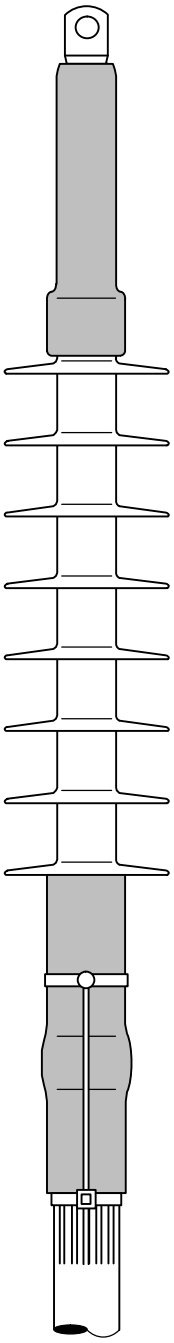
3M QTEN



Installers need experience with High Voltage Accessories

Kit No.	96-EP 720-2
Conductor Cross Section (mm^2)*	120 - 1000
Diameter over Primary Insulation **D** (mm)	33.0 - 60.0

* Different cable constructions may change the actual application range. Diameter over Primary Insulation is the final determining factor.

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Please note: This product may only be assembled by trained specialized personnel according to these assembly instructions. The preceding specifications are the result of in-depth research. They correspond to the state of our experience. A test by you will convince you of the excellent properties of the 3M products. Verify yourself whether these products are suitable for your purposes. All questions regarding a warranty liability are governed by our terms of sale, unless legal provisions provide differently.

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3M QTEN

Molded Rubber Termination for Outdoor Application

96-EP 720-2

for single core plastic insulated copper wire screened cables acc. to IEC 60840

U_m = 72.5 kV

3M Electrical Products

XE-0091-3568-4

General Information

This instruction is only suitable for workers who have been trained by 3M or have a corresponding installation certification and it is not suitable to any condition which is out of 3M permitted installation conditions.
Make certain that all of the necessary installation tools available and that they are in good condition.
Before beginning the installation, review the installation instruction and drawing that's packed in the kit. Carefully, cross check the parts list with the components included in the package, make sure that all of the components shown on the parts list are enclosed.
Installation personnel should strictly follow every step shown in the instructions. 3M will not take responsibility for product failures which occur as a result poor cable preparation, errors in following the instruction and/or drawing.

Straightening of the cable

Cable ends must be straightened before installation. Therefore the cable needs to be heated up at 80°C and fixed in profile for straightening to cool down to ambient temperatures.

Heating up the cables is only permitted with appropriate heating equipment including temperature controller.

Related period for heating up and cooling down for straightening are defined in enclosed table.
Remove profiles for straightening shortly before installation.

Time Period for Heating the cable ends

Cross Section	Cables with laminated Al sheath [h]	Cables with corrugated Al sheath or lead sheath [h]
up to 1000 mm^2	5	7
1000 - 1600 mm^2	6	8
above 1600 mm^2	8	8

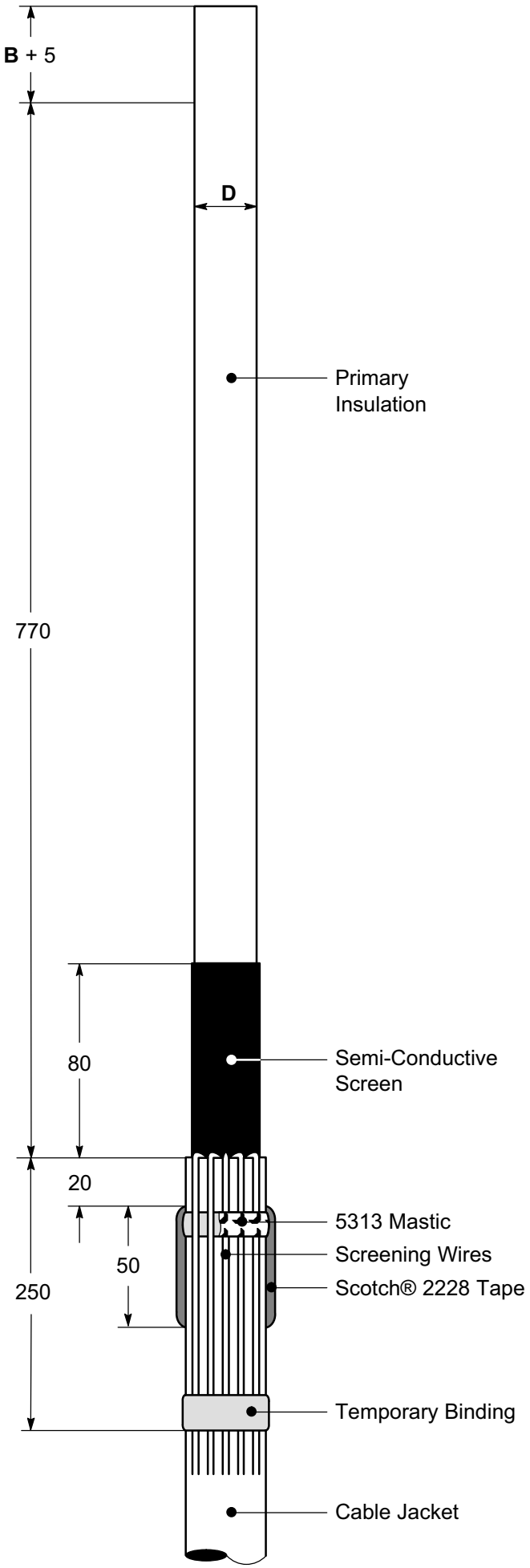

Fig. 1

1.1 Remove the cable jacket for 770 + **B** + 5 mm.
1.2 Remove any conductive coating of the cable jacket like graphite or extruded conductive layer for a length of 300 mm.
1.3 Apply a 5313 mastic over the cable jacket.
1.4 Bend the screening wires back over the sealing and fix them with a temporary binding.
1.5 Wrap a second seal with Scotch® 2228 tape over the screening wires and previously applied sealing.
1.6 Remove the semi-conductive screen leaving 80 mm in front of the cable jacket.

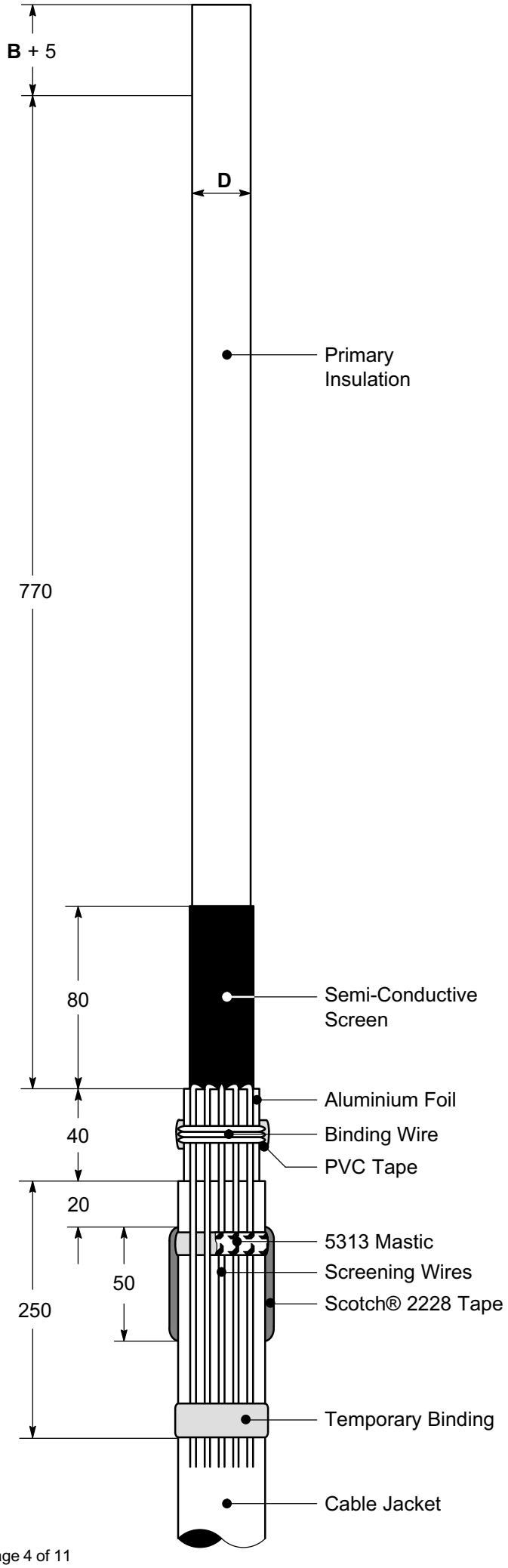

Fig. 1a
Cable with Aluminium Laminate Sheath

1.1 Remove the cable jacket for 770 + **B** + 5mm.

1.2 Remove any conductive coating of the cable jacket like graphite or extruded conductive layer for a length of 300 mm.

1.3 Expose 40 mm of the aluminium laminate. Clean the Aluminium and remove all remaining adhesives.

1.4 Apply a 5313 mastic over the cable jacket.

1.5 Bend the screening wires back over the aluminum and the sealing. Fix the wire with a temporary binding.

1.6 Fix the wire over the aluminium foil with binding wire. Cover the aluminium foil and the binding wire with 3 layers of PVC tape.

1.7 Wrap a second seal with Scotch® 2228 tape over the screening wires and previously applied sealing.

1.8 Remove the semi-conductive screen leaving 80 mm in front of the aluminium foil.

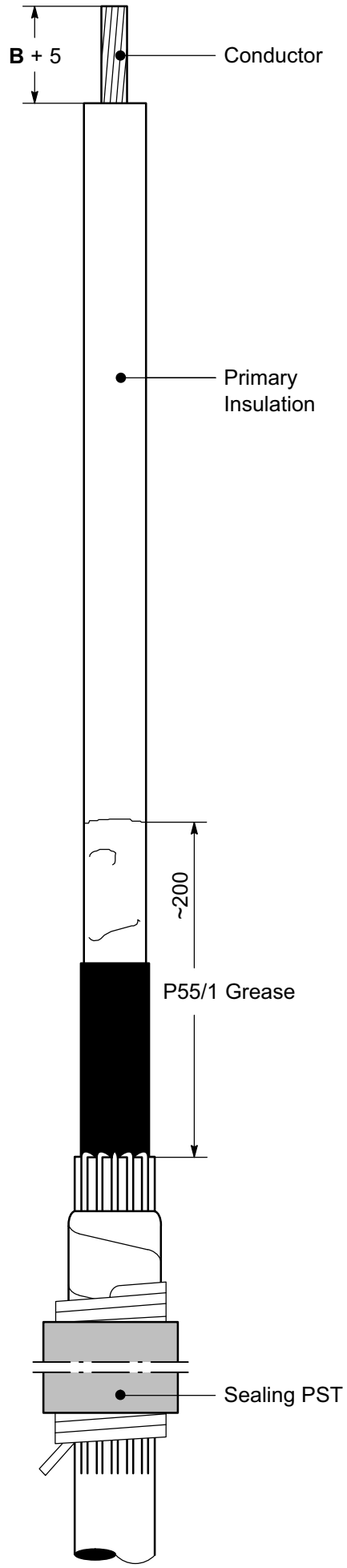

Fig. 2

2.1 Remove primary insulation acc. to dimension **B** + 5 mm.
B = Internal depth of lug barrel.
2.2 Slide the bigger sealing tube onto the cable jacket.
2.3 Apply 1 tube P55/1 grease onto the semiconductive screen and the insulation for approximately 200 mm.

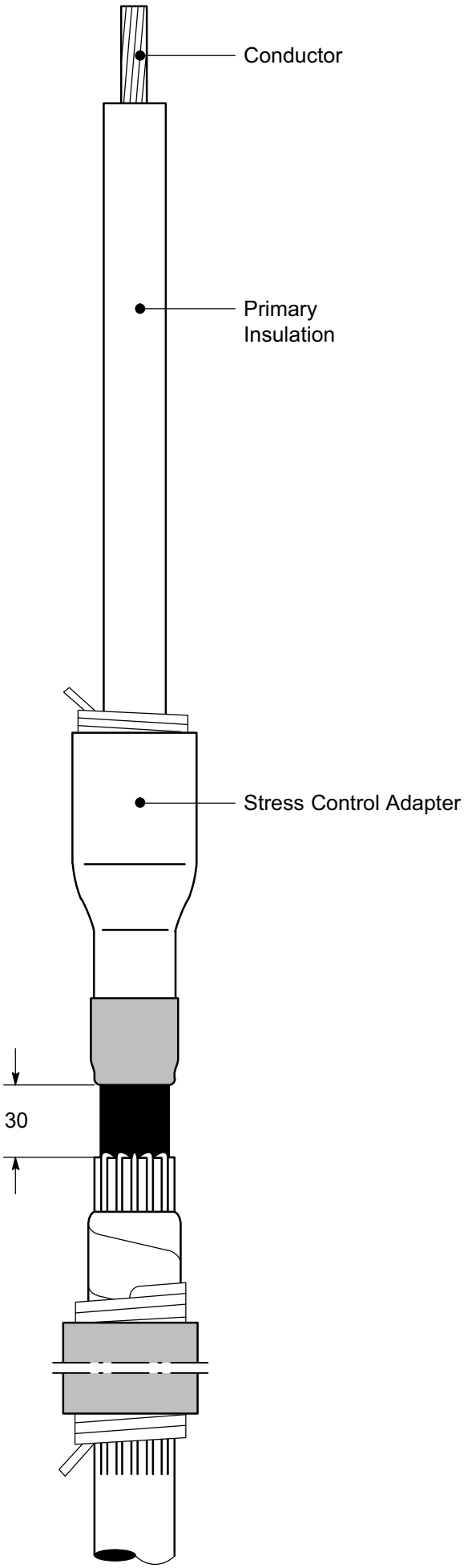

Fig. 3

3.1 Slide the Cold Shrink stress control adapter onto the cable with the loose core end towards the end of the cable.

3.2 Start shrinking the stress control adapter at 30 mm distance from the end of cable jacket or aluminium foil (for cables with aluminium laminate sheath). Check the position while shrinking.

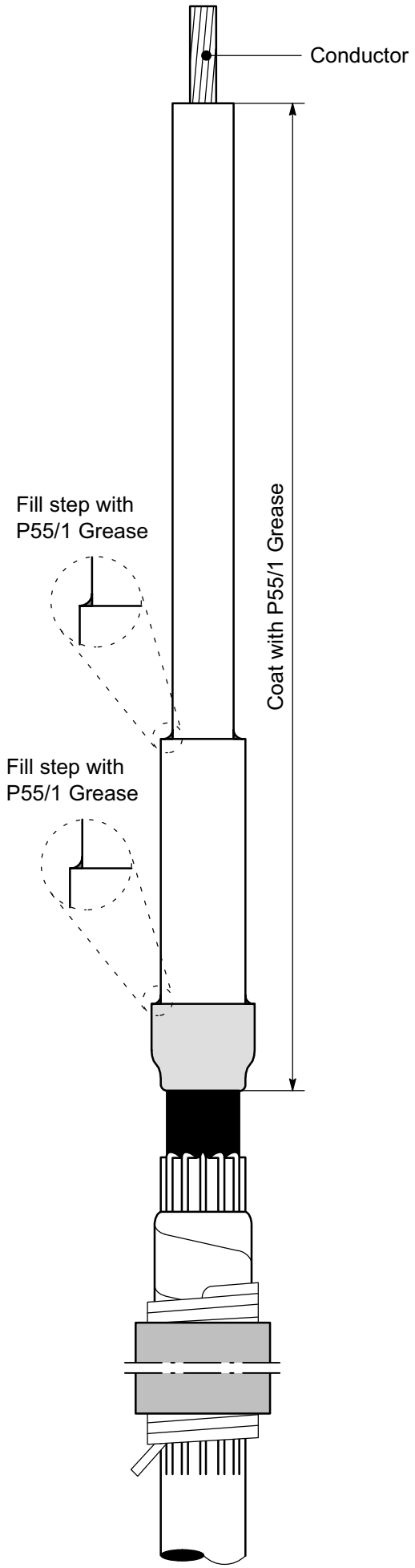

Fig. 4

4.1 Apply 2 tubes P55/1 grease to the exposed insulation and stress control adapter. Fill the edges of the stress control tube with the P55/1 grease.

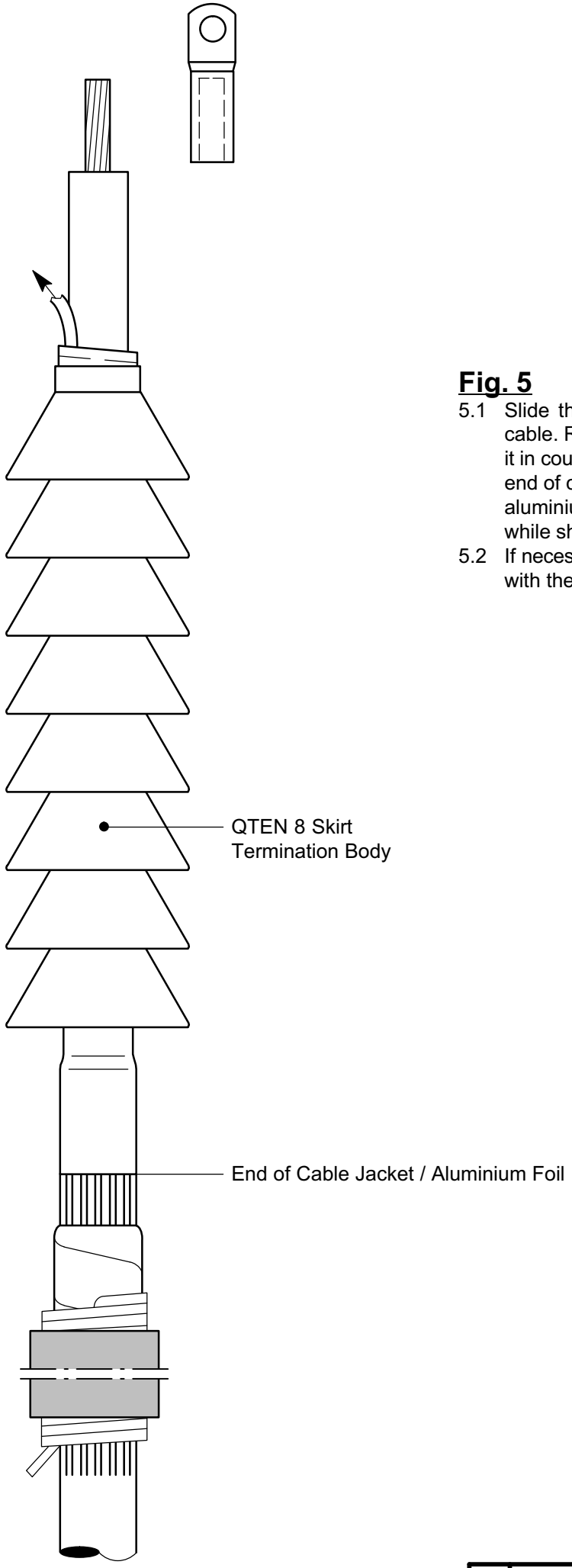

Fig. 5

5.1 Slide the QTEN 8-skirt termination body onto the cable. Remove the collapsible zip core by unwinding it in counter clockwise direction. Start to shrink at the end of cable jacket or aluminium foil (for cables with aluminium laminate sheath). Check the position while shrinking.

5.2 If necessary carefully trim the termination body in line with the cable insulation.

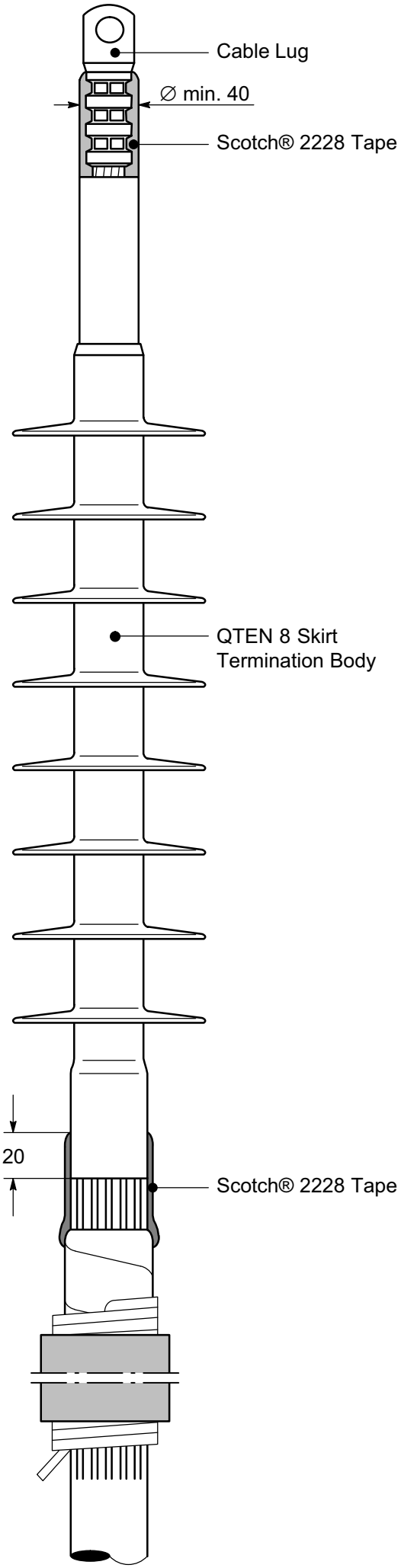

Fig. 6

6.1 Install the lug onto the conductor to manufacturer's instructions. Deburr, clean and smooth the lug.

6.2 Wrap Scotch® 2228 tape half overlapped over the gap of the lug up to a diameter of min. 40 mm.

6.3 Overwrap the screening wires with two layers of Scotch® 2228 tape from the sealing on the cable sheath for 20 mm onto the termination body.

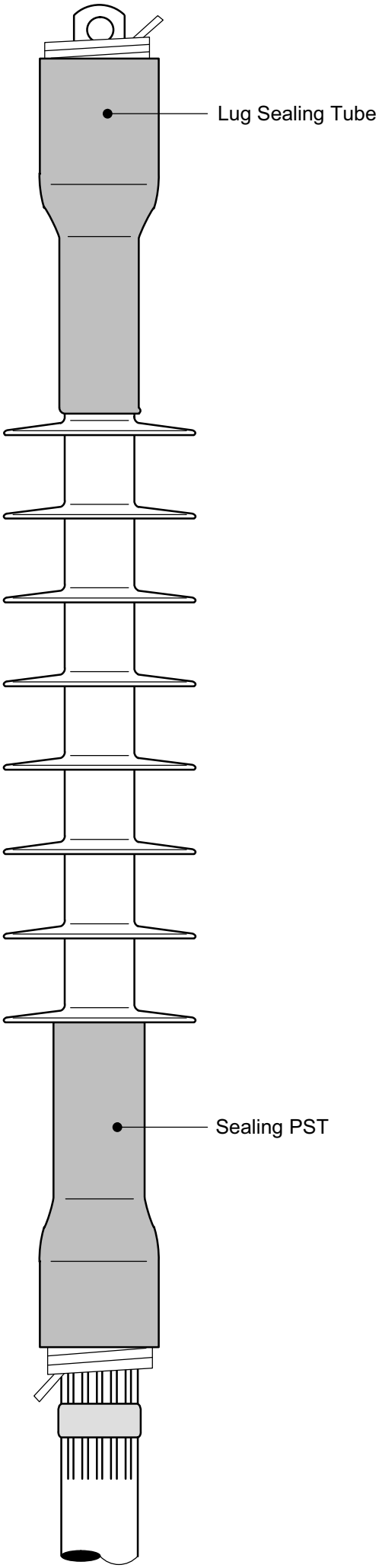

Fig. 7

7.1 Slide the parked sealing tube onto the termination. Start to shrink underneath the first skirt.

7.2 Slide the lug sealing tube onto the termination / lug. Start to shrink on top of last skirt. Carefully trim the sealing tube in line with the lug.

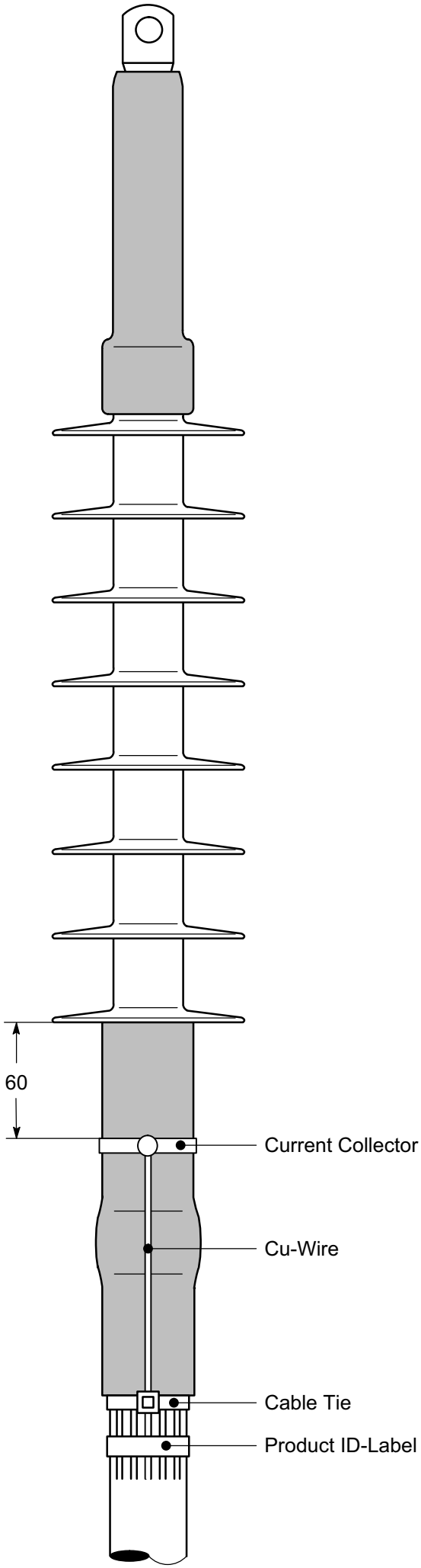

Fig. 8

8.1 Remove the temporary binding.
8.2 Place the hose band clip as a current collector over the bottom of the termination and place it 60 mm below the bottom skirt.
8.3 Take one Cu-wire upwards and connect it to the current collector.
8.4 Carefully close the current collector. Make sure that the cold shrink tube will not be damaged.
8.5 Fix the Cu-wires with the 550 mm cable tie.
8.6 Apply and fix the product ID-label with the delivered 380 mm cable tie as shown.