

FTTH closure for micro-tubes and micro-cables

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1 Introduction

The FTTH generic gel closure FIST-GCOG2-Dx24 is the environmentally sealed, fully mechanical enclosure for the fiber management system that provides the functions of splicing and passive component integration in the external network.

The product can be tailored to almost any required configuration by adding splicing and/or passive device sub-assemblies.

The closure is a single-ended design made of a thermoplastic material. The base and dome are sealed with a clamp and an O-ring system.

The UMS (Universal Mounting System) profiles provide the foundation for mounting combinations of SOSA2 (Splicing Only Sub-Assembly) and/or SASA2 (Splitter Array Sub-Assembly) modules, which consist of a modular groove plate and trays.

Uncut loose buffer tube storage space is available between the two UMS profiles; for central core or slotted core applications, storage baskets are available

1.2 Key features

Gel block assembly consisting of:

- 1 Microtube termination/fixation part
- 2 Pre-installed re-enterable gel profile with double sealing action:
 - Sealing onto microtubes
 - Sealing between microtubes and blown fiber cable
- 3 Fiber cable termination part for tool less wraparound cable termination

The unique 26 port wrap-around sealing block enables termination and sealing of

- Looped feeder Diameter range: 6-21 mm
- 24 drop cables
 - Without use of microtubes Diameter range: 4-7 mm
 - With use of microtubes
 - * Up to 24 microtubes Diameter range: 7-10 mm
 - * Up to 6 microtubes Diameter of 12 mm
 - * Cables inside the microtubes Diameter range: 1.8-6.5 mm

2 Kit content

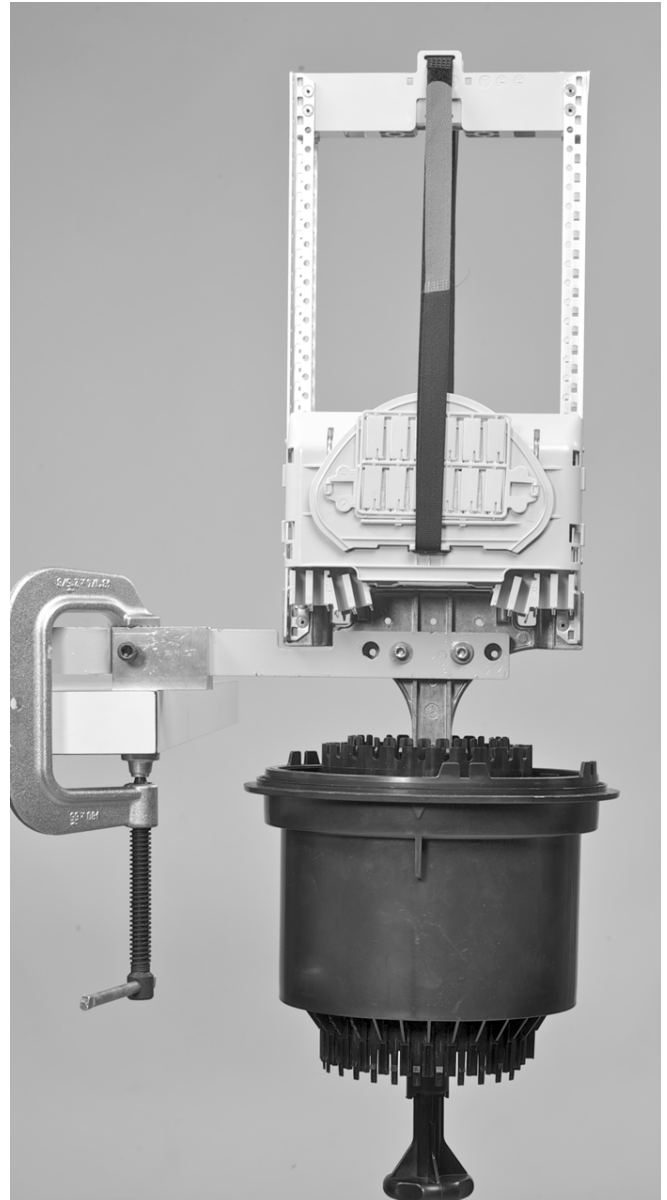
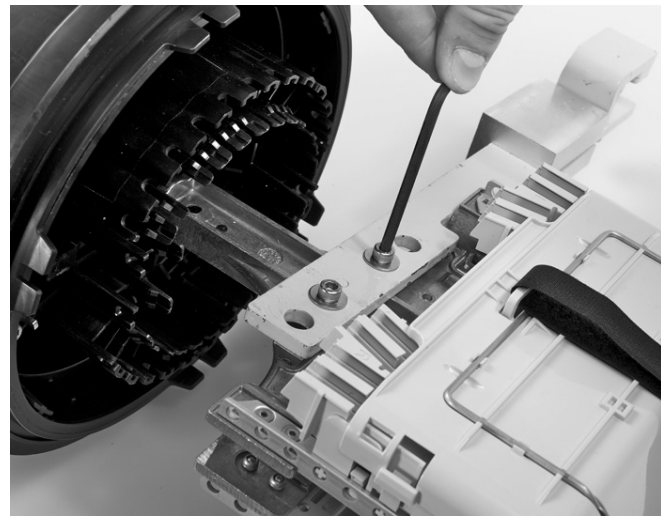
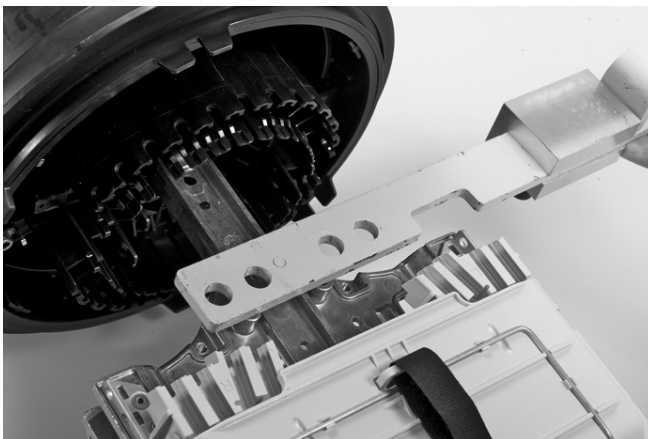
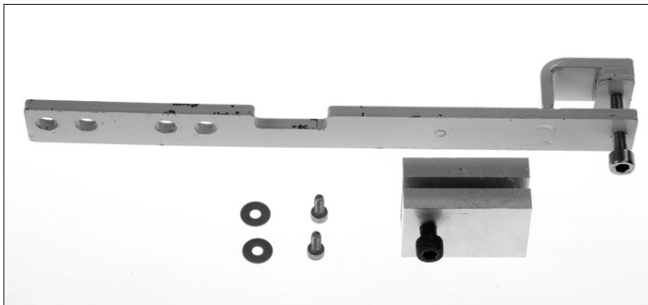
Depending on network layout and cable construction, kit contents received by the customer may differ from the kit contents described in this installation instruction. Image for reference only.



- Dome
- Base
- O-Ring
- FIST-UMS frame with gel-block
- Installation instruction
- 24 Blind plugs
- Oval kit for looped cable (dia 6-17 mm)
- Clamp

3 Closure preparation

3.1 Work-stand (optional)



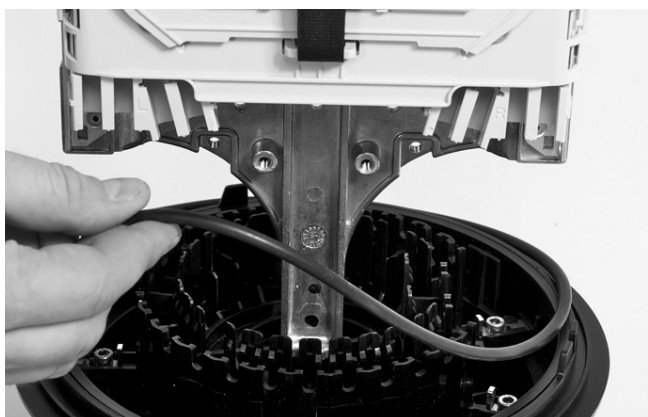
3.1.1 Install the work-stand as shown.

3.2 Opening FIST-GCOG2-Dx24

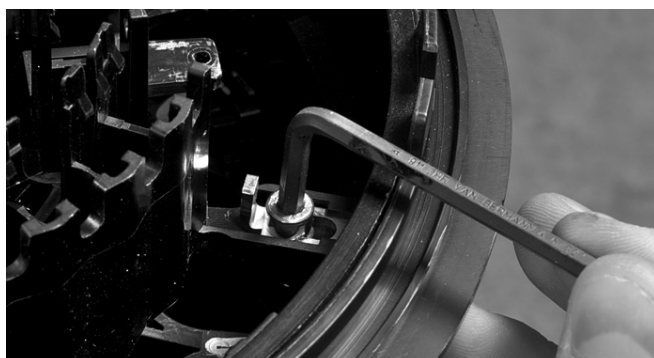


3.2.1. Open the clamp and remove the dome

Note: In case of re-entry loosen the trigger.



3.2.2 Remove the O-Ring.



3.2.3 Release the 3 screws and slide the 3 lips towards to the center. Retighten the 3 screws to prevent movement during the installation, remove the base. Allan-key number 4 can be used.

3.3 Preparing drop-cable with micro-tubes



3.3.1. Position the metal clip as shown and use tool to close the clip.



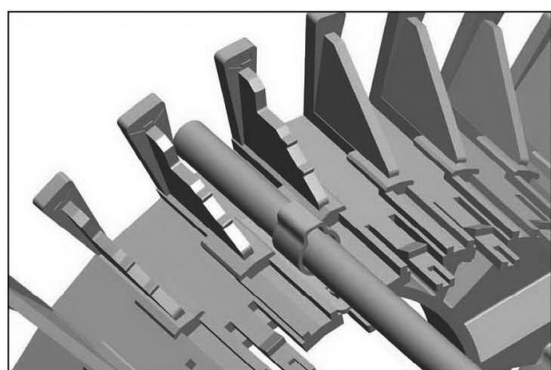
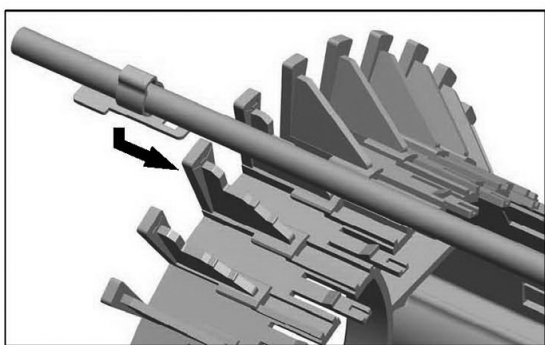
4 Installation

4.1 Micro-tubes

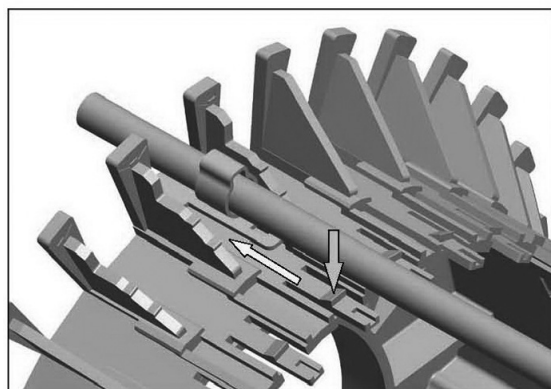
A Adding and removing the tube



4.1.1 Open the gel-block as shown.



4.1.2 Mount/click the tube to the termination part using the metal lip.

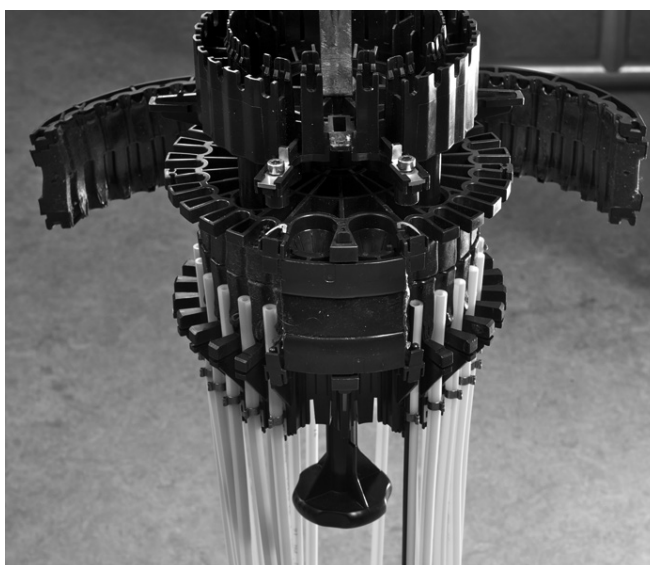


4.1.3 To remove one of the tubes push the lip inwards slide the tube towards the gel block and remove the tube.

B Installing 7/10 mm tubes



4.1.4 First tube must be installed to the right of the looped cable. Start with the tube of the black color. It helps to identify the first installed cable in the future.



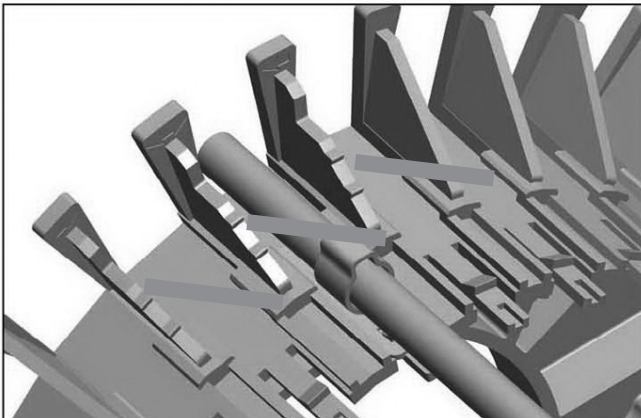
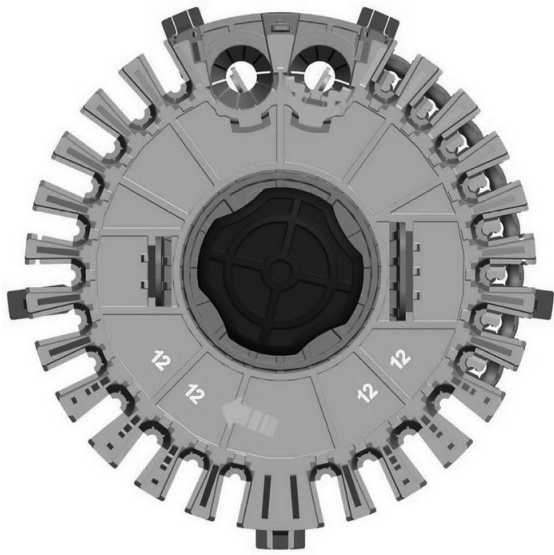
4.1.5 Install the rest of the tubes as shown (continue counter clockwise).

C A : 12 mm tubes (standard)

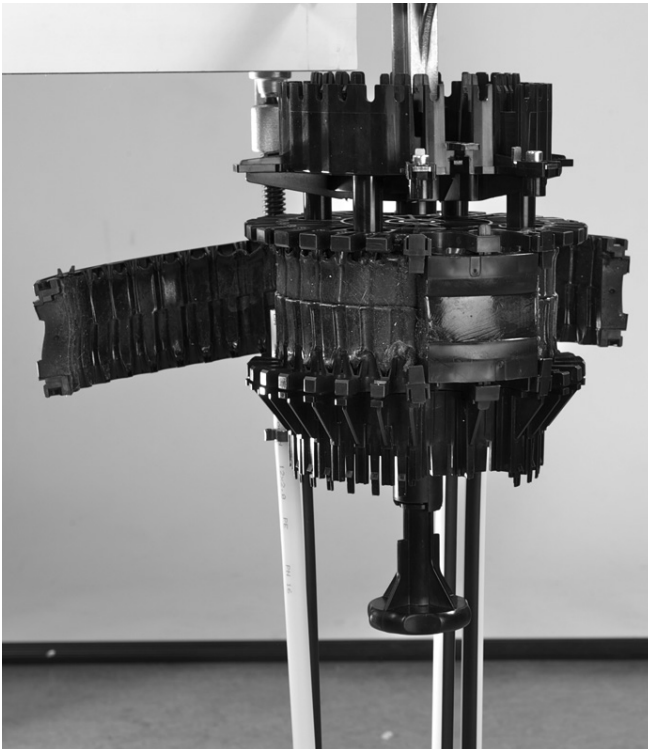


4.1.6 Open the gel-block as shown.

C B : 12 mm tubes in the position of the looped cable (optional)



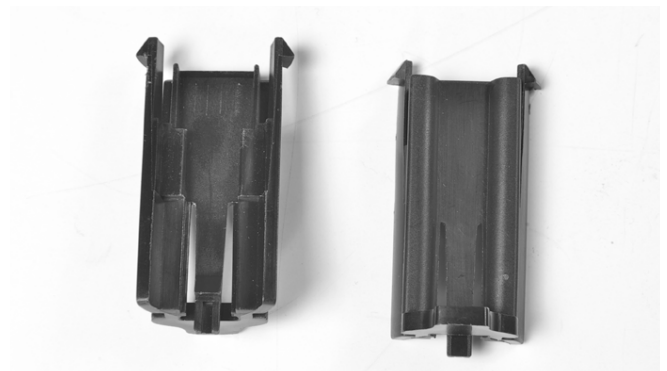
4.1.7 The 4 positions are marked on the inside and outside positions of the gel block.



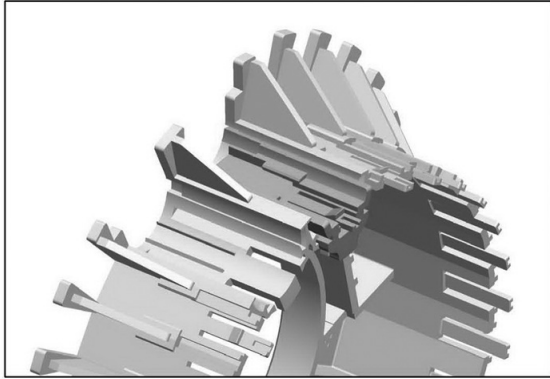
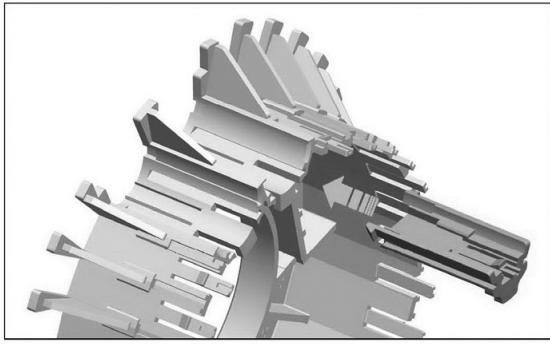
4.1.8 Mount/click the tubes into the tube termination part as shown.



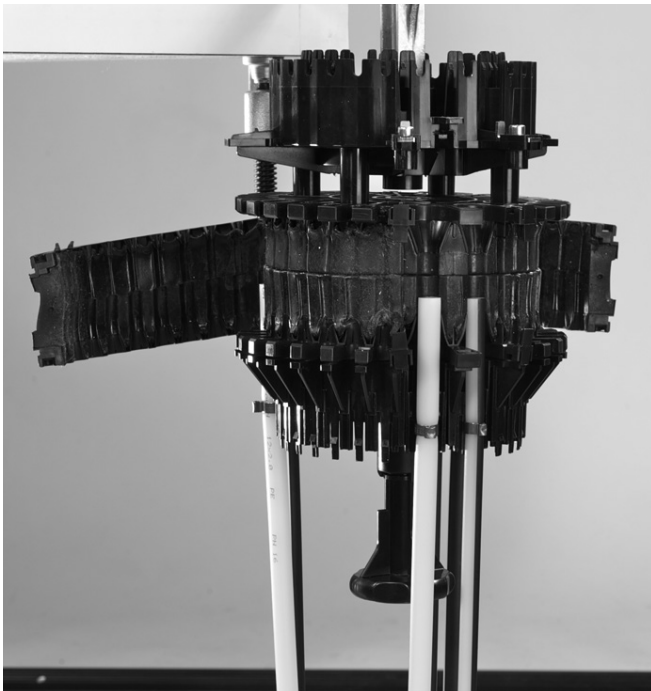
4.1.9 Remove the main cable part at the position of the looped cable as shown.



4.1.10 Use the two plastic sliders and install the tubes at the looped-cable position.



4.1.11 Install the two plastic sliders at the looped-cable position.

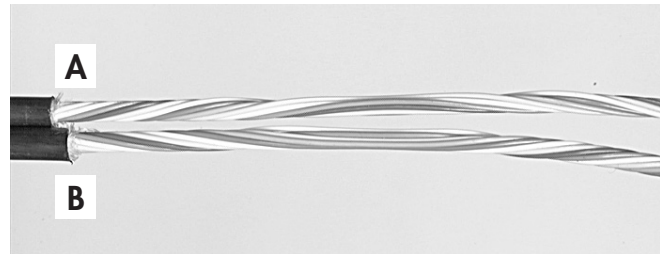


4.1.12 Mount/click the tubes into the tube termination part as shown.

4.2 Main cable (looped cable)

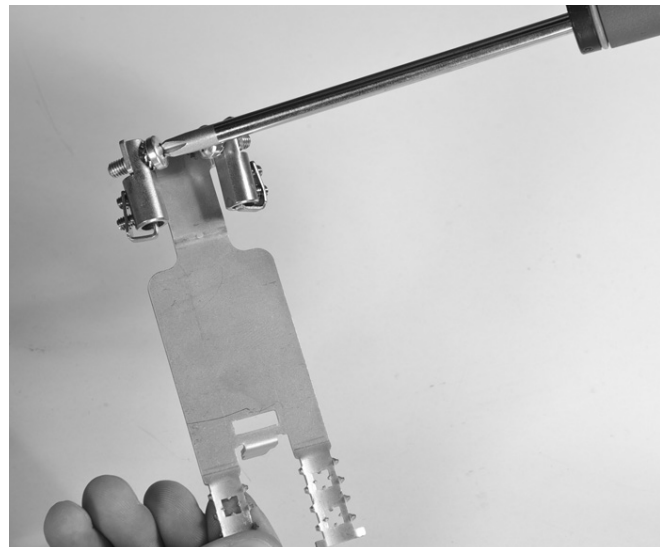
A Without grounding wires

	FIST-GCOG2-DC24	DD24	DE24
Window cut Length (m)	3,50	3,70	3,90

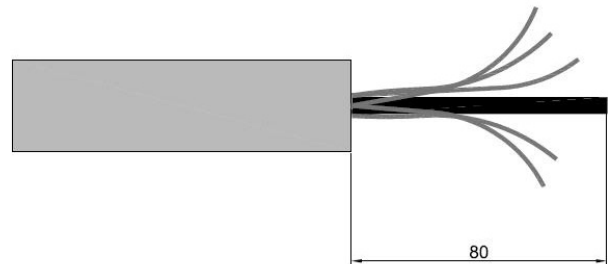


4.2.1 Reversed Oscillating cable: mark the cable in the middle of the loop and remove the cable jacket left and right of the mark over a total distance of 110cm. Locate the buffer tube reversal point on the cable and mark the cable at 1,75, 1,85, 1.95 meters left and right from this point. Remove the remaining cable jacket starting from this point.

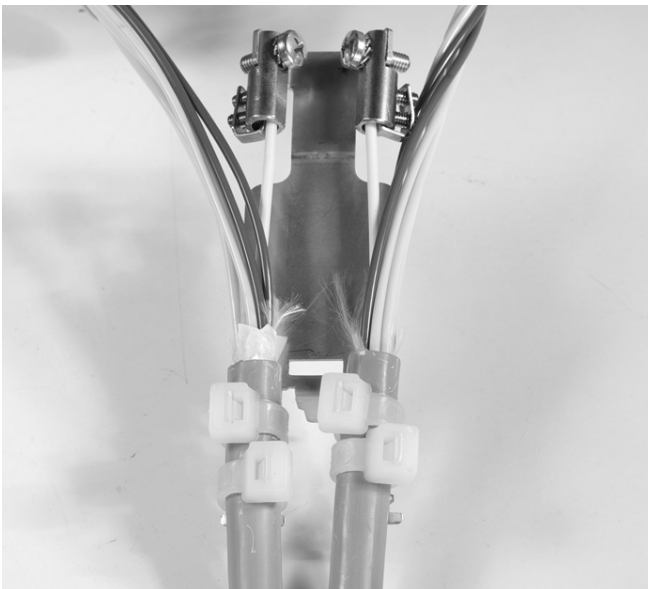
Important: make sure that the twist position of loose tube is identical in A and B. This must be done correctly for easy installation



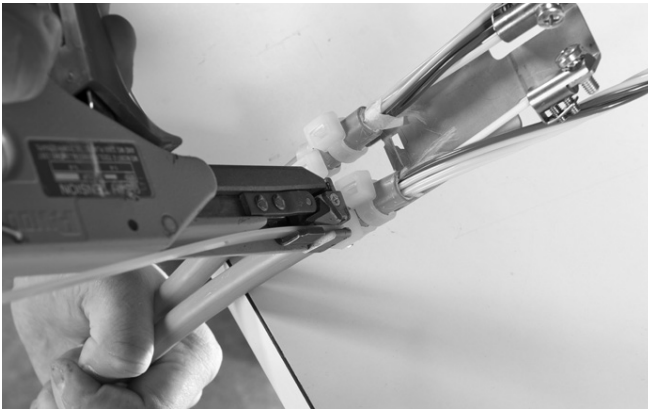
4.2.2 Install the universal strength member connector on the top of the bracket.



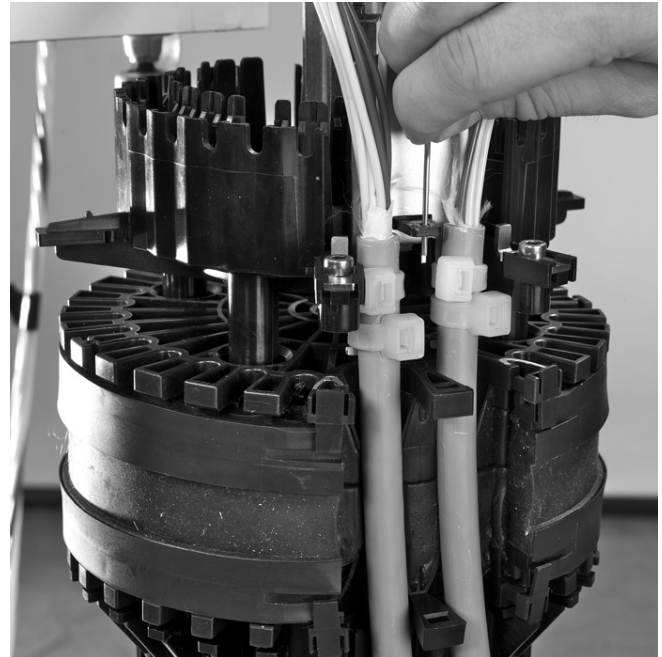
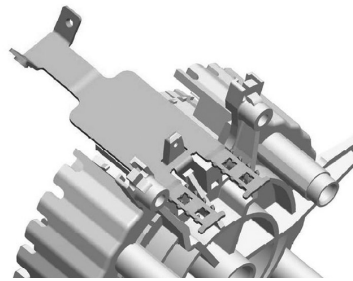
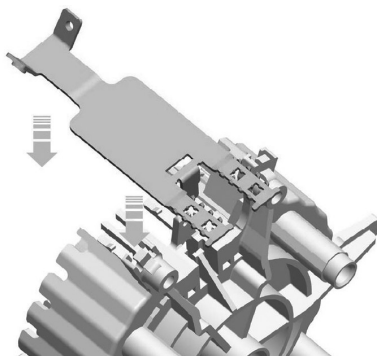
4.2.3 Cut the strength member leaving 80mm.



4.2.4 Insert the strength members of the cable into the universal strength member connector on the loop bracket (loosen the bolts with the Allen key if necessary) such that all loose tubes can be routed without unnecessary crossings. Avoid to twist the loop in the case of a reversed oscillating cable. Secure with the Allen key.



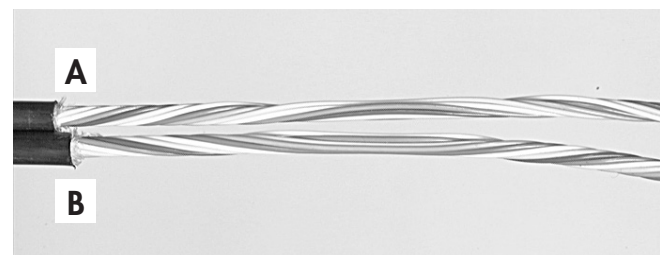
4.2.5 Use the tie-wraps to secure the cable jacket to the bracket. The top of the Tie-wraps should be installed as shown.



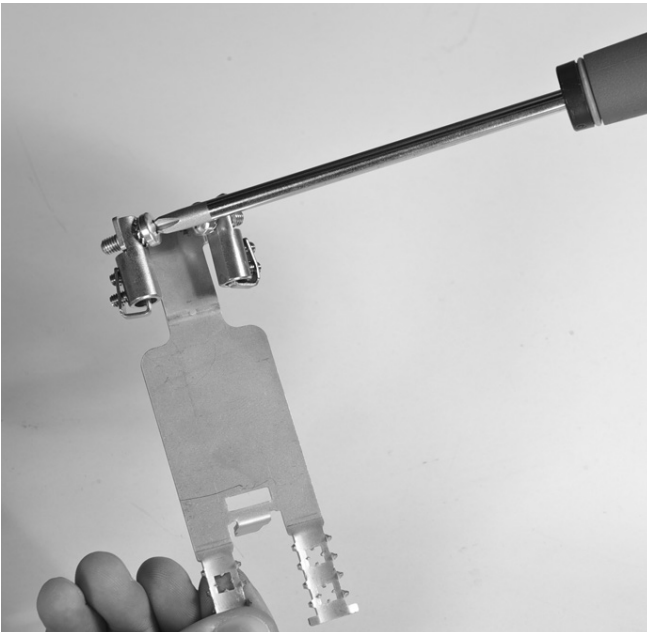
4.2.6 Install the cable bracket and secure with the small pin as shown.

A With grounding wires

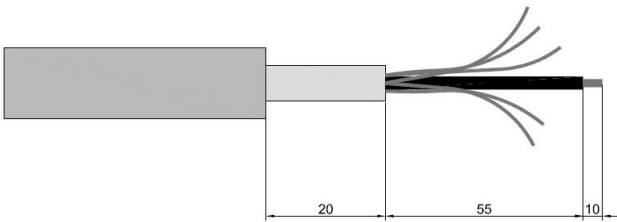
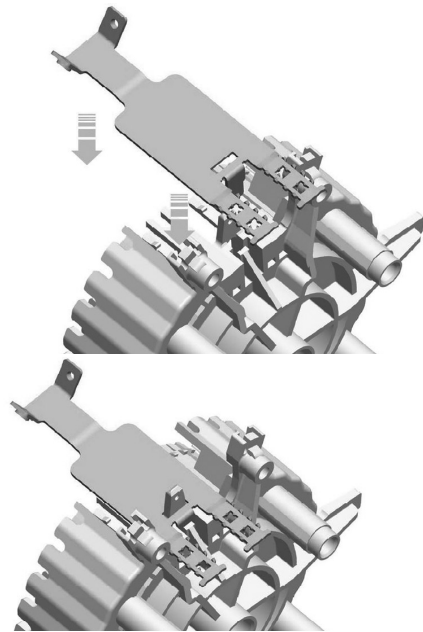
	FIST-GCOG2-DC24	DD24	DE24
Window cut Length (m)	3,50	3,70	3,90



4.2.7 Reversed Oscillating cable: mark the cable in the middle of the loop and remove the cable jacket left and right of the mark over a total distance of 110cm. Locate the buffer tube reversal point on the cable and mark the cable (1,75, 1,85,1,95) meters left and right from this point. Remove the remaining cable jacket starting from this point. Important: make sure that the twist position of loose tube is identical in A and B. This must be done correctly for easy installation

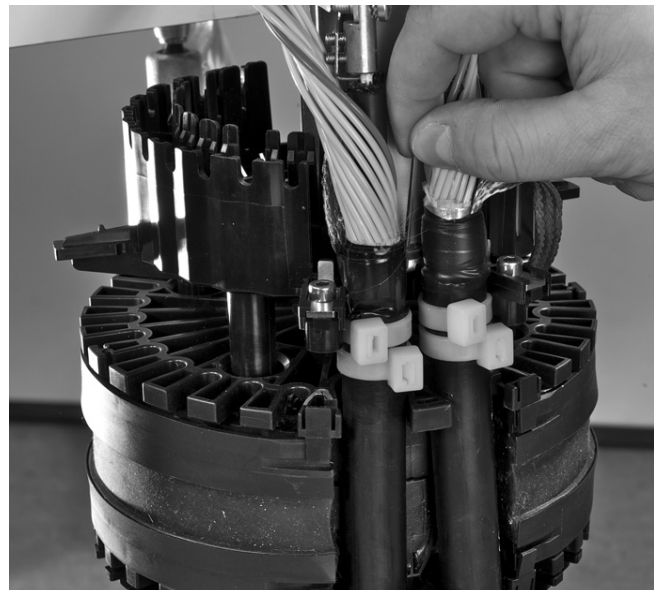


4.2.8 Install the universal strength member connector on the top of the bracket.



4.2.9 Cut the strength members.

4.2.10 Insert the strength members of the cable into the universal strength member connector on the loop bracket (loosen the bolts with the Allen key if necessary) such that all loose tubes can be routed without unnecessary crossings. Avoid to twist the loop in the case of a reversed oscillating cable. Secure with the Allen key.



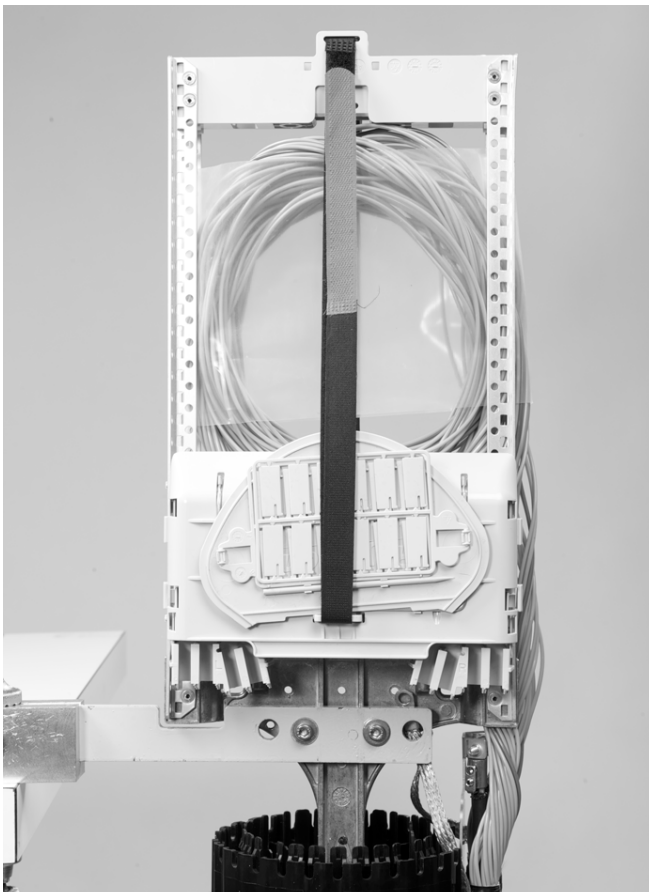
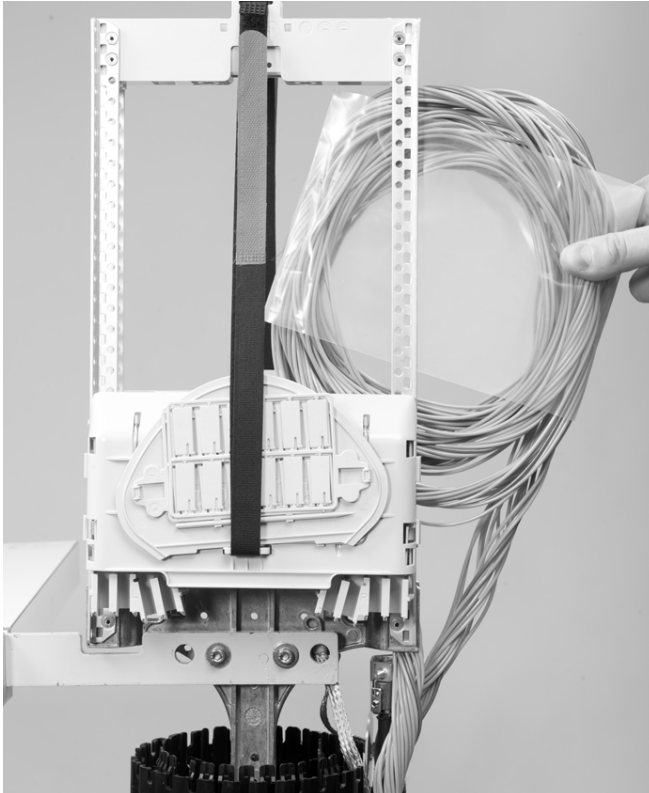
4.2.12 Install the cable bracket and secure with the small pin as shown.



4.2.11 To secure the cable jacket to the bracket using the Tie-wraps. The top of the Tie-wraps should be installed as shown.



4.2.13 Secure the ground wires



4.2.14 Straighten the loose tubes and put them in the plastic tube (use the maximum length). Store between UMS profiles.

4.3 Drop cables

A No micro-tubes $4 < \varnothing \text{ cable} < 7\text{mm}$

Be sure that the gel block is opened during the installation of drop cables.



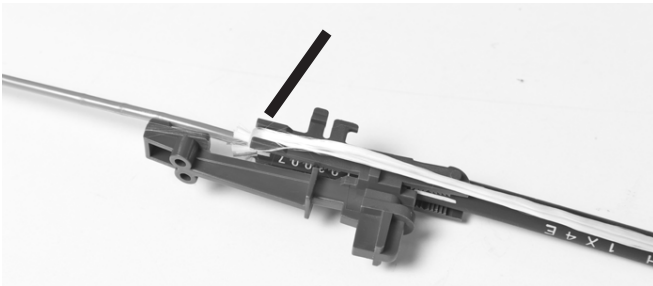
4.3.1 Open the gel-block.



4.3.2 Remove the cable jacket.

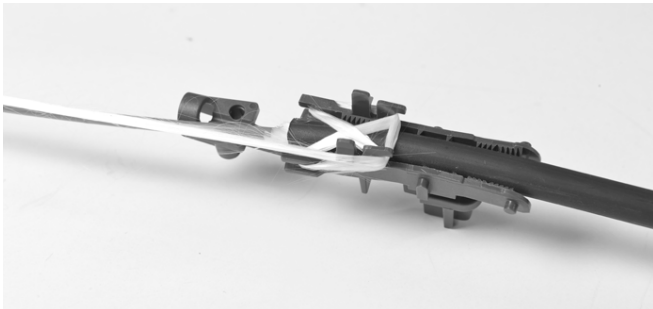


4.3.3 Cable termination unit (CTU). Three different sizes of spacers are available.

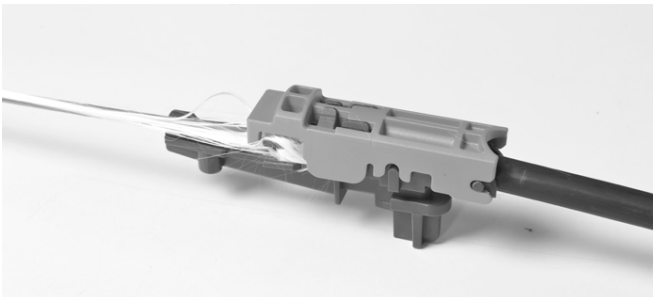


4.3.4 Guide the cable in the CTU and align the cable jacket with the edge of the CTU. Use the correct spacer in function of the correct diameter.

Spacer	1	2	3
Cable ø (mm)	4,9-5,8	3,1-4,8	2-3



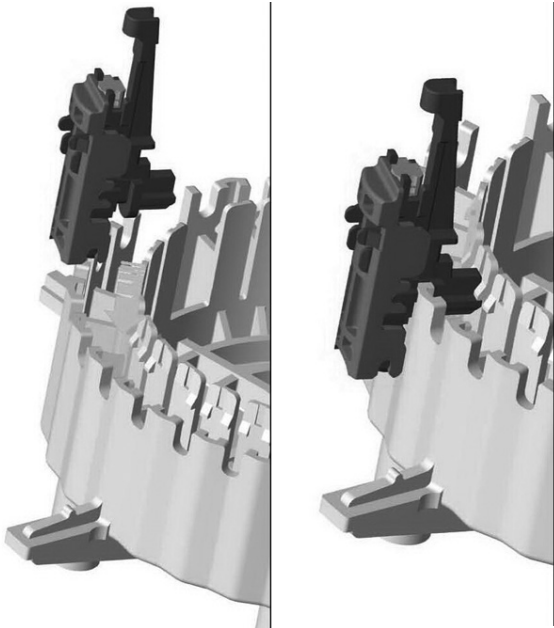
4.3.5 Wrap the aramid strength member as shown.



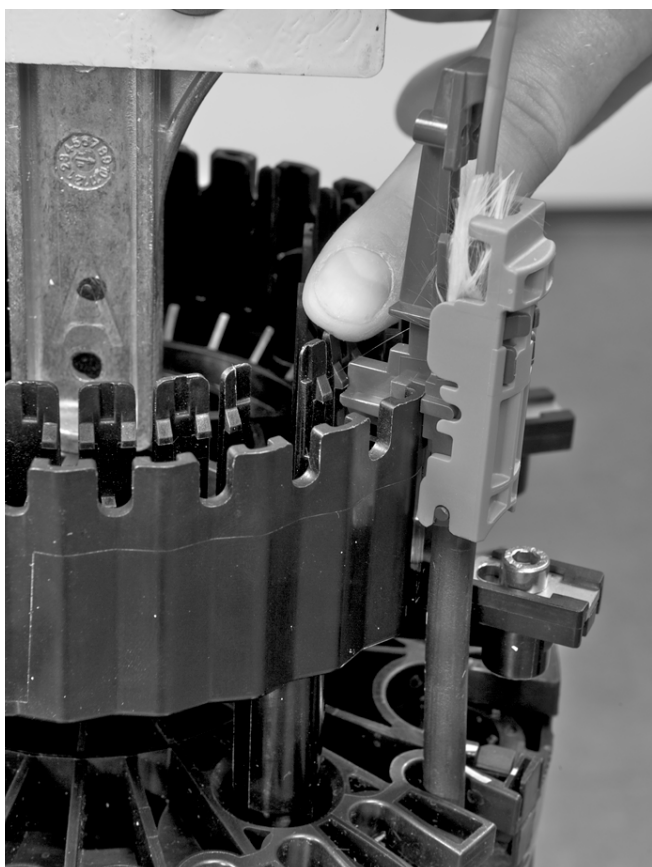
4.3.6 Close the CTU.



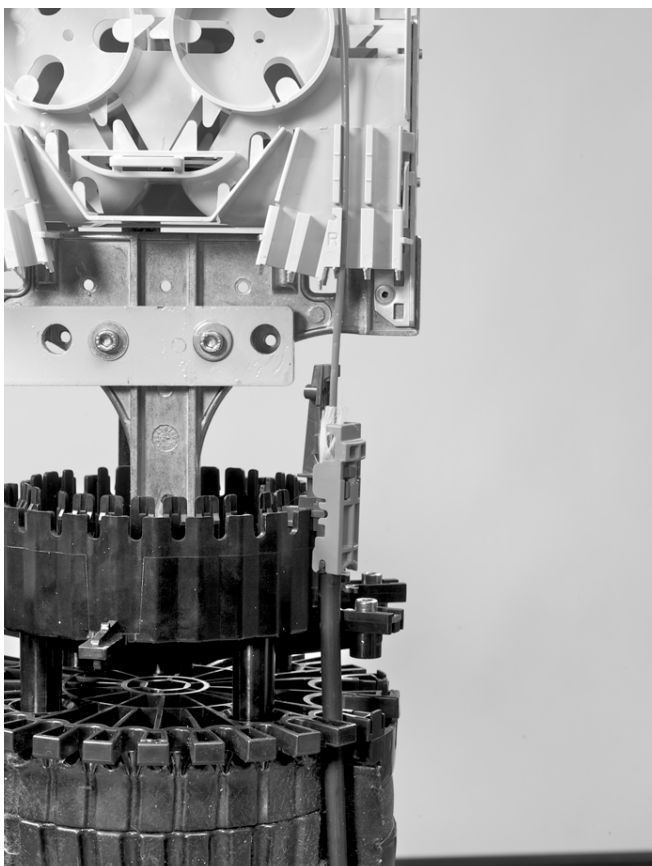
4.3.7 Remove the rest of the aramid strength member on the edge of the CTU.



4.3.8 Install the cable termination unit (CTU) on the base. Slide in the secured position.

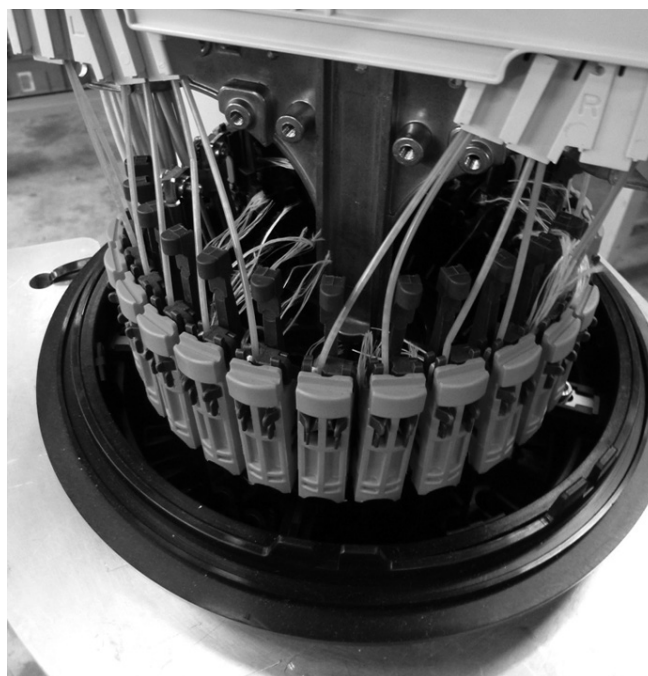


4.3.9 To release the CTU push the lip inwards and remove the CTU.



4.3.10 Installed drop cable.

4.3.11. To install additional cables repeat the steps 4.3.2. – 4.3.9.

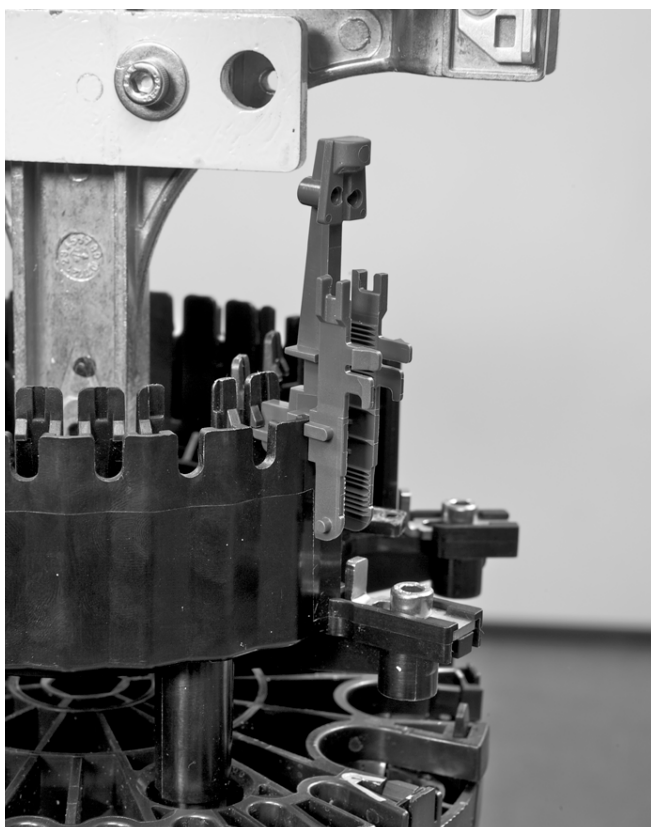


4.3.12 Routing of the cables towards tube holder

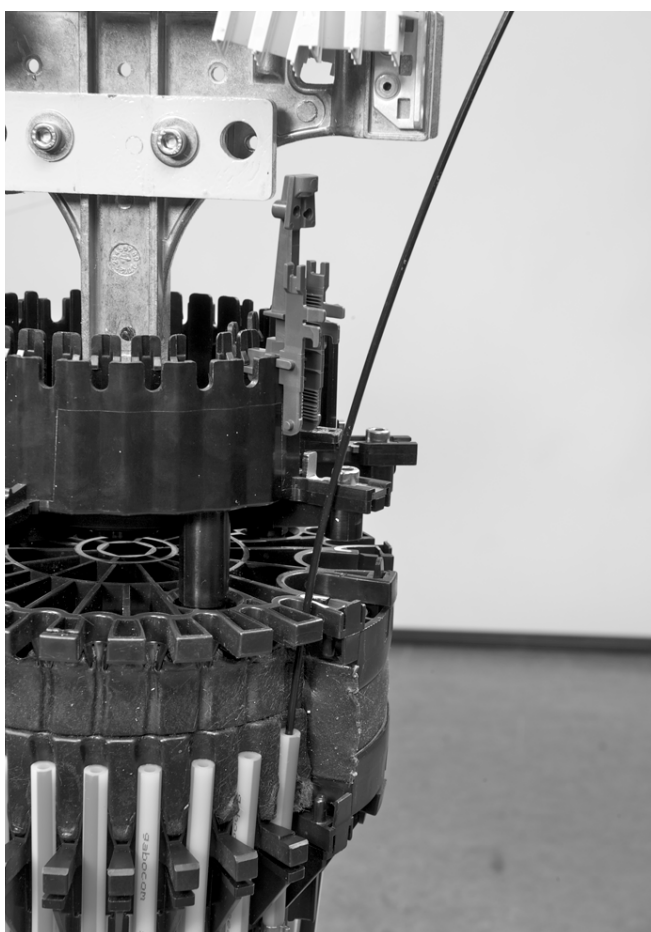
B Micro-tubes 7/10 mm $1.8 < \varnothing \text{ cable} < 4 \text{ mm}$



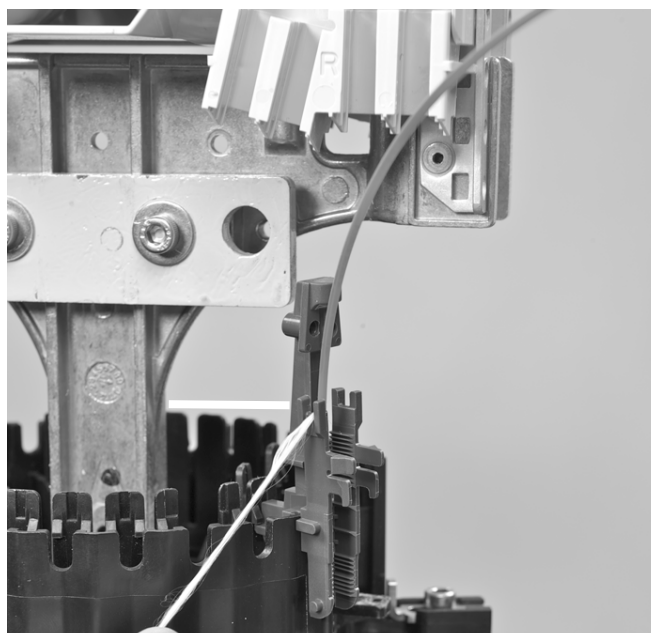
4.3.13 Cable termination unite (CTU).



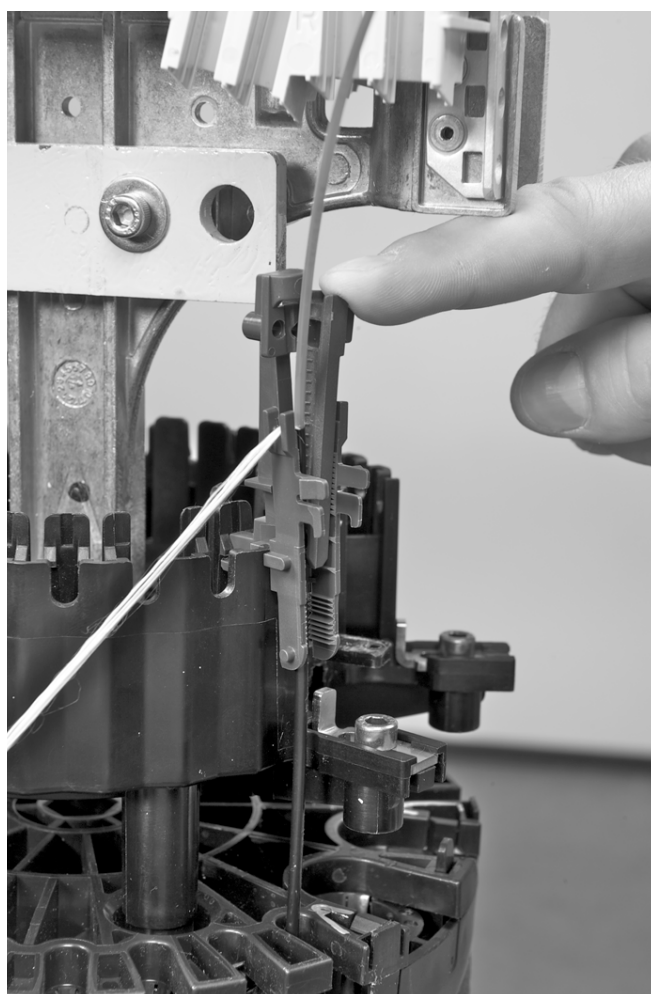
4.3.14 Install the bottom part of the CTU.

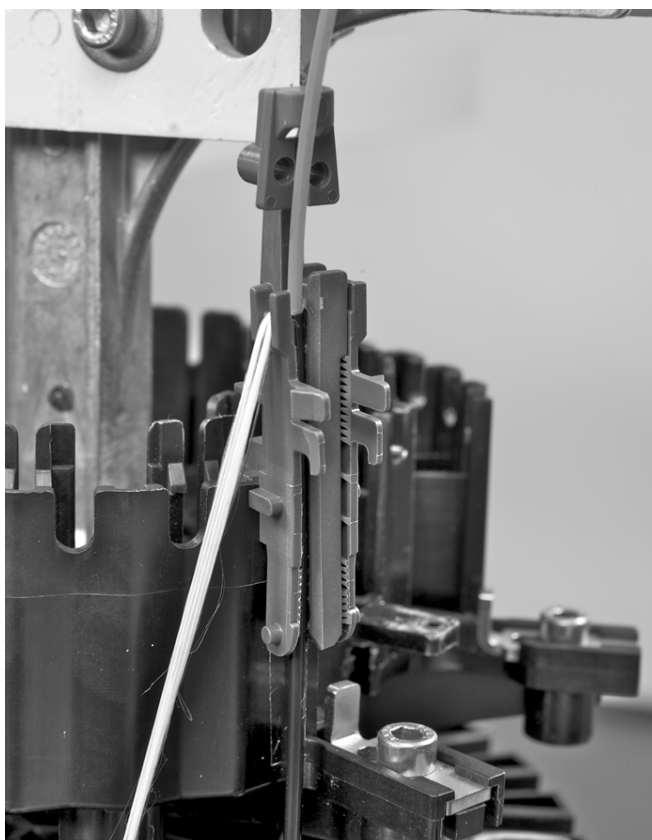


4.3.15 Open the gel-block and feed the first cable through the black tube and continue counter clockwise with the next cables.



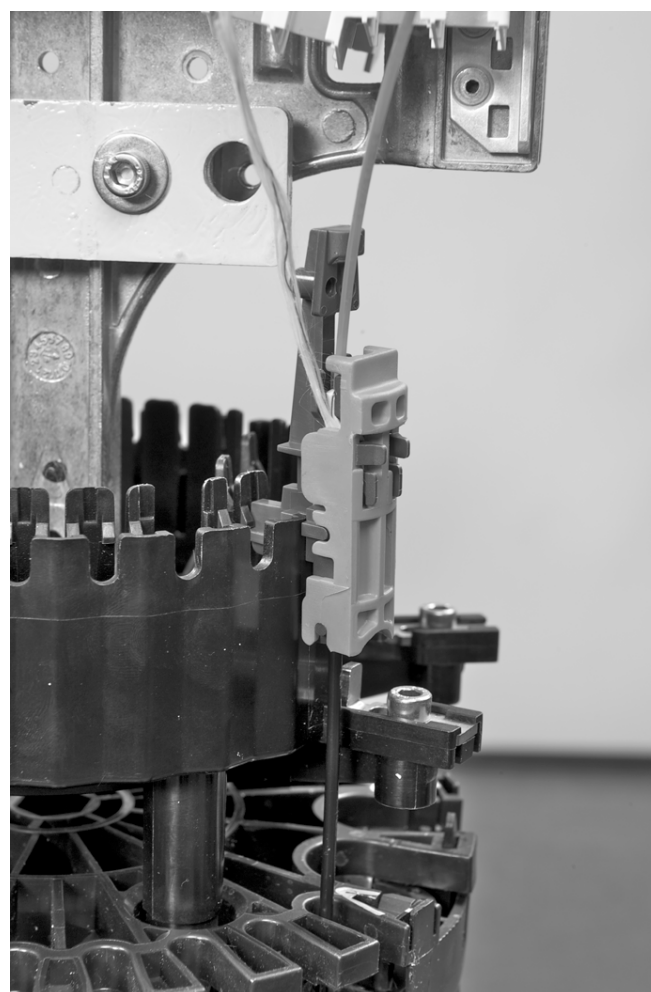
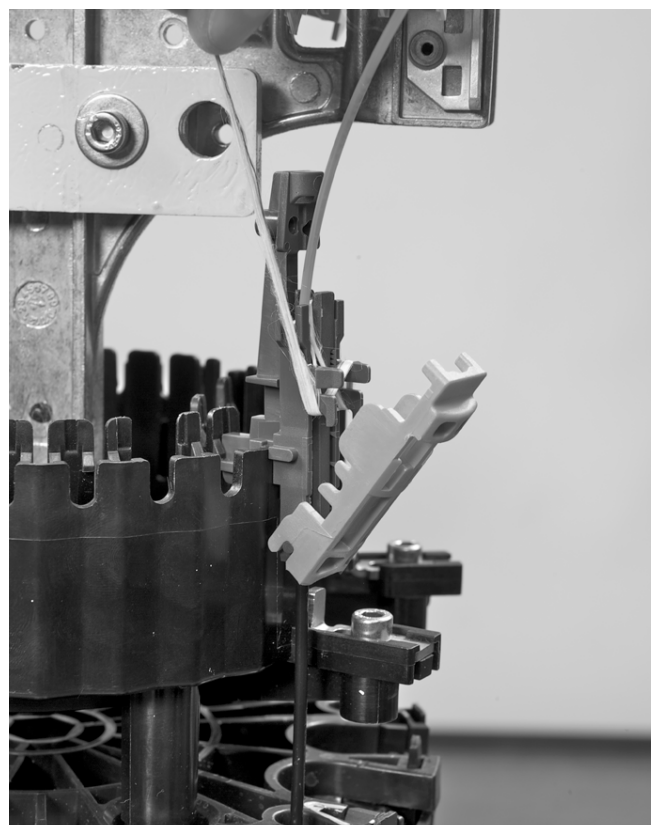
4.3.16 Remove the cable jacket starting on the edge of the CTU.





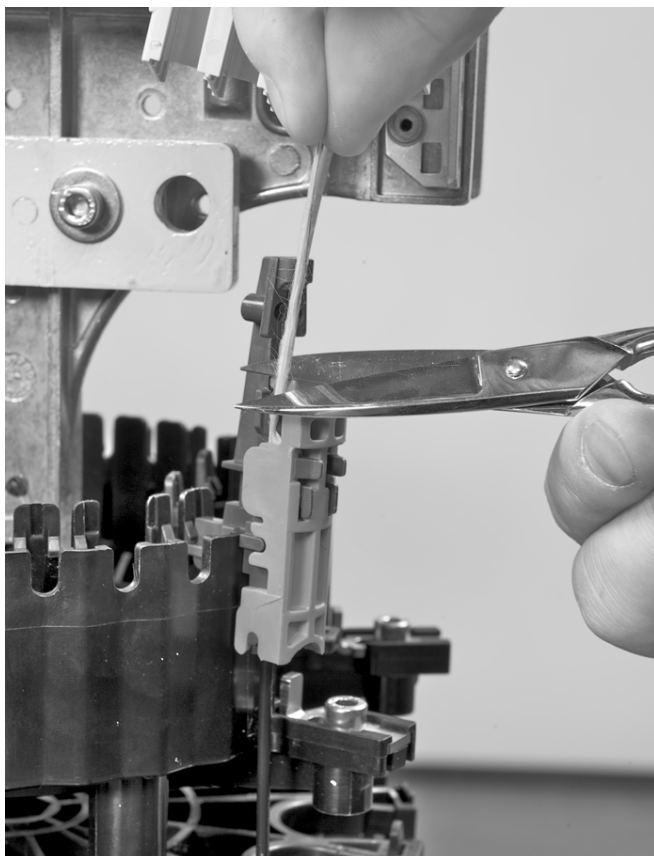
4.3.17 Insert the spacer into the CTU as shown. Use correct spacer in function of diameter

Spacer	1	2	3
Cable ø (mm)	4,9-5,8	3,1-4,8	2-3



4.3.18 Wrap the aramid strength member as shown.

4.3.19 Close the CTU



4.3.20 Remove the rest of the aramid strength member on the edge of the CTU.



4.3.21 Close the gel-block and make sure the gel block is completely closed.

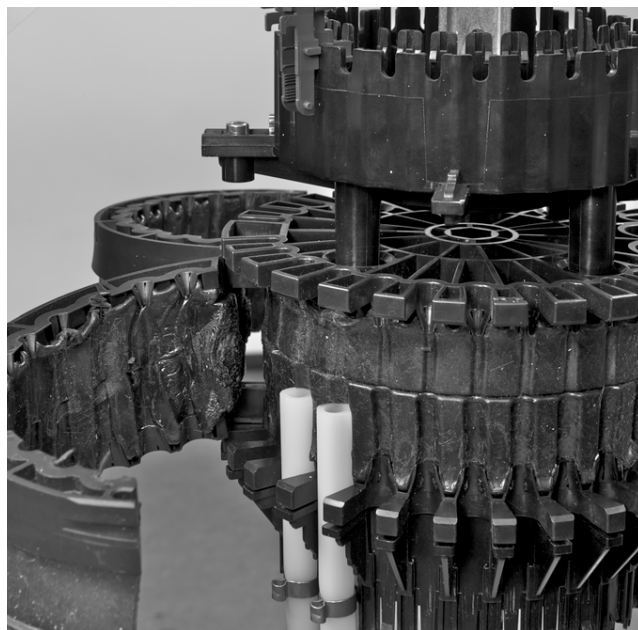


4.3.22 Routing of the cables towards tube holder.

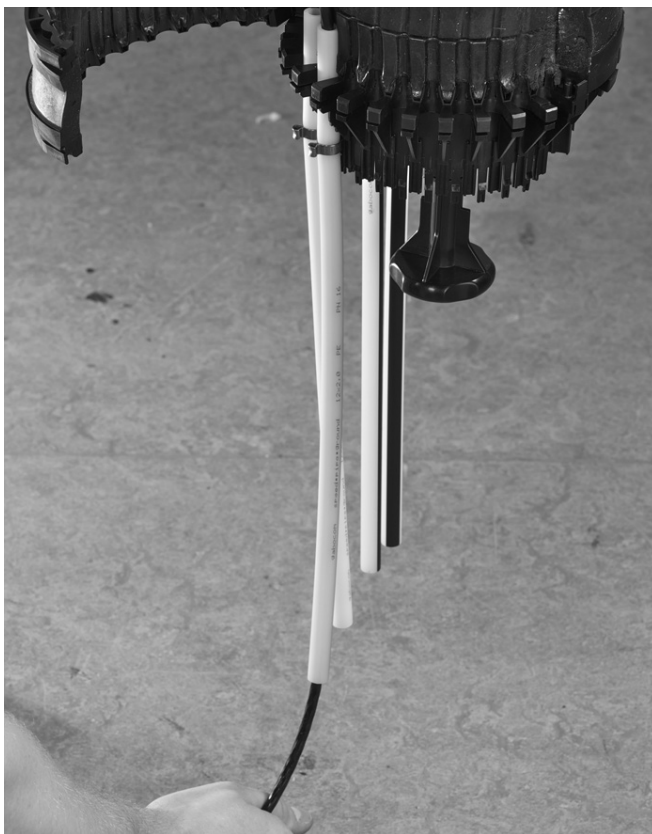
C Ground-tubes 12 mm $4 < \varnothing \text{ cable} < 7 \text{ mm}$)



4.3.23 Cable termination unit (CTU).



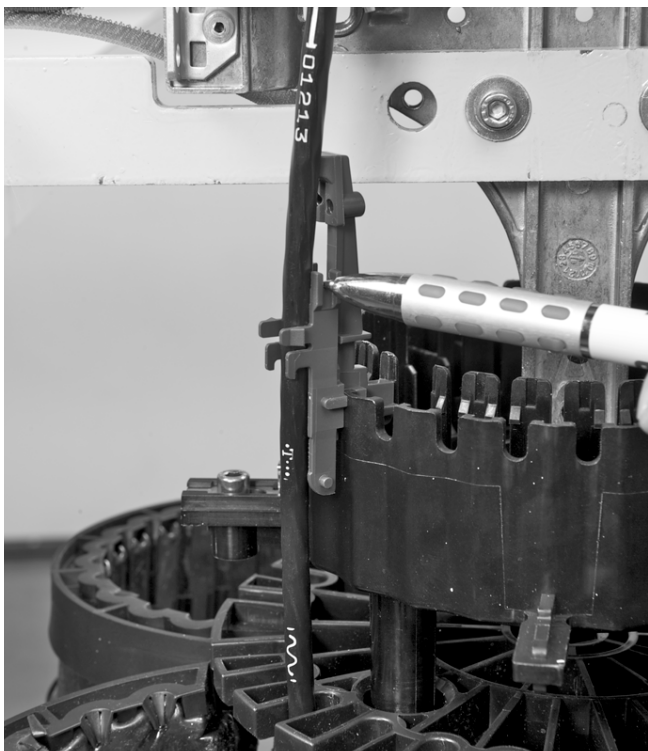
4.3.24 Install the bottom part of the CTU



4.3.25 Open the gel-block and feed the first cable through the tube and continue counter clockwise for the next cables.



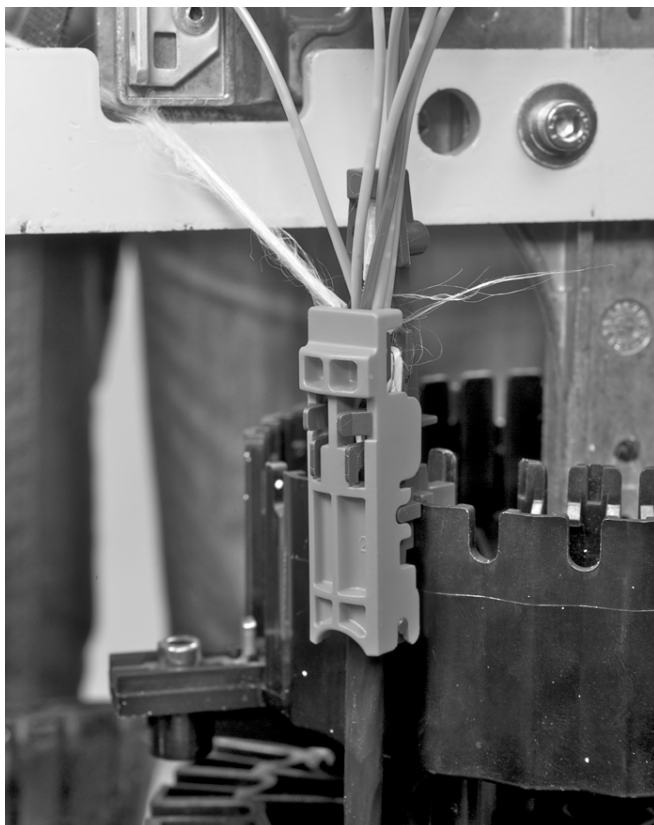
4.3.27 Cut the strength member leaving 2.5cm and install in CTU as shown.



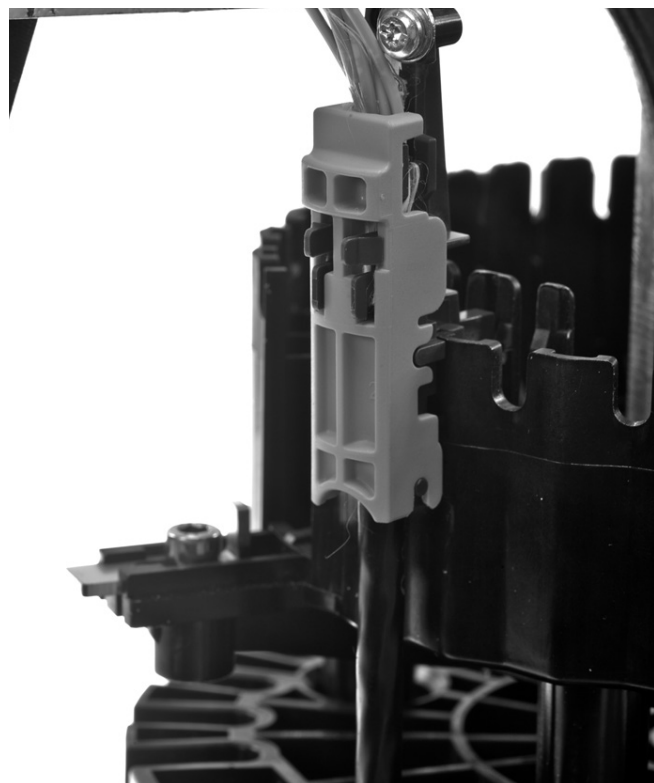
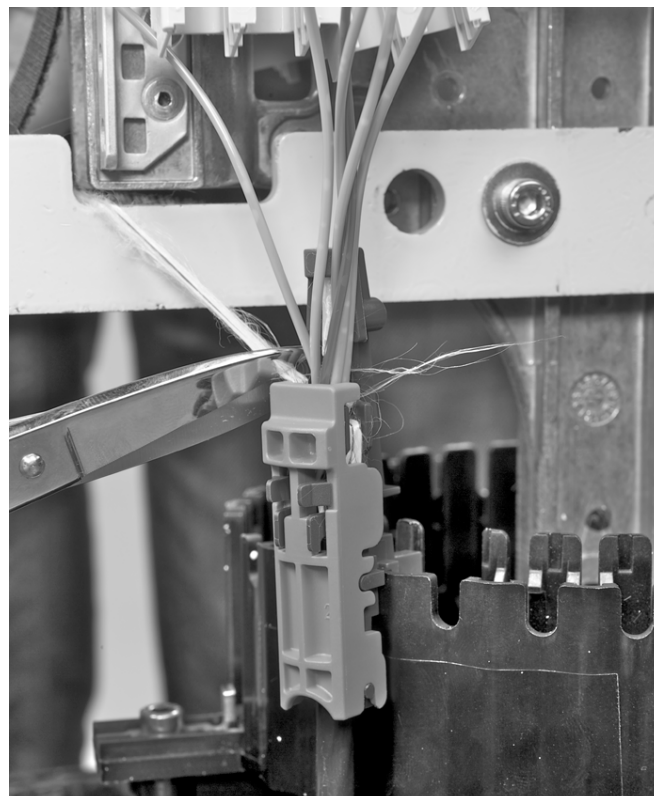
4.3.26 Remove the cable jacket starting on the edge of the CTU. Use the correct spacer in function of the diameter.

Spacer	1	2	3
Cable ø (mm)	4,9-5,8	3,1-4,8	2-3





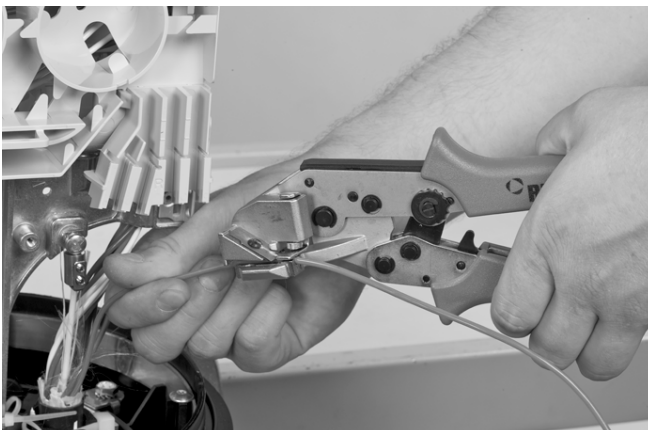
4.3.28 Wrap the aramid strength member and close the CTU as shown, as shown.



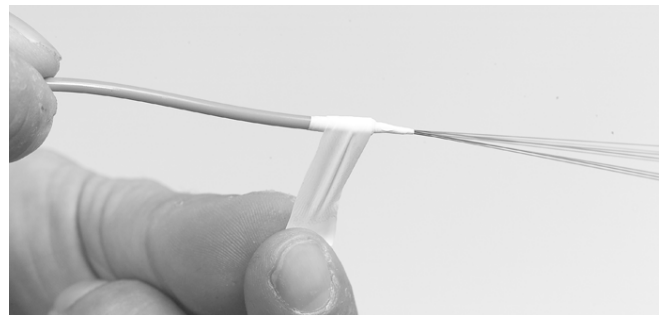
4.3.30 Close the CTU. Remove the rest of the aramid strength member on the edge of the CTU.

5 Fiber routing

5.1 Loose tube preparation



5.1.1 **In case of reversed oscillating cable:** separate the loose tube(s). Match the loose tube(s) on the tube holder and mark both sides between the two marks. Shave between the two marks with the appropriate tooling.



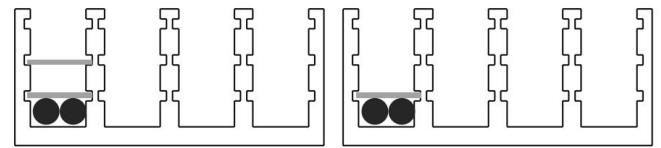
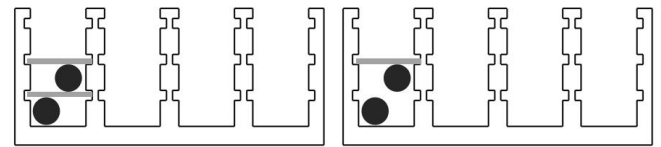
5.1.2. Clean and degrease the fibers and wind some tape around the transition from tube to fibers for protection.

5.1.3. In case of S-cable: cut the loose tube(s) (with fibers to be spliced) in the middle of the loop. Separate the cut loose tube(s) from the others. Match the loose tube(s) on the tubeholder and mark both sides. Strip the loose tube(s) between the marks. Clean and degrease the fibers.

Separate the fibers up to the tube holder and route to single circuit or single elements tray(s)

1 Position the loose tube on the lowest tubeholder retainer. Slide tubeholder retainer until it snaps above the loose tube.

2 Remove the lowest tubeholder retainer. Use a tweezer if necessary.



3 Slide this tubeholder retainer in the lowest possible grooves above the two (or more) tubes.

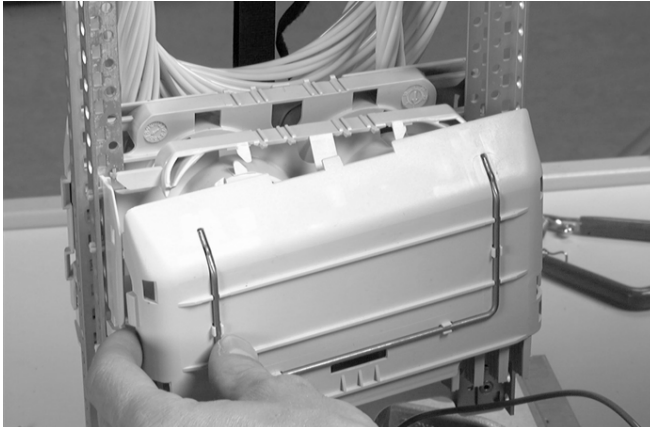
4 Remove the top tubeholder retainer.

5.1.4. Different loops can be put together beneath the same tube holder retainer. Position one or more loose tubes in the tubeholder and slide the tube holder retainer with the snap forward in the lowest possible grooves of the tubeholder above the loose tube(s). The tube holder retainer must snap.

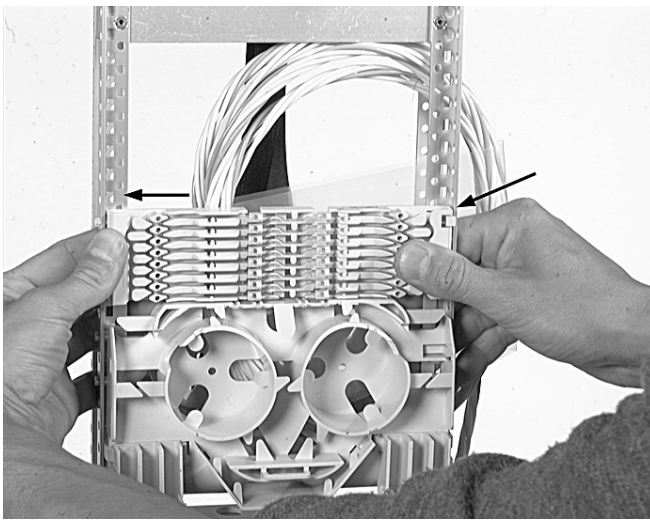
5.1.5. If the fibers are 'twist free' one can route the fibers separately to single circuit trays or single element trays. Separate all the fiber loops first up to the tubeholder.

If the fibers are not 'twist free' select first the fiber(s) which have to be spliced and cut these fibers in the middle of the loop. Remove these from the bundle up to the tubeholder. These fibers can be routed to single circuit trays, the other uncut fibers will be routed to a single element tray (never in dark fiber storage, see fiber routing).

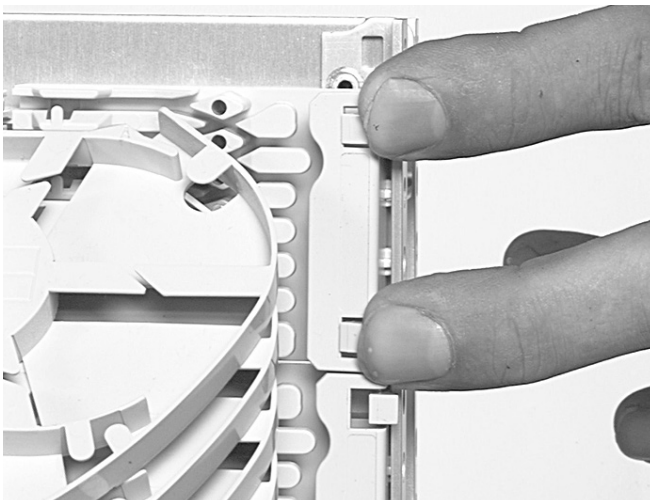
5.2 Fiber routing and fiber storage on trays



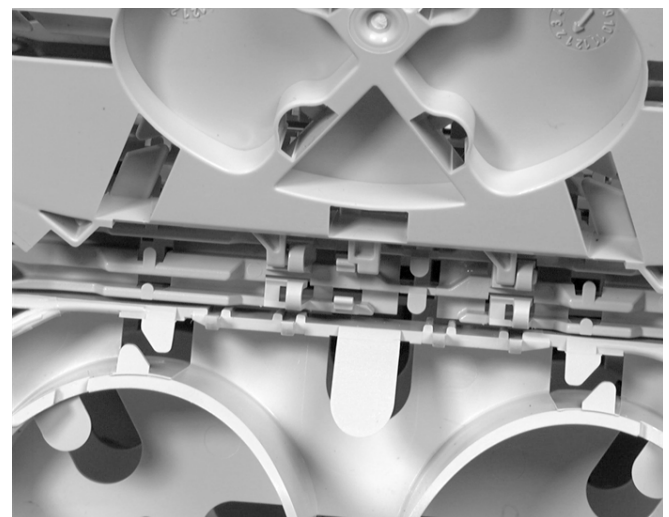
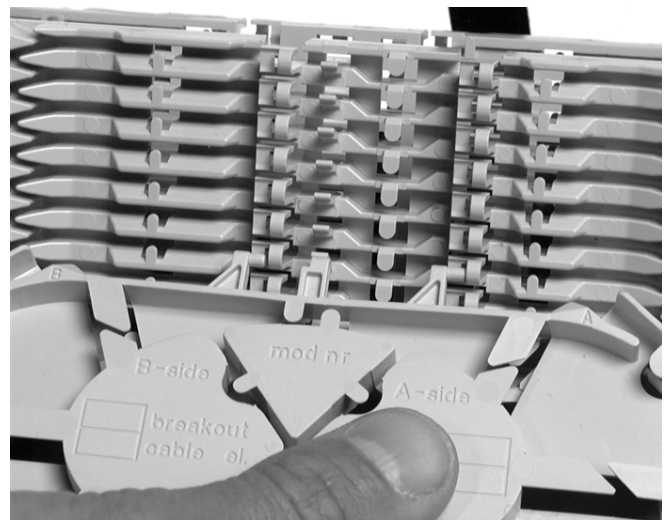
5.2.1 Remove the hook and loop strap and routing block cap. To remove the routing block cap lift the two snaps at one side of the routing block cap.



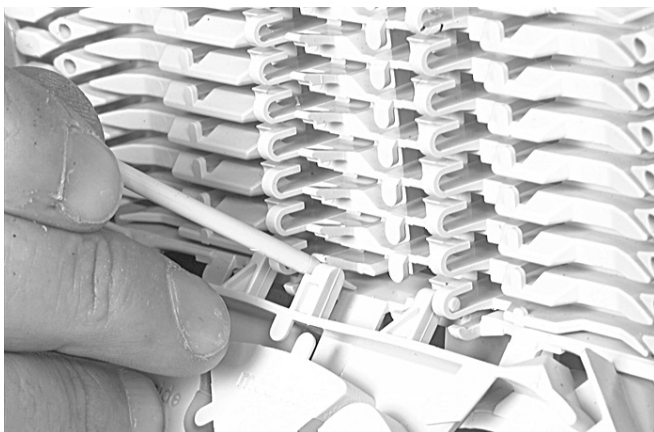
5.2.2 Fix the wraparound groove plate on the UMS by putting the plate with the long protrusions in the S1 UMS-profile and sliding the plate in the S2 UMS-profile until it snaps. (Do not leave gaps between groove plates).



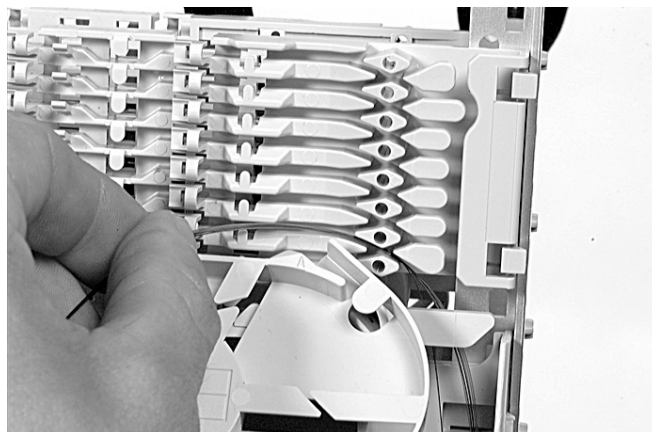
5.2.3. To remove push the two snapfits at S2 UMS-profile and slide the wraparound plate towards the S1 UMS-profile.



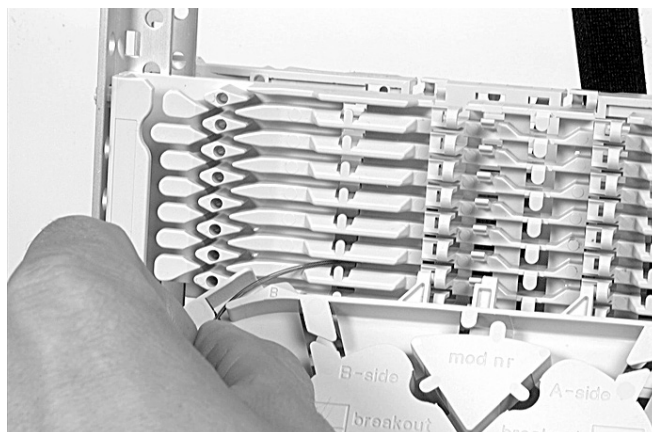
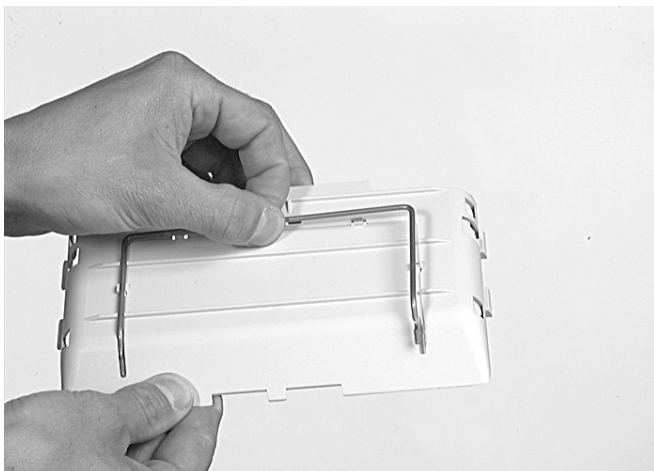
5.2.4 Place a tray in the wraparound groove plate: do this by pushing the lip on the groove plate slightly up with the tray and move the tray laterally into the hinge cavities. Start from the FAS block side and preferably mount trays as you fiber up. In case of SC trays do not leave spaces. In case of SE trays always leave one hinge facility open (between that FAS block and tray or tray and tray).



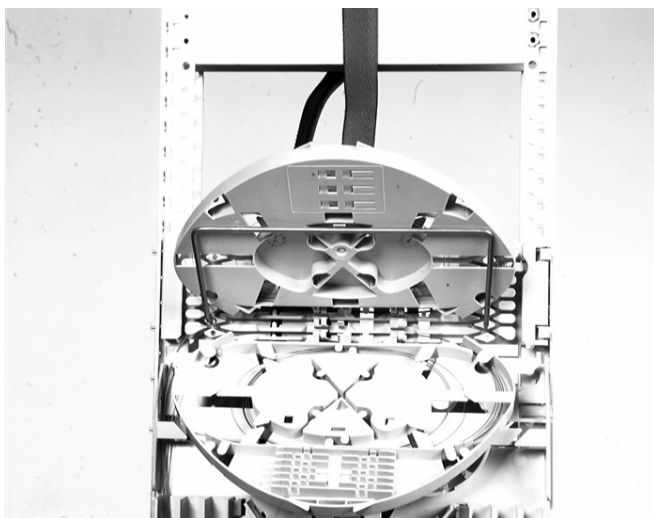
5.2.5 To remove the tray put the fiber guiding pin between the lip on the wraparound groove plate and the tray, and move laterally towards S1.



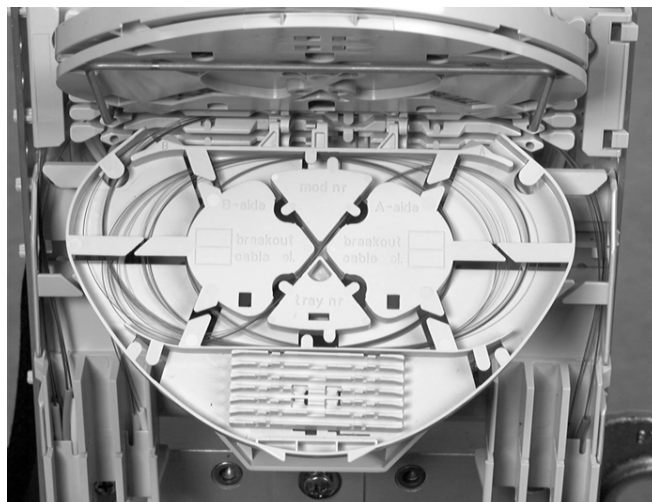
5.2.7 Route the fiber in the correct groove of the wraparound groove plate to the entrance of the identified tray. Fiber must be routed in the groove behind the hinge of the tray!



5.2.8 Pull gently on the fibers in the tray and make sure that the fibers are well contained in the routing block and wraparound groove plate.



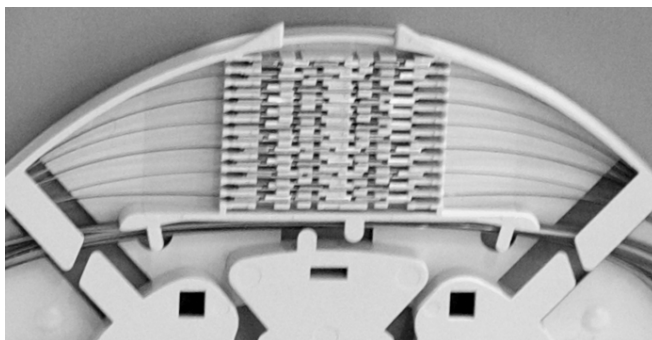
5.2.6 Identify the tray to be worked on and make it accessible. If the routing block and trays are in vertical position, you will have to support the trays above the selected one using the tray wedge which fits in the holes of the wraparound groove plate. Position the wedge carefully such that the groove is still accessible for the fibers and be careful not to push the wedge against fibers. To remove the wedge, use two hands to pull on both ends (near the groove plate) at the same time.



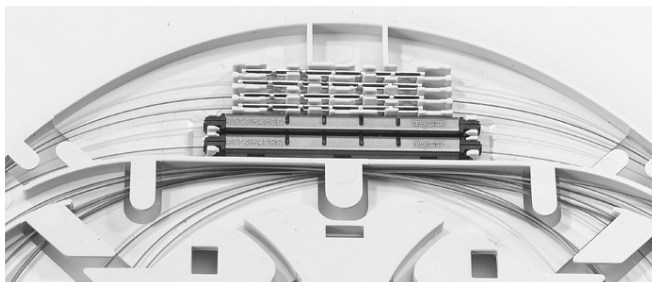
5.2.9. Store the fibers temporarily on a tray (the picture shows the case of a loopback).

5.2.10. Store dark fibers can be dan in different ways :

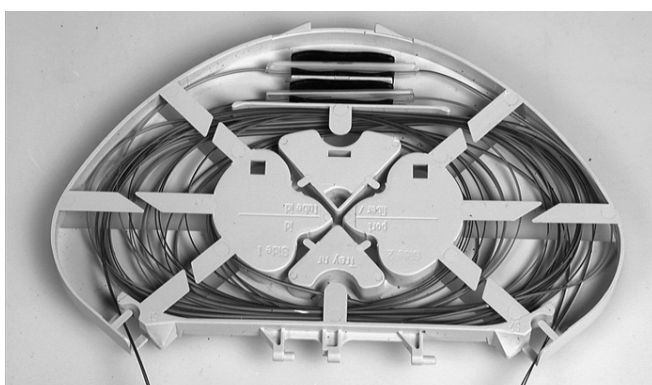
- 1) Organise dark fibers into the different trays, following instructions as described.
- 2) Organise dark fibers together into the first available tray (i.e. with a max. of 24 cut or 12 loops primary coated fibers in one SE-tray).



5.2.11 ANT in SE tray.

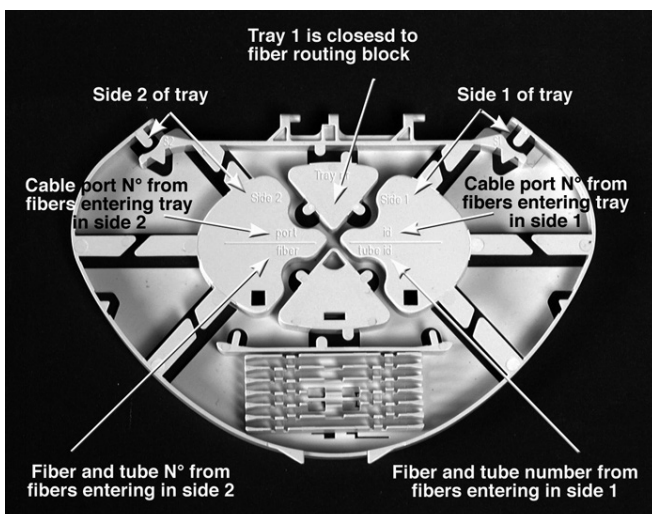


5.2.12 RECORDsplice/ANT in SC tray.



5.2.13. Ribbon 4/8 tray.

5.3 Tray identification and tube capacity

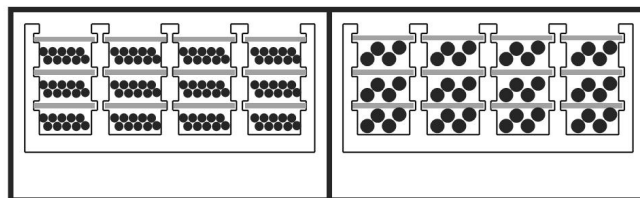


5.3.1 One can use a permanent marker to write on the tray.

OVERVIEW LOOSE TUBES

Loose tube 1,5 mm (3 retainers)
4 x 30 = 120 tubes

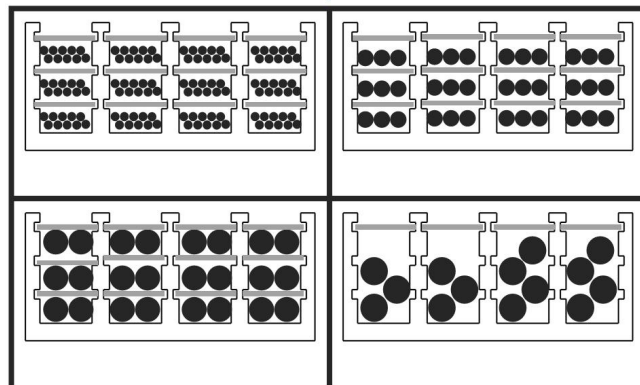
Loose tube 2,3 mm (3 retainers)
4 x 12 = 48 tubes



OVERVIEW FOPT TUBES

FOPT tube 1,8 mm (3 retainers)
4 x 30 = 120 tubes

FOPT tube 3,1 mm (3 retainers)
4 x 9 = 36 tubes



FOPT tube 4,3 mm (1 retainer)
4 x 6 = 24 tubes

FOPT tube 5,0 mm (1 retainer)
(2 x 3) + (2 x 4) = 14 tubes

5.3.2 Tube holder capacity
Number x outer diameter loose tube (mm)

5.4 Important steps during installations

- Make sure that the grooves on the wraparound groove plates are clean.
- Clean the fibers.
- Loose tubes routed up to the tube holder should be routed in such a way that one still has complete access to the stored tubes between the UMS profiles. This is needed for later routing of loose tubes from the loops to the tube holders without creating crossings and without creating disturbances on the loose tubes already routed up to the tube holders.
- Use correct lengths in the tubeholder.
- Make sure not to loose ID.
- Be secure when preparing window cuts on loose tube cables for storing uncut fibers.
- Avoid in all cases crossings of fibers and loose tubes.
- Do not mount the closures with the base pointing up.

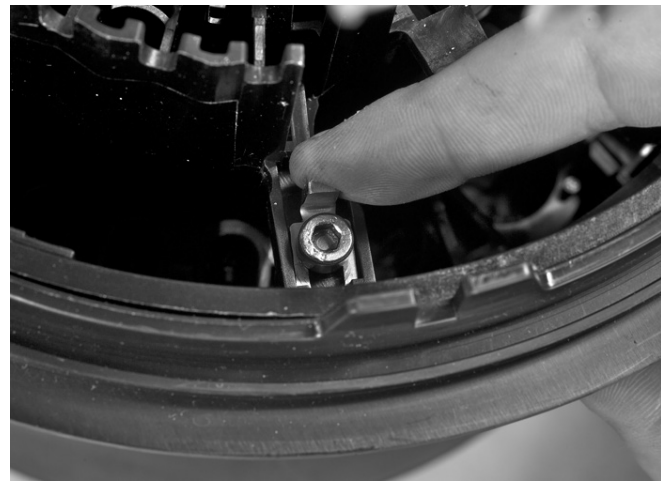
5.5 Re-arrangement

- Avoid to pull fibers in between groove plates.
- Avoid fiber movement between the tubeholder and first containment lips on the routing block.
- Take special care re-arranging fibers from side A to B or reverse.
- If accidentally active fibers are removed from the containment devices, reposition them carefully.

6 Closing FIST-GCOG2-Dx24



6.1 In case of unused ports apply the yellow plugs to seal the ports.
Note: The blind plugs need to be inserted from inside.



6.3 Close the base. Release and slide the 3 lips back in the position, tighten them.



6.2 Align the base with the gel block as shown with the arrows.



6.3 Tighten the trigger until full stop.



6.4 In case of looped cable Install and tighten the two tie-wraps as shown

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