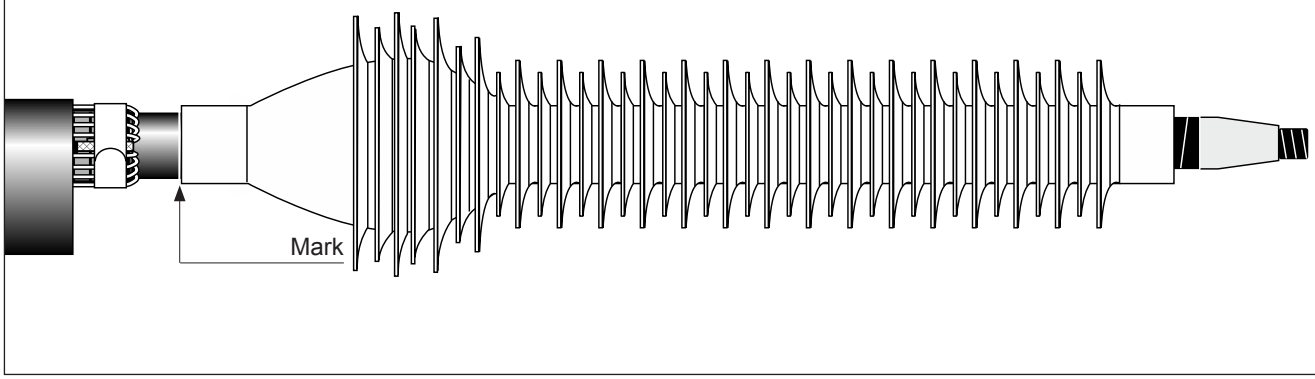


Wrap some layer of textile tape onto the conductor to hold the adapter straight on the conductor.
Place the adapter on the cable conductor.
Fill the step at the insulation with PVC tape.
Protect the conductor with PVC tape.
From the highest wave of the semi-con cut mark 70 mm as shown.

12a



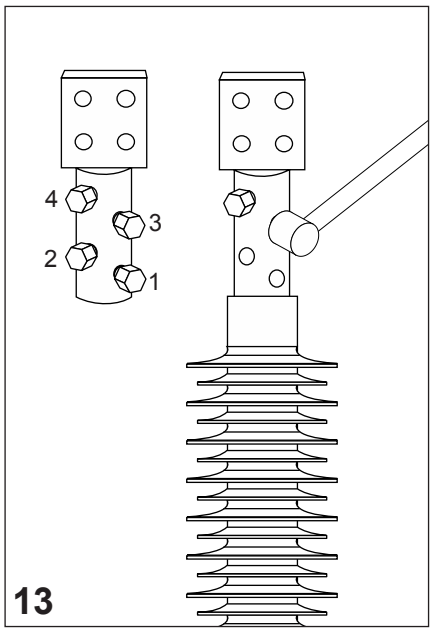
12b



NOTE

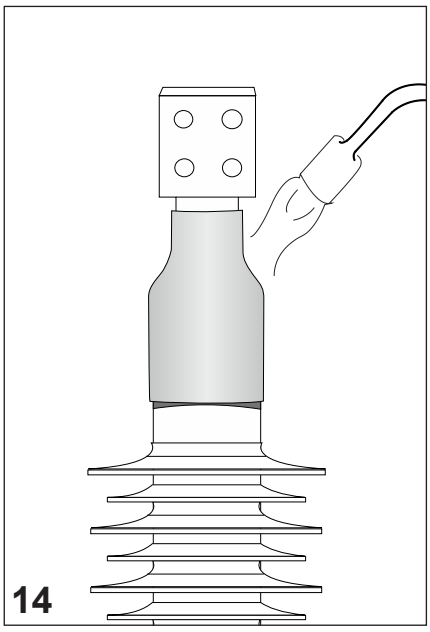
Wash and clean your hands.

Clean the cable insulation.
Thoroughly lubricate the cable insulation and the inner part of the silicone body with the silicone grease supplied.
Install both adapter rings to the silicone body.
Push the silicone body by using the chain hoist tool onto the cable core until its collar reaches the marking.



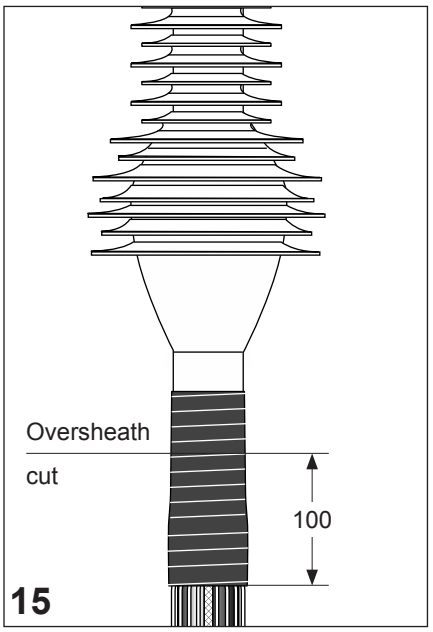
Insert the conductor completely into the lug barrel hole.
Tighten all screws by hand.
Tighten all screws with the right tool, according to the sequence given in the drawing, until the screw heads shear off.

Clean and degrease the cable lug.



Preheat the cable lug.

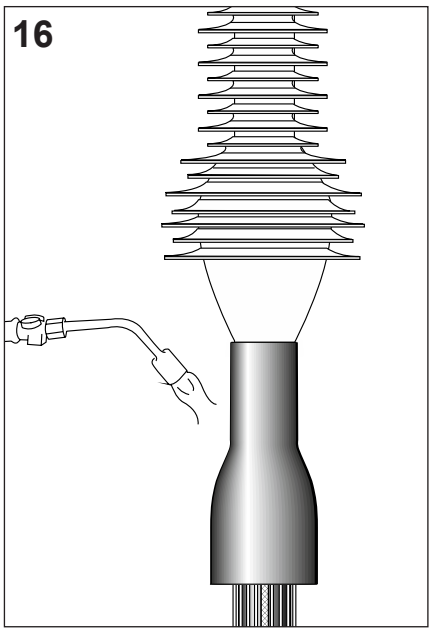
Position the sealing sleeve so that it covers the connector barrel. Shrink it into place, starting at the top.



Wrap one layer of sealant (black) using only slight tension over the copper conductor and the shield wires.

Cover 100 mm of the oversheath end, and the gap between silicone body and oversheath cut as shown in the drawing.

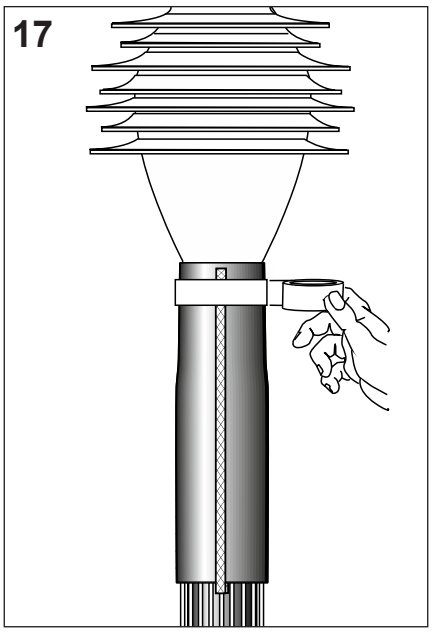
Position the heat shrink tube cylindrically on the silicone body and shrink into place. Start shrinking at the top then move downwards.



Wrap the roll spring EPPA-034-U twice over the heat shrink tube.

Bend the copper conductor back over the heat shrink tube, position the end onto the roll spring, and cut it accordingly.

Tighten the roll spring with a twisting action.



Form the earthing lead by twisting the strands together.

Termination completed.

Please dispose of all waste according to environmental regulations.