

NAF OPGW JOINT CLOSURE

INSTALLATION INSTRUCTIONS



Introduction

NAF OPGW is a joint closure which can be used as a straight OPGW extension or as a terminal or branching extension where OPGW (optical ground wire) is joint with one or two direct buried cables or duct cables.

Features of the joint closure:

- Identification code 7263252
- The case is so called dome closure consisting of an inner part with splice tray and a protective cover.
- Capacity for 96 splices
- Suitable for different OPGW structures.
- External dimensions without the ends and cable pass-throughs 381 x 200 x 60 mm.
- There are two OPGW pass-throughs and one cable pass-through for duct and direct buried cables with inner diameter of 26 mm. Depending on the diameter of the cables, the cable pass-through can be used for one or two cables.
- Material is acid-proof steel
- IP 68. Designed and manufactured in Finland

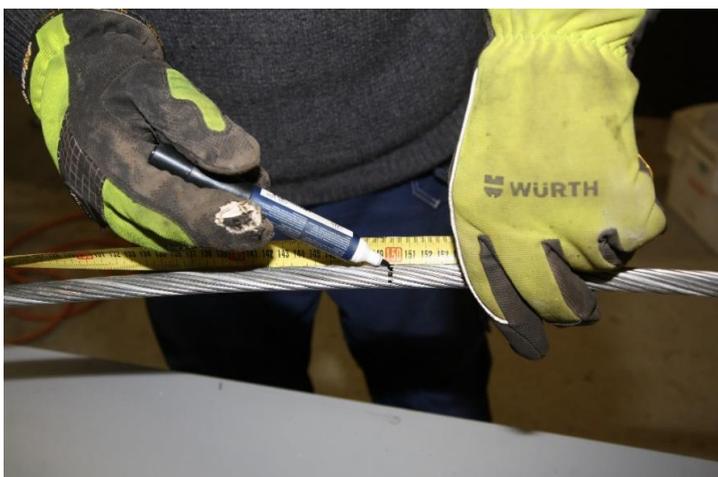
Equipment for the joint closure

- Inner part with splice tray, protective cover, and rubber seal
- Pole stand
- Normal accessories
 - Heat-shrink tubing 48/12 mm, length 250 mm 2 pcs
 - Heat-shrink tubing 34/8 mm, length 200 mm 1 pc
 - Heat-shrink tubing 25/8 mm, length 150 mm 2 pcs
 - Shrinkable end cap 25/8 mm 1 pc
 - Steel cable ties 5 x 200 mm 8 pcs
 - Silicone tube 3/1 mm, length 10 cm 1 pc
 - Corrugated arc fastener 3 pcs
 - Splice holders 24-f 4 pcs
 - Cable ties 3 x 100 mm 12 pcs
 - Grounding connector 2 pcs
 - Fixing screws M4 10 pcs
 - Cleaning wipe 1 pc
 - Silica gel bag 25 g 1 pc

The installation of NAF OPGW joint closure



Attach the pole stand to the pole.



Bundle the OPGWs that come to the closure and take them to the pole, close to the splice tray.

Mark the peeling points, about 5 cm upwards from the bottom edge of the splice tray.

Mark the peeling length of 150 cm.

Cut the unnecessary lengths.

Put the large shrinks (48/12 mm) onto each OPGW.



Make grooves on the outer wires of the OPGW either with an angle grinder or a hacksaw.

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The groove made to the outer wire layer.



Dismantle the outer layer of wire a few threads at a time and bend them so that they break at the starting point of the peeling.



Outer layer of wires removed from the starting point of peeling.





Mark the OPGW wires on the inner layer with their cut-off points at 10 cm from the ends of the outer wire layer.

Tie the yarns of the outer layer together with insulation tape at approximately 600 mm from their ends. Bend the yarns of outer layer apart from the inner layer. Put smaller (25/8 mm) shrinks to both OPGWs and under the outer wires.



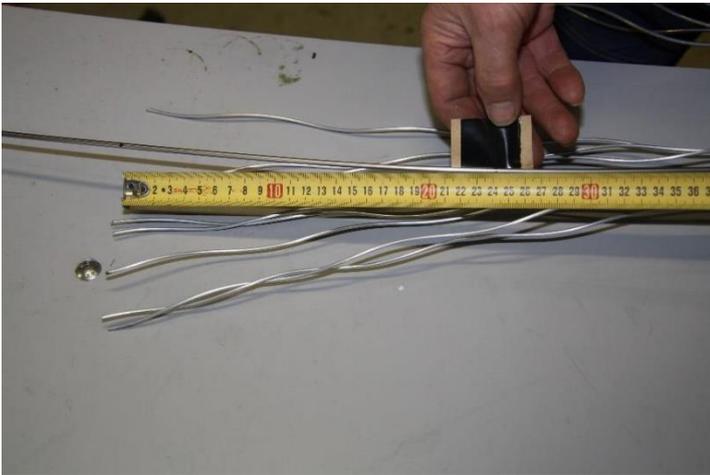
Mark the sealing point on the yarns of the inner layer at 25 cm backwards from the cutting point of the wires.



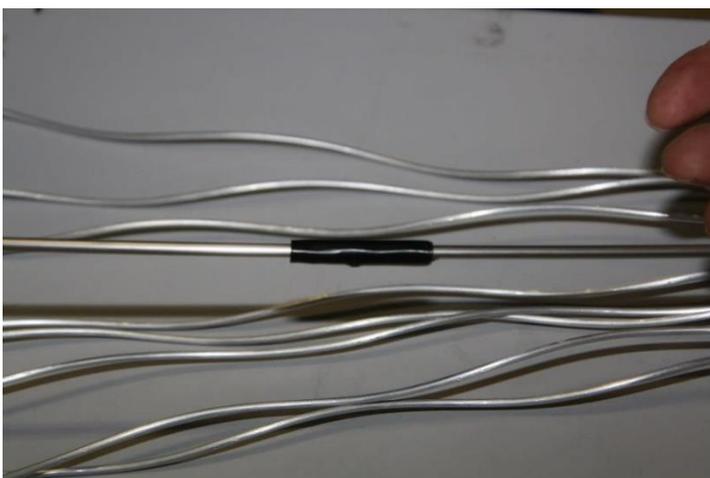
Cut the inner wires from the marked cut-off point, taking care of the steel fiber tubes in the middle of or between the wires.



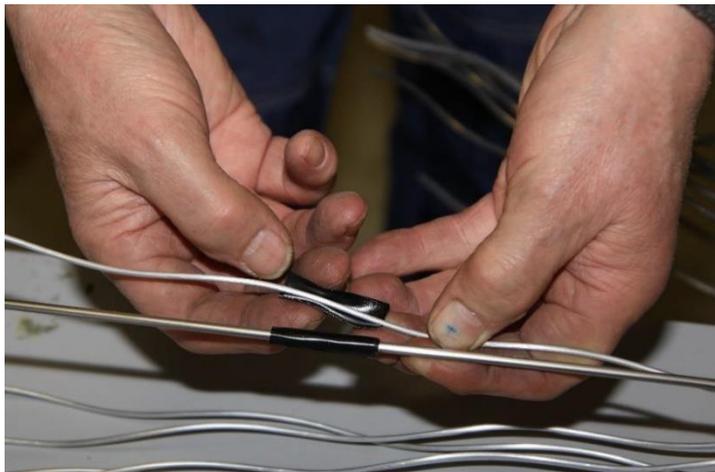
Clean each wire of the inner layer carefully from the grease.



Turn vulcanizing tape around the fiber tube or tubes at 25 cm from the ends of the inner layers wires.



Vulcanizing tape is wrapped around a fiber tube.



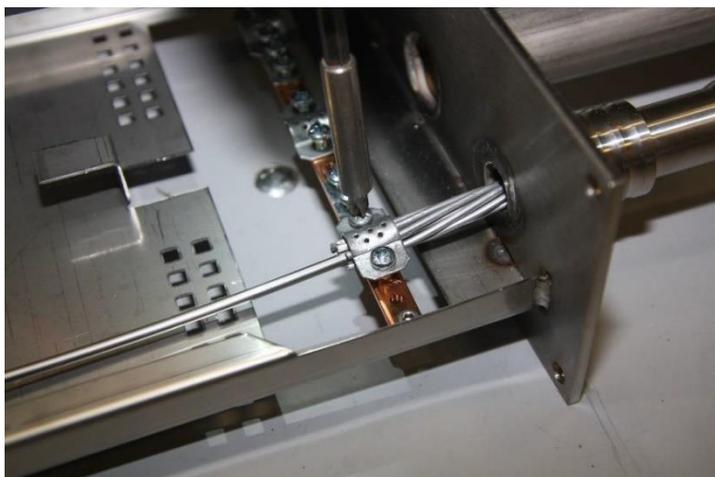
At the same point, rotate the vulcanizing tape around all the wires of the layer.

After the taping, twine the wires together around the fiber tube.

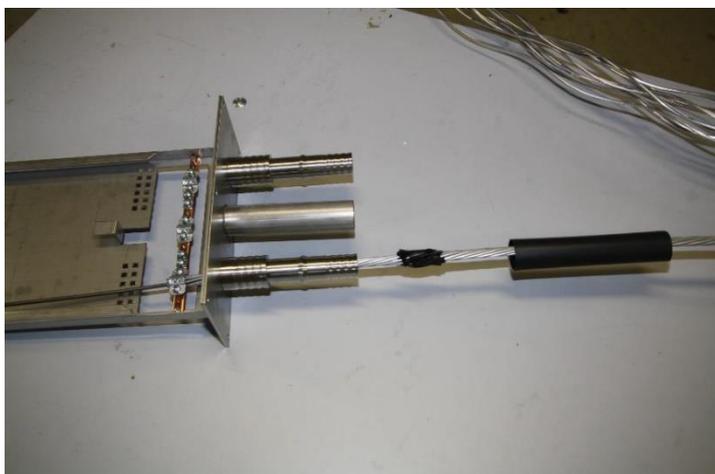
This solution prevents moisture progressing along and between the wires into the joint closure.



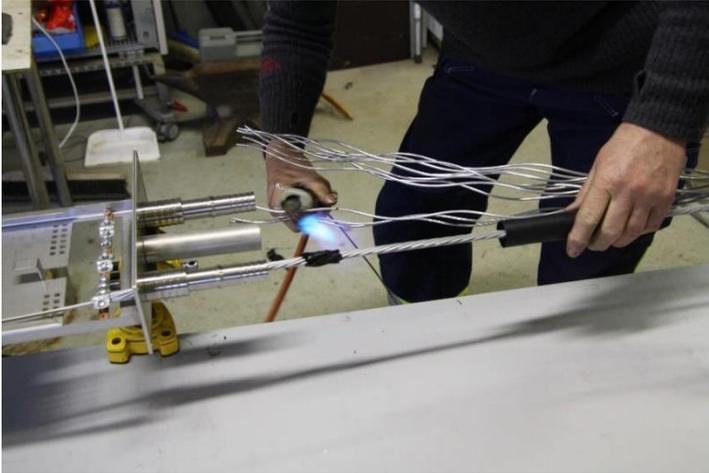
The fiber tube and the inner wire layer is sealed.



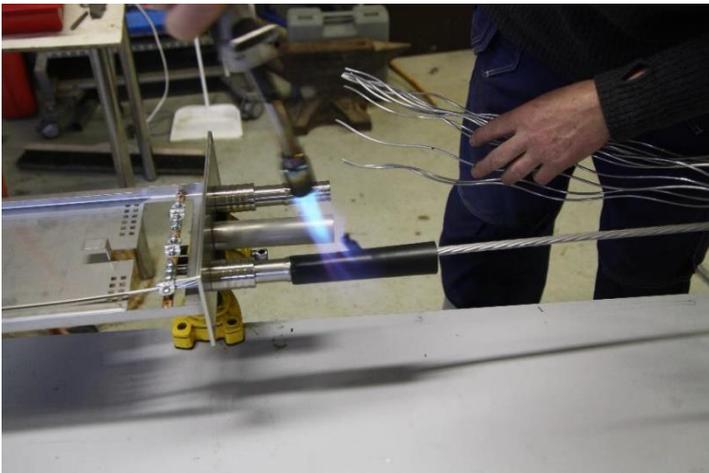
Insert the OPGWs into the joint closure and temporarily attach their inner wire layers to the grounding rail of the housing with corrugated arc fasteners.



The first OPGW is inside the closure and now the inner heat-shrink tube can be installed.



Heat the cable pass-through and the inside layer of OPGW wires before pushing the shrink into place.



Push the shrink to the first bulge of the pass-through and shrink it into place.



Heat-shrink tube installed

There should be little adhesive material visible from the shrink.

The sealing point of the wires is visible as a small bulge outside the pass-throughs.



Also install vulcanizing tape at the root of the shrink tube and at the thinned point of the cable pass-through.

Vulcanizing tape on top of the pass-through helps to attach the steel wires of the outer layer to the pass-through. It is done with metal cable ties.



Place OPGW's outer wires individually and in its own order on top of the cable pass-through.

If the wires have been dimensioned successfully, the ends of the wires will come against the inner bulge of the cable pass-through.



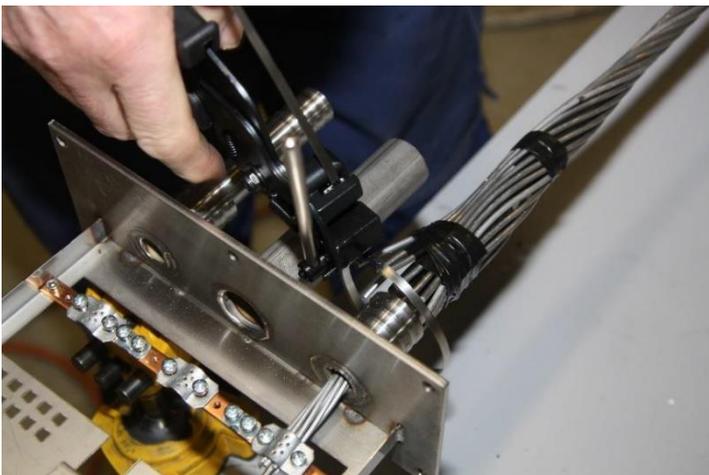
Try to get the wires as evenly as possible over the cable pass-through.



When placing the wires, you can use the help of insulation tape and pliers.



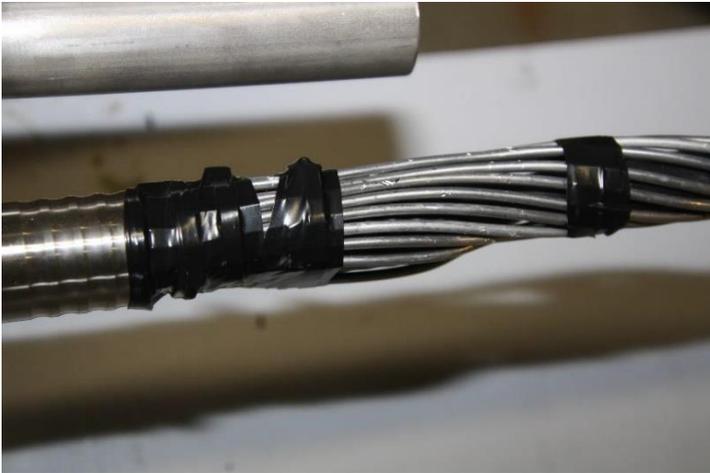
Lock the wires to the pass-through with the steel cable ties that come with the joint closure. Both OPGWs must be locked with at least three steel cable ties.



Tighten and cut the wires, preferably with a tool meant for this purpose, as this tool allows the wires to be tightened properly and cut neatly from the root of the steel locking piece.



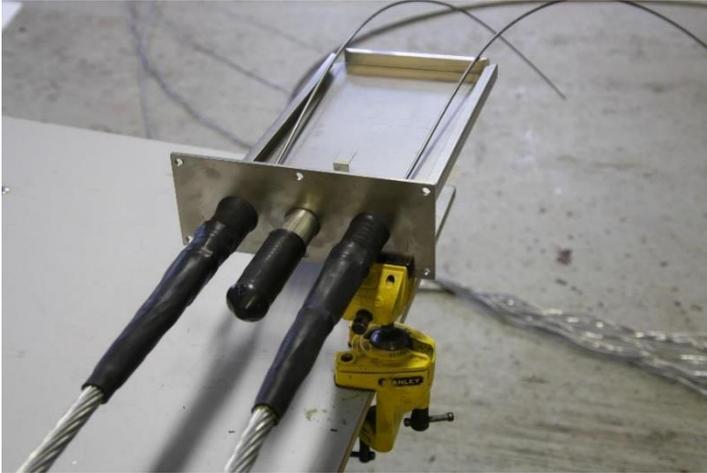
Steel cable ties installed.



Protect the steel cable ties with insulation tape so that their ends do not penetrate through the shrink that is installed on top.

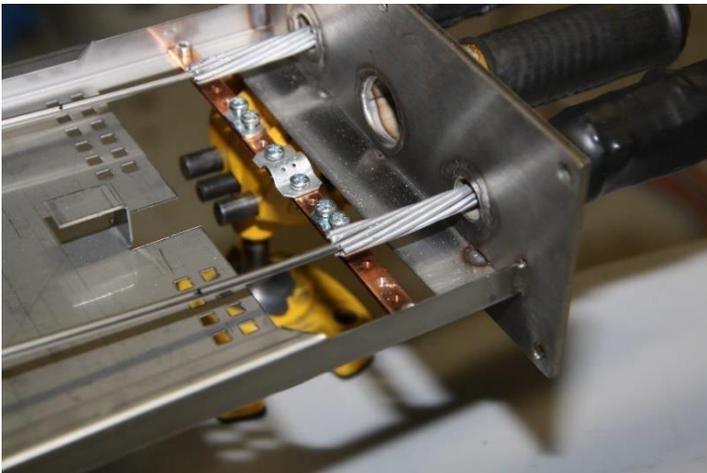


Pull the top shrink all the way to the joint closure and shrink it into place.



Repeat the measures above to the second OPGW.

If there is no cable to be branched, close the pass-through with a shrinkable end cap.



Remove the inner wiring layers of both OPGWs from the grounding rail so that it is easier to handle the steel fiber tubes.



Carefully cut the steel fiber tubes with a pipe cutting tool.

Rotate the tool and gently tighten the blade between rotations until the pipe breaks.

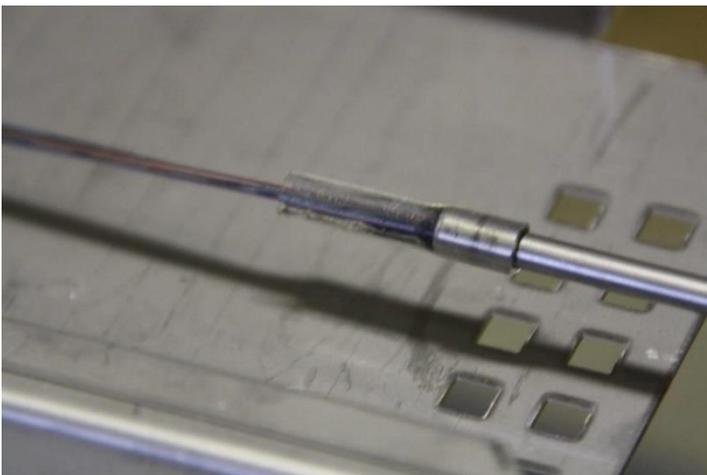


When the fiber tube is broken, remove the tool and gently pull the end of the tube off the fibers, pulling straight ahead.

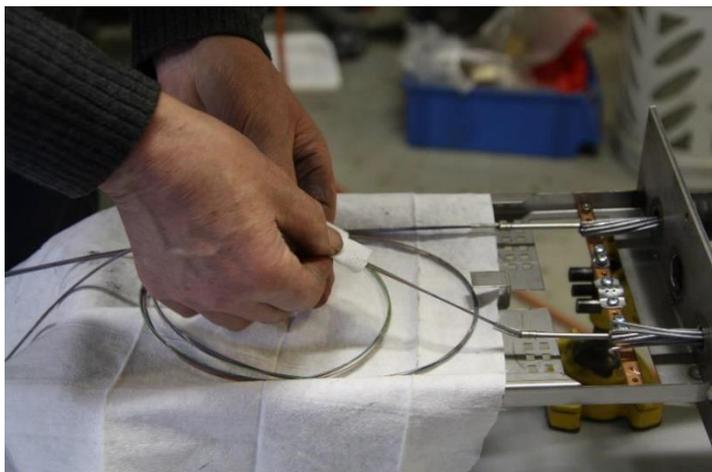
Note. Be careful when handling fibers so that they do not press against the sharp edge of the steel tube!



Clean the fibers from grease.



Remove the 3/1 mm silicone tube from the accessories bag and cut a section about 3 cm long. Pull the fibers through the silicone tube and finally pull the end of the silicone tube over the steel tube.



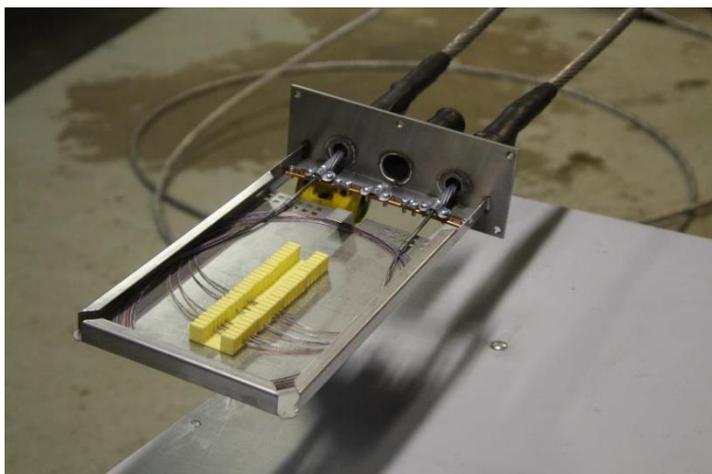
Place the paper used for cleaning on the splice tray to protect the tray from the grease of the fibers, as the grease inside the steel tubes is very tightly attached to the fibers.

Then do the final cleaning of the fibers.

Now attach the inner wire layers of both OPGWs for good to the grounding rail of the joint closure.

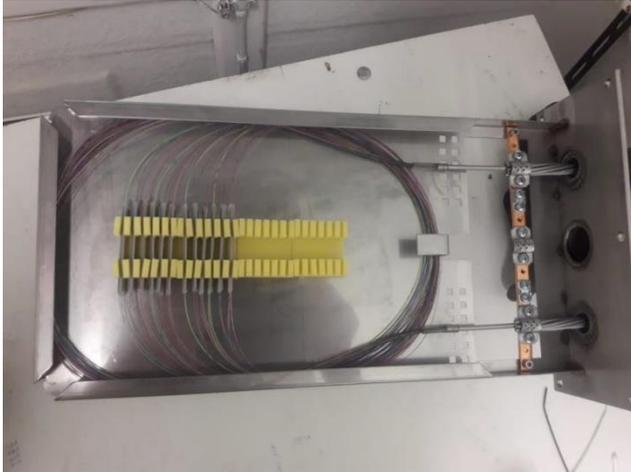


Pull the fibers straight and separate each group of fibers. You can use e.g. splice holders for help.



Fit and fasten the splice holders that come with the joint closure.

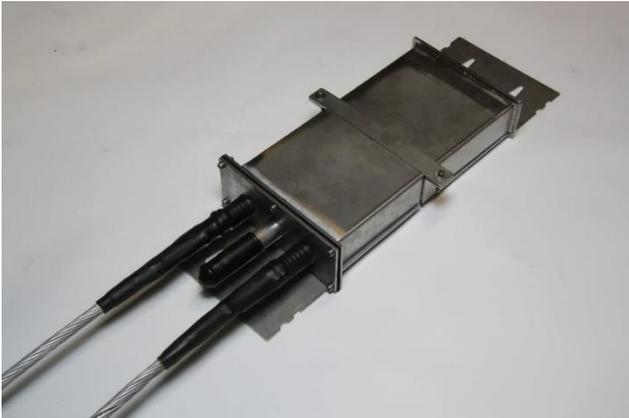
When you measure the fibers, turn them a full turn around the splice tray and then take them in groups to their own splice holders.



Splice and place the splice protector sleeves onto the splice holders, do it group by group.

The 48-fiber OPGWs have been jointed together.

Protect the spliced fibers with the plexiglass cover that comes with the splice tray. Install the cover of the joint closure. Lift the joint closure to the pole stand on a pole, and secure the joint closure in place.



The 48-fiber OPGW extension is complete.