COMMSCOPE®

Installation Instructions

TC-574-SIP-CH
Rev B, February 2022
www.commscope.com

FIST-GCO2
GCO2-BC8-XX
GCO2-BD8-XX
GCO2-BE8-XX

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1 Introduction

The generic closure FIST-GCO2 is the environmentally sealed 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 FIST-GCO2 has provision for all cable termination and sealing requirements.
To clean FIST components, the use of isopropylalcohol is recommended.
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. One oval entry port for looped (uncut) cable management and six or sixteen round ports for single cable entry/exit are included in the base. The cable seals are manufactured from heat-shrinkable material. The Universal Mounting System provides the foundation for mounting SOSAs and SASAs back to back. The two back to back sides have each a standard capacity of 28, 40, 58 or 64 (BF). Uncut loose buffer tube storage is available between the two UMS-sides (Universal Mounting System). Storage of uncut looped ribbons or fibers from central core (or slotted core) cables is available with the fiber storage basket. Storage of uncut looped ribbons or fibers can be done in individual FIST-trays.

Dimensions (in mm)

Closure Type	GCO2-BC8-XX	GCO2-BD8-XX	GCO2-BE8-XX	GCO2-BF8-XX
L	488	566	700	780
D with clamp	285	285	285	285

Closure Type	GCO2-BC8-XX	GCO2-BD8-XX	GCO2-BE8-XX	GCO2-BF8-XX
Capacity				
Primary coated fibers				
Single element	336	480	672*	960**
Single circuit 2	112	160	224	256
Single circuit 4	224	320	448	512
Ribbon 4				
2 ribbons each tray	40 (160 fibercount)	80 (320)	110 (440)	
1 ribbon each tray	20 (80 fibercount)	40 (320)	55 (220)	
Ribbon 12				
1 ribbon each tray	16 (192 fibercount)	28 (336)	36 (432)	

* Capacity on FAS can depend on capacity on tubeholder, see for instance the capacity table for loose tubes later on
** When using the SOSA2-5SE

Cable diameters in 8 port base

Loose tube loop, 12-25 mm drop,(5-30 mm)
C.Core loop, 12-25 mm drop,(5-30 mm)

2 General

2.1 Abbreviations

Looped Cable Installation Tool	LCIT
Universal Mounting System	UMS

2.2 Kit contents

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

- Dome + collar extension (BF8)
- Base including routing block + cover (universal mounting system), shield mounting bolt, and strength member termination bracket
- Clamp (2) (BF8)
- O-ring (2) (BF8)
- 2 tray covers + fiber guiding pin +tube holder retainers
- 2 tray wedges

Image for reference only.

2.3 Elements possibly needed from the FIST installation kit

Product Name	UOM	QTY/UOM	Product description
FISTV-E7185-3010	1 RL	50 m	Cut wire to open the FIST-GCO2 ports
FISTV-E7100-1005	1 PK	10x100g	Silicagel for inside the closure, to be replaced after each re-entry
FISTV-SPLI-COL	1 PK	30 sets	Split identifications collet (2-sizes) till 3.5 mm

2.4 Tools

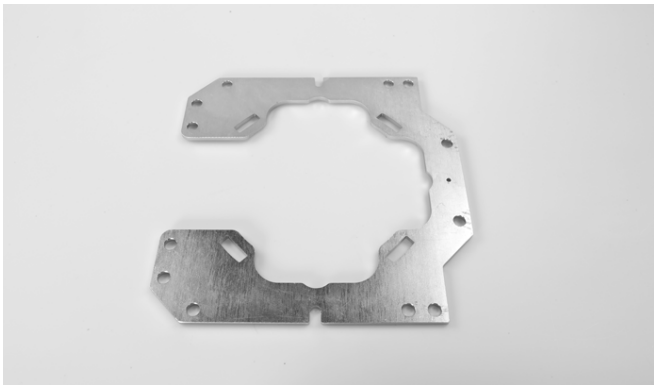
- FIST-LCIT — Looped tube insertion tool for oval outlet To insert loose tubes in oval port
- FACC-TUBE-CUTTER-01 — Tube cutter To cut spiral tubing
- FACC-TUBE-STRIPPER-02 — Tube stripper To strip loose tubes
- FACC-AXIAL-STRIPPER-RC1 — Tube splitter To split buffer tubes 2.0-3.1mm
- FACC-HEAT-GUN-220V — Heatgun + Heatgun tip To shrink cable seals
- FIST-WORK-STAND-8 — To hold the closure in a vertical position during installation
- FIST-WORK-STAND-8-H — Hinging workstand To hold the closure (8 ports) in any position during installation

2.5 Cable preparation table

		Window cut	drop cable
Loose Tube	BC8	3.5 m	2.2 m
	BD8	3.7 m	2.2 m
	BE8	3.9 m	2.2 m
	BF8	4.4 m	2.3 m

3 Installation

3.1 Workstand



3.1.1 The FIST-GCO2 will be mounted temporary on the work-stand. The work-stand is wrap-around, so that the FIST-GCO2 installed with cables can be taken away from it.
Secure the FIST-GCO2 base onto the workstand with the four split-pen.

3.2 Opening the FIST-GCO2

3.2.1 Open and remove the clamp. Remove the dome and the O-ring
Remark: be carefull with the O-ring and the sealing surfaces on the base and dome (avoid damaging). Clean only with clear water or with the cleaning tissue, included in the kit, if needed

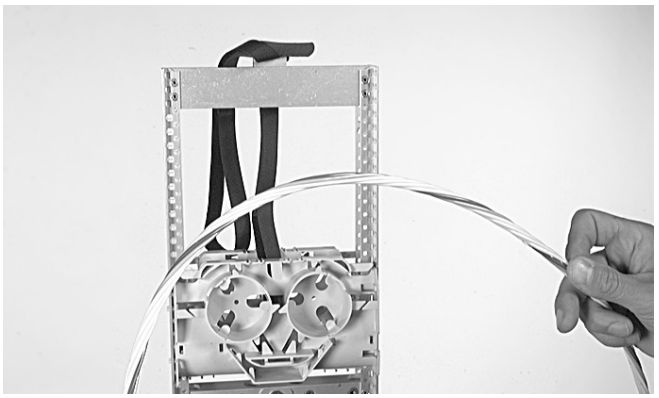
4 Single fiber

4.1 Loose buffer tube cable

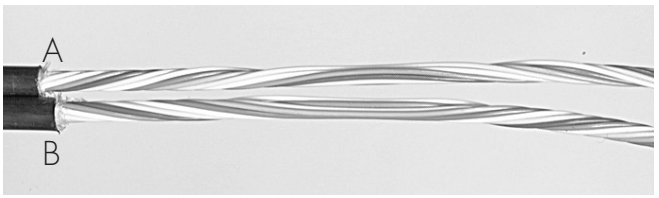
4.1a Looped cable preparation

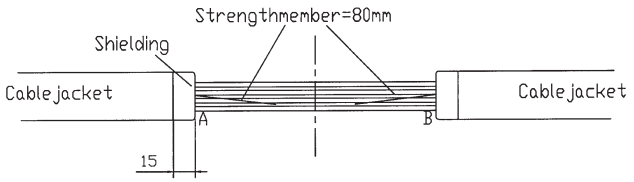
4.1.1 S-cable: A window cut of 3m50 is needed for GCO2-BC8-XX, 3m70 for GCO2-BD8-XX and 3m90 for GCO2-BE8-XX.
4 m for GCO2-BF8-XX.

4.1.2 S-cable: mark the cable in the middle and mark the cable (1.75), (1.85), (1.95) (2.2) meters left and right of the first mark. Remove the cable jacket starting in the middle.



4.1.3 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 (little more as the distance between two reversal points). Locate the buffer tube reversal point on the cable and mark the cable (1.75), (1.85) or (1.95) (2.2) 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 ease of installation.**



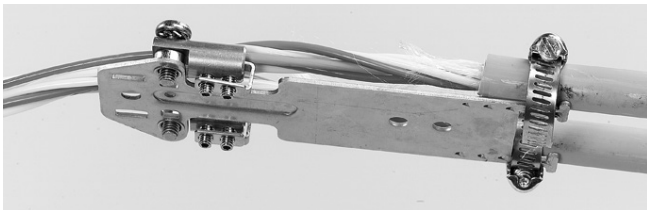


4.1.4 Remove the strength member leaving 80 mm from the cable jacket, if shield present leave 15mm of the shield

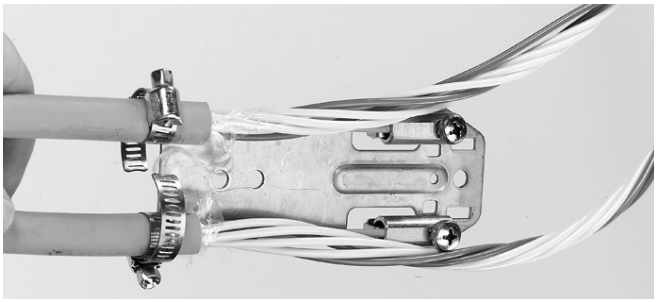
4.1.5 Clean the loose tubes, remove all grease.

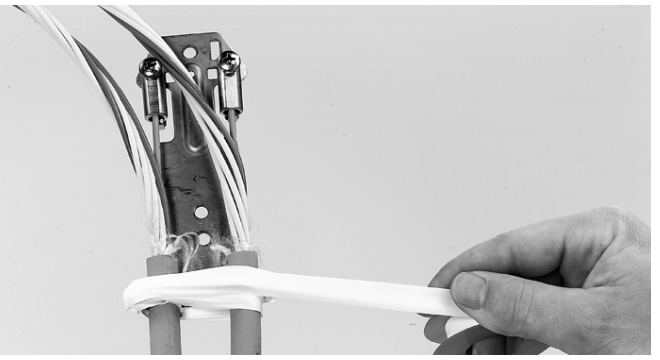
4.1.6 Identify the loose tubes with the split collet rings markers if necessary. There are different FIST-split-collet-rings depending on diameter of the loose tube.

4.1b Bracket/ Strength member and cable termination preparation

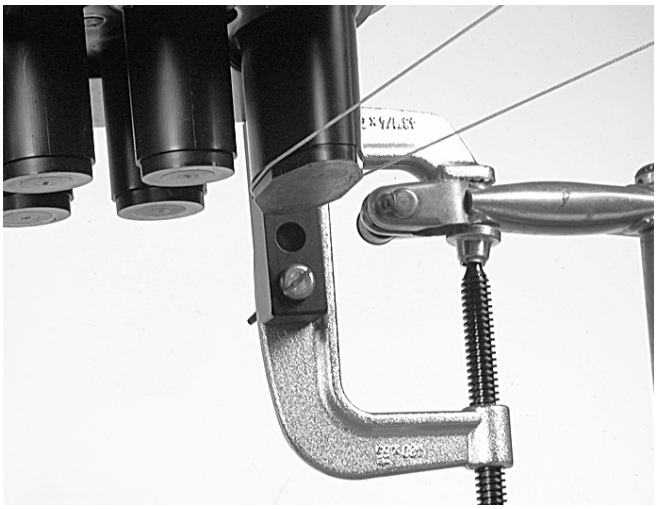


4.1.7 Insert the strength members of the cable into the universal strength member connector on the loop bracket (loosen the bolts with the Allen key if necessary) such that all loose tubes can be routed without unnecessary crossings. Avoid to twist the loop in the case of a reversed oscillating cable.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



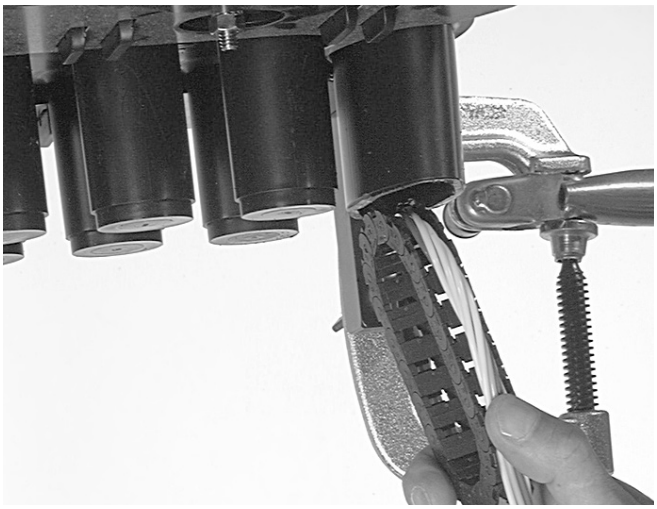


4.1.8 If the cable diameter is more than 8 mm Secure the cables with the hose clamp onto the loop bracket. Wrap a few layers of tape around the hose clamp. If the cable diameter is less than 8 mm secure the cables with tie wraps.

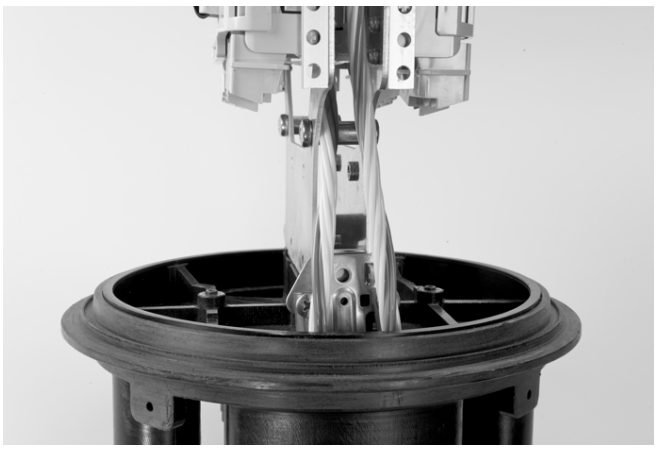


4.1.9 Open the oval port; the cutting wire can be used.

4.1.10 Take the oval sleeve and place the packing bag that has been opened on both sides in the oval sleeve to protect the hotmelt inside the sleeve against dirt and grease. Take the LCIT and bend the loose tubes gently over it. Push the loose tubes in the sleeve. The non-coated edge of the sleeve (arrow) should be pointed to the base of the closure.

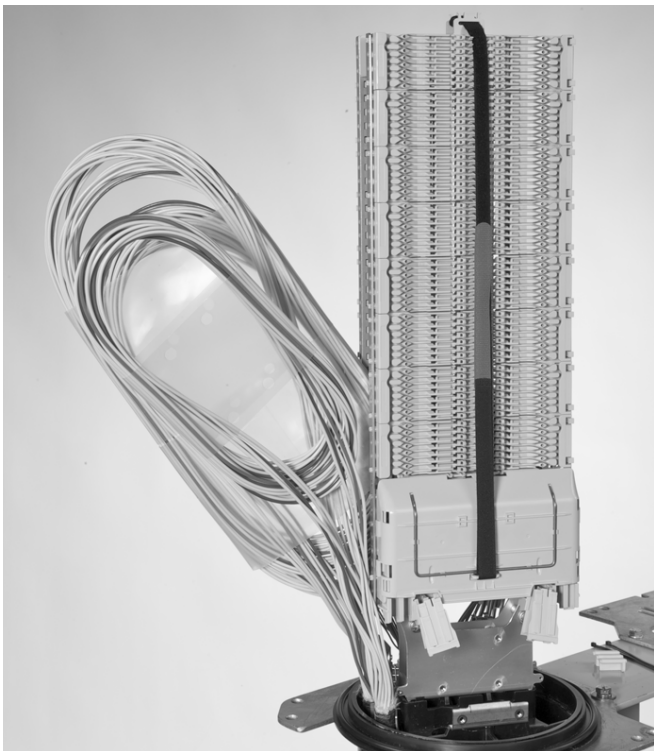


4.1.11 Push the loose tubes (looped around the LCIT) through the oval port. Remove the LCIT and pull the cable gently in the closure.



4.1.12 Position the loop bracket in the bottom bracket and lock with the split pin.

4.1c Loose buffer tube storage

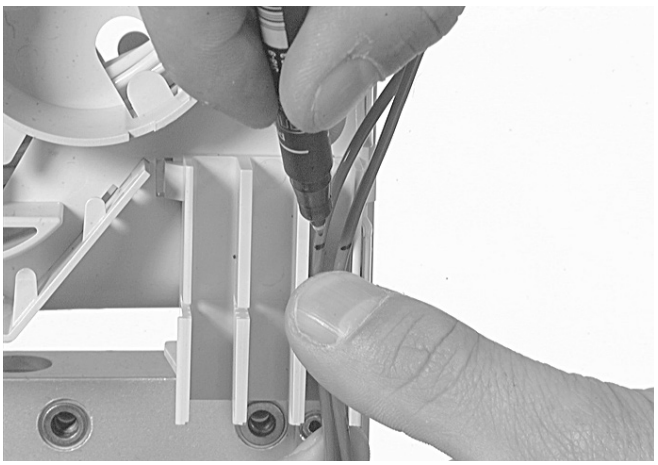


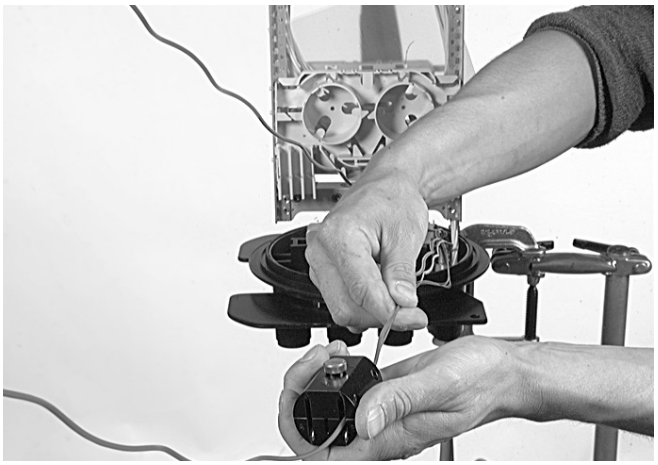
4.1.13 Straighten the loose tubes and put them in the plastic tube (use the maximum length). Store between UMS profiles.

4.1.14 In case a second loop is installed remove the tube holder and store the loop at the unused side of the closure.

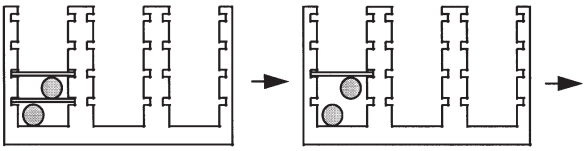
4.1d Fiber storage in trays

4.1.15 Select the loose tube(s) with the fibers that have to be spliced.



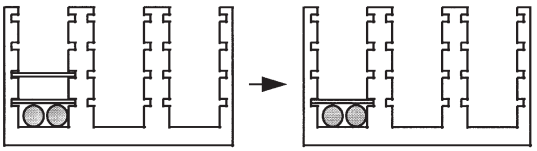


4.1.15 **In case of reversed oscillating cable (SZ-cable)**: separate the loose tube(s). Match the loose tube(s) on the tubeholder and mark both sides between the two marks. Shave between the two marks with the appropriate tooling. Clean the fibers and wind some PTFE tape around the ends of the tubes and fibers ,to protect the transition from tube to fibers.



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

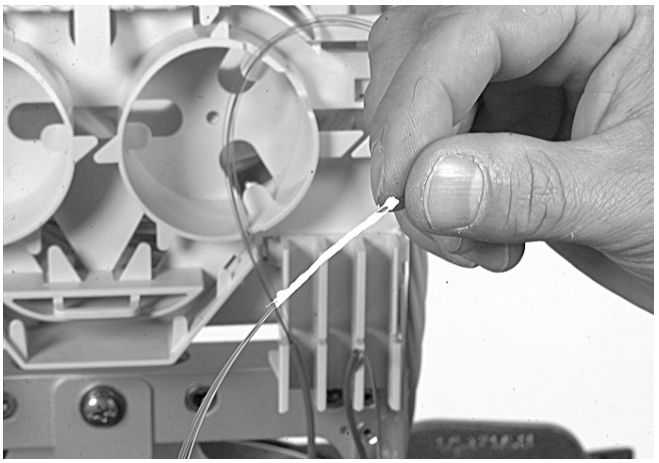
Remove the lowest tubeholder retainer. Use a tweezer if necessary.

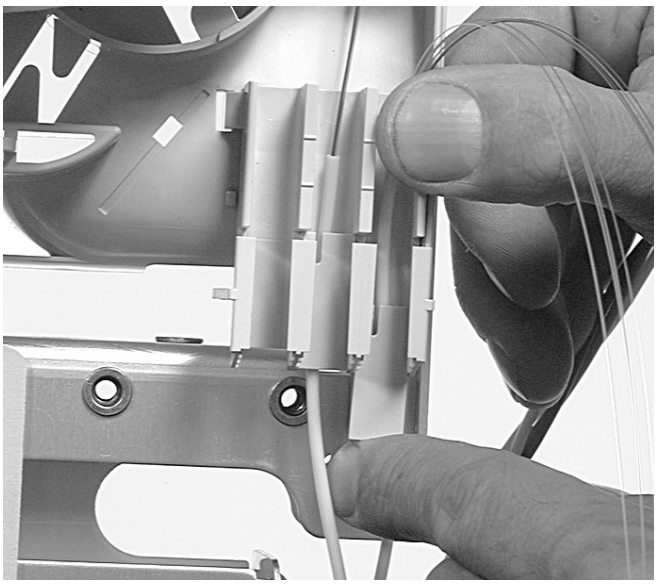


Slide this tubeholder retainer in the lowest possible grooves above the two (or more) tubes

Remove the top tubeholder retainer

4.1.16 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 cavities of the tubeholder above the loose tube(s). The tube holder retainer must snap.



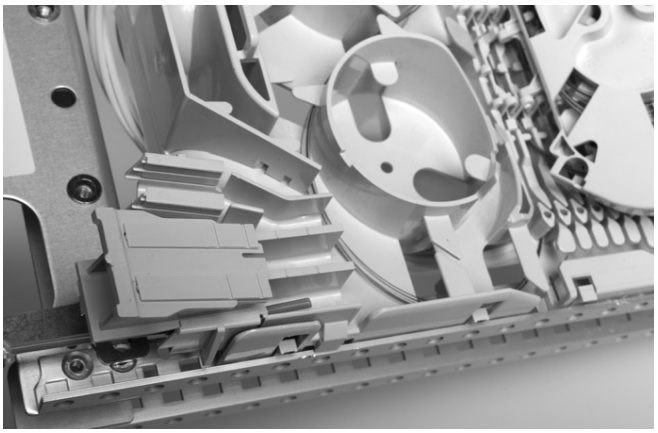


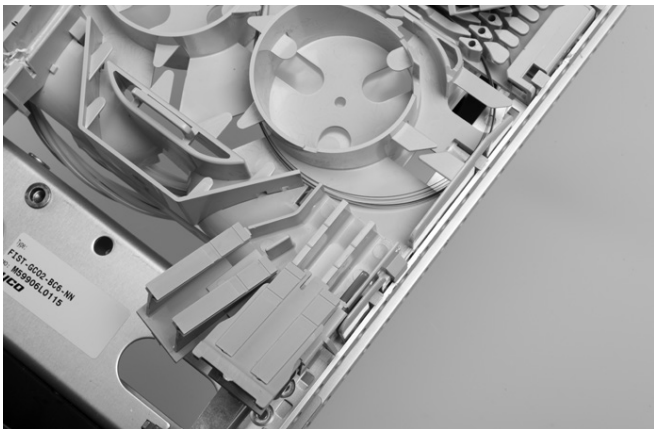
4.1.17 In case of **Reversed oscillating cable** Identify exchange and customer-side using some PTFE tape around the fibers. One can also use the FIST-split-collets-rings markers to identify the loose tubes.

4.1.18 - If the fibers are 'twist free' one can route the fibers separate to single circuit trays or single element trays. Separate all fiber loops first till the tubeholder.

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

4.1e Extension part for tube holder

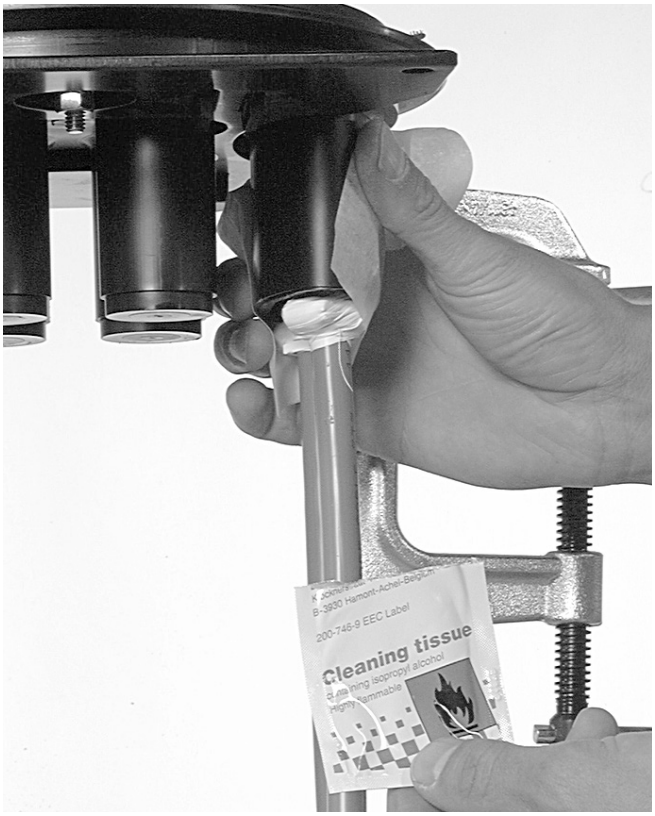




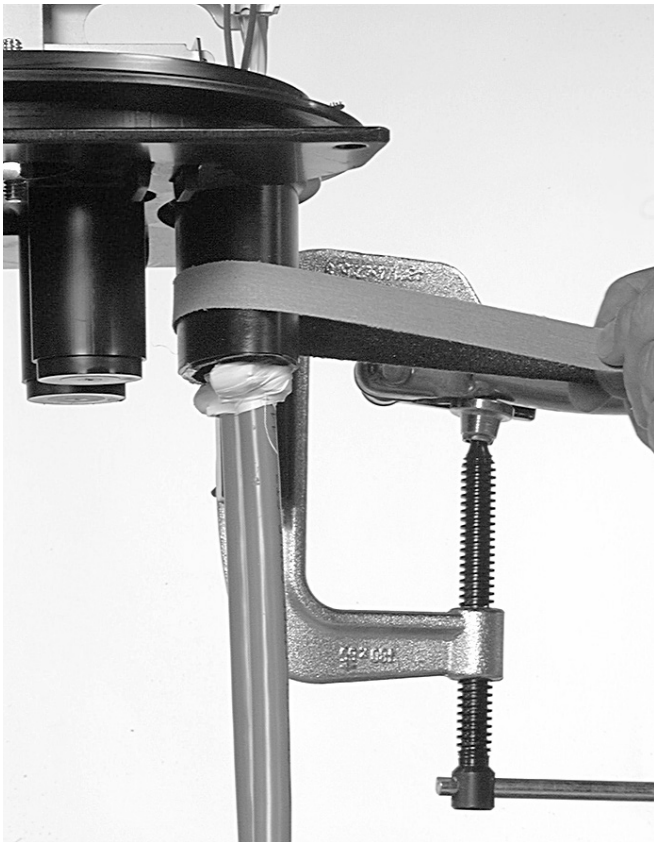
4.1.19 In case the capacity of the standard tube holder is not sufficient, an extension part can be installed.

5 Installation of the heatshrink

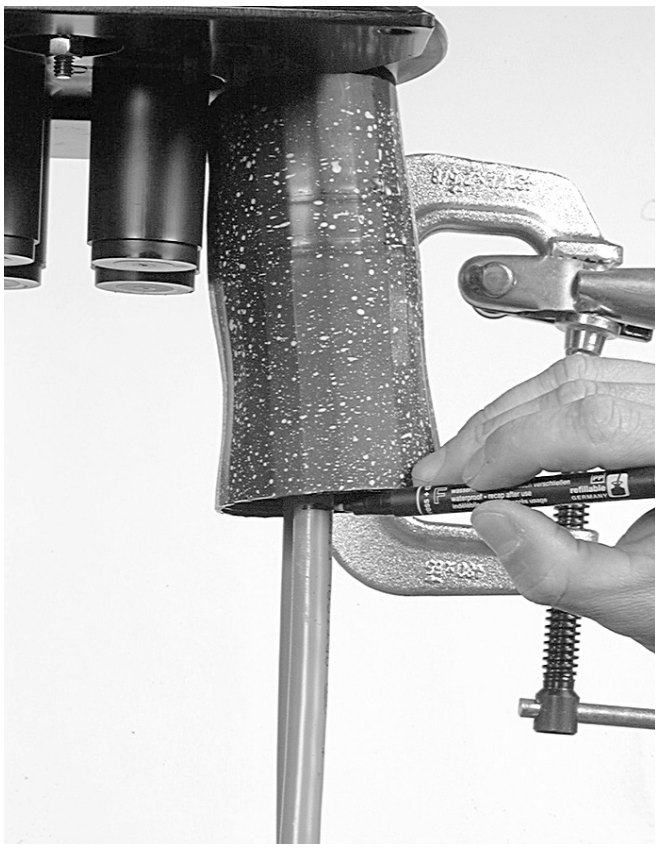
5.1 Oval port



5.1.2 Clean and abrade the cable.



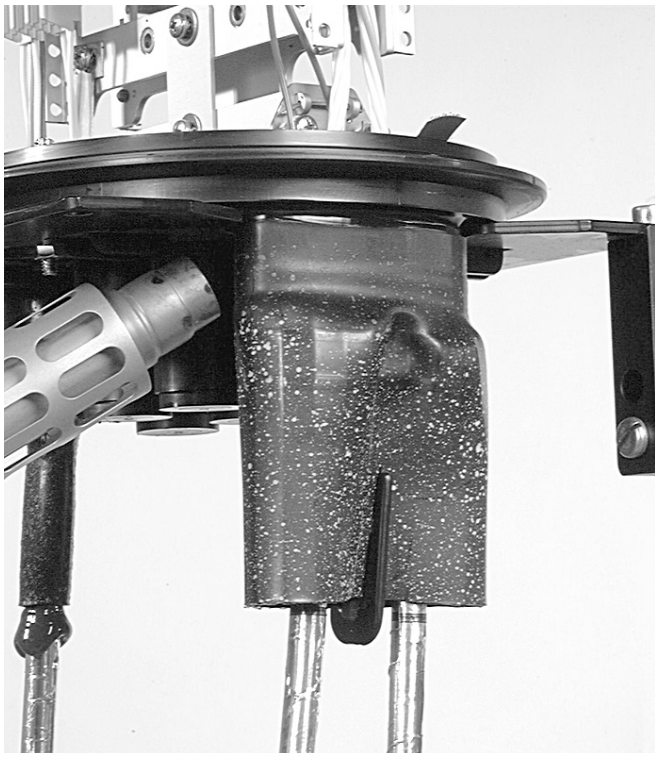
5.1.1 Clean by using the cleaning tissue. Abrade the port.



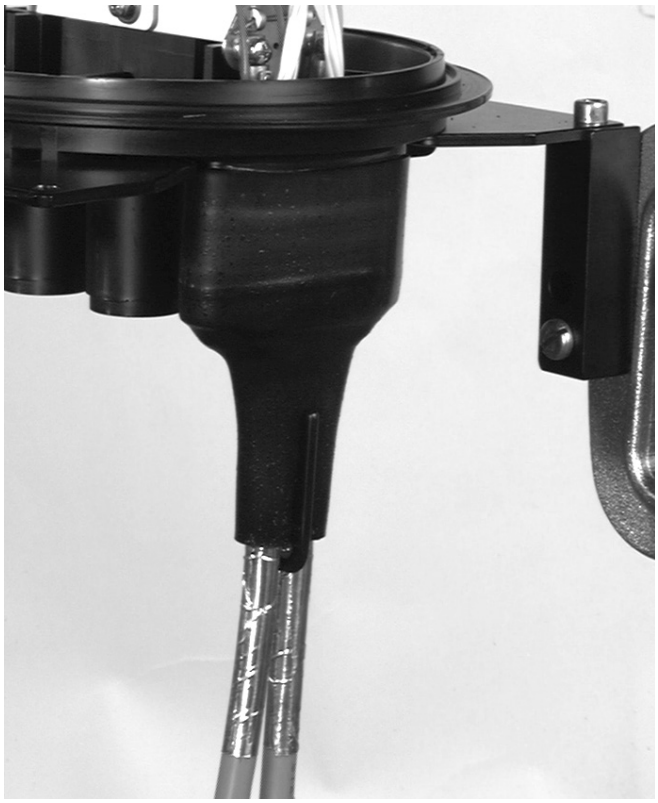
5.1.3 Remove the packing bag out of the sleeve, push the sleeve upwards to the base and mark the cable flush with the sleeve. Make sure the non-coated zone butts up against the base.

5.1.4 Match the blue line of the aluminium protection foil with the marks on the cables. Wrap aluminium cable protection foil around the cable (the aluminium foil should not be more than 30 mm inside the sleeve.

5.1.5 Push the sleeve against the base and place the clip.



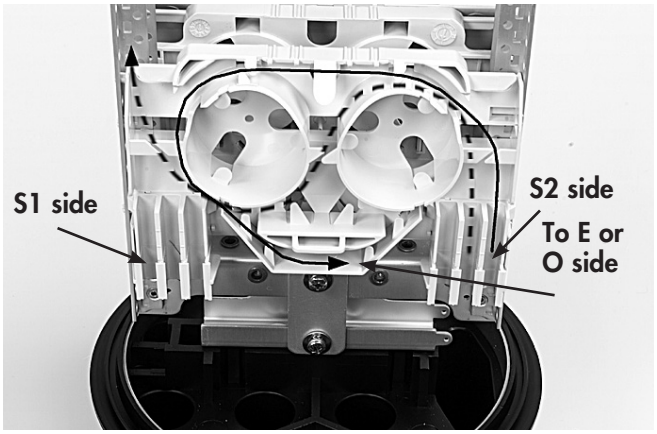
5.1.6 Start heating the seal on the base, and wait one minute and shrink in spiral movements downwards.



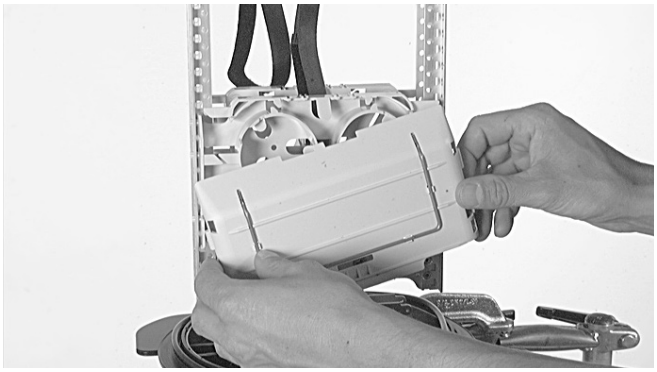
5.1.7 Hold the cable in position. Shrink till the green painting dots become black, and the hotmelt is visible on the end of the sleeve. Postheat the clip on both sides till the adhesive shows a proper flow on the clip between the two cables.

Do not move the FIST-GCO2 or cable during 20 minutes.

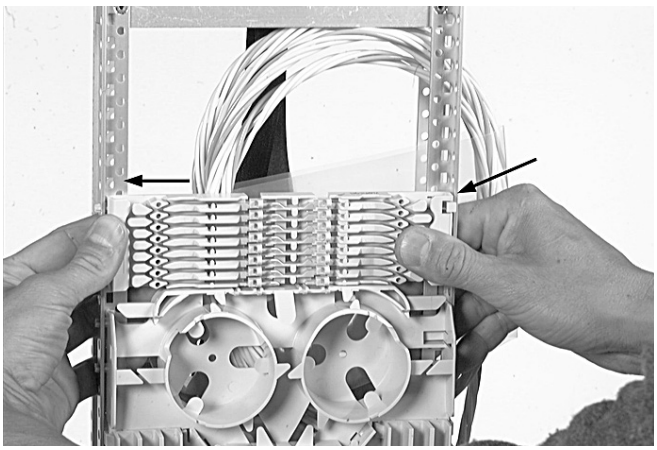
6 Fiber routing



Fibers can be routed between OS1, OS2, ES1 and ES2. In case that fibers have to be routed from SIDE-O (Odd portnumbers) to SIDE-E (Even portnumbers), use the window (see picture). Select the cable termination as such, that a minimum of fibers will cross and have to be routed through the window. Therefore the selection of the ports according to the cable lay-out is important.
6 PORT BASE: Ports (1+6+8), (4+9+11) for cables to (S2). Ports (3+5+7), (2+10+12) for cables to (S1). Verify the position of two cables if they are placed on the same side (next to each other) because the total amount of loose tubes in ports (1+3) or (2+4) or (5+7) or (6+8) can never be more than mentioned in the capacity of the tube holder.

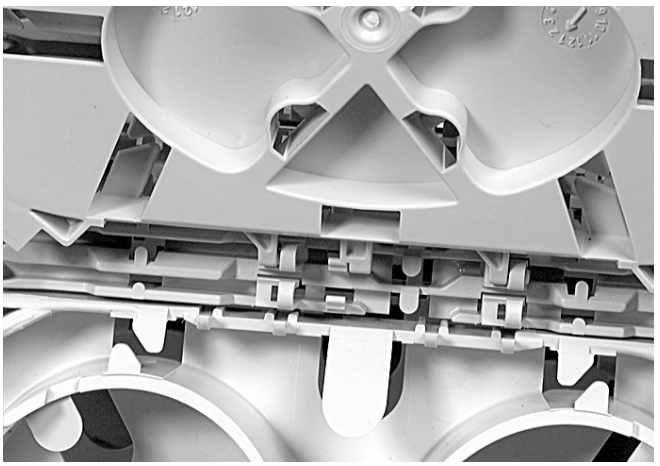


6.1 Remove the hook and loop fastener and routing block cap. To remove the routing block cap lift the two snaps at one side of the routing block cap.



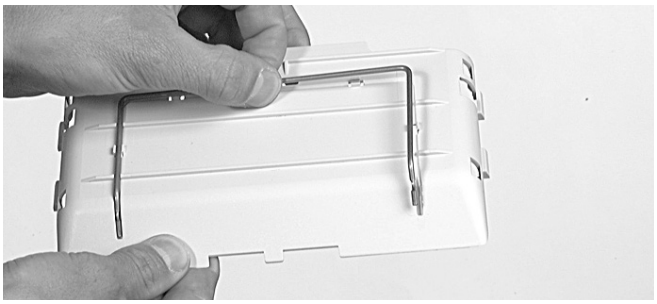
6.2 Secure the wraparound groove plate on the UMS by putting the plate with the long protrusions in the S1 UMS-profile and sliding the plate in the S2 UMS-profile until it snaps. (Do not leave gaps between groove plates).

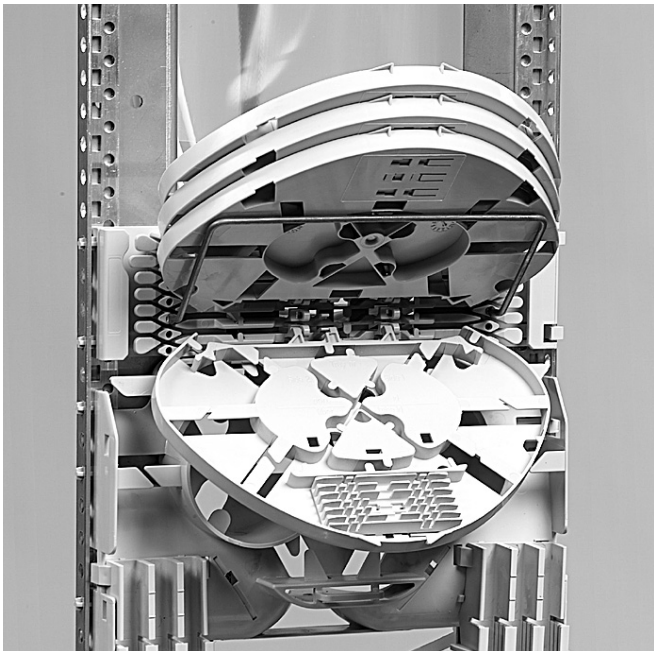
6.3 To remove push the two snapfits at S2 UMS-profile and slide the wraparound plate towards S1 UMS-profile.



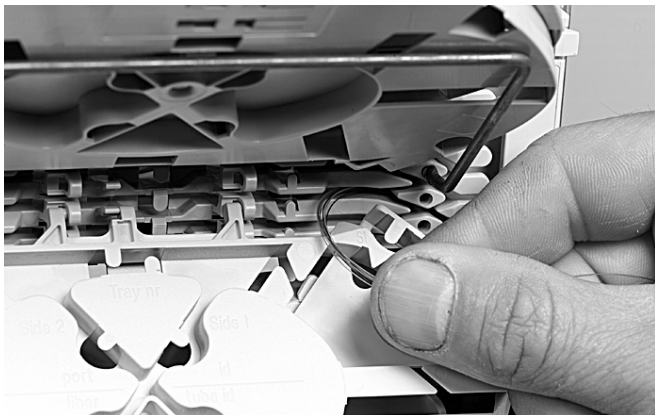
6.4 Place a tray in the wraparound groove plate, push the lip on the groove plate (lowest possible position) slightly down with the tray and move the tray lateral into the hinge-cavities of the groove plate. To snap the single element tray (SE) in the wrap around single fiber groove plate **leave always one hinge facility open between FAS block or previous tray and the SE-tray.**

6.5 To remove the tray put the fiber guiding pin between lip on wraparound groove plate and tray and move lateral towards S1.

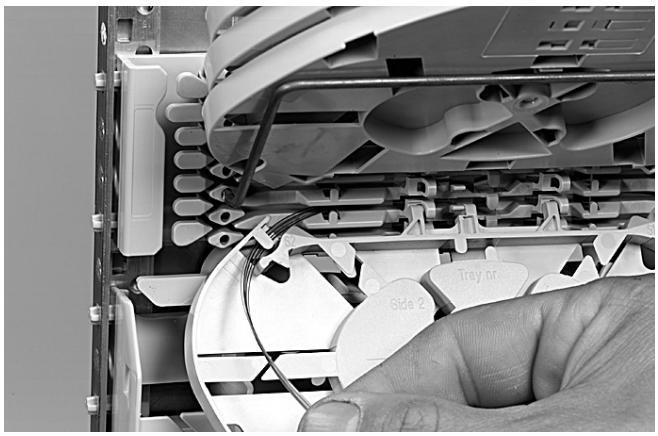




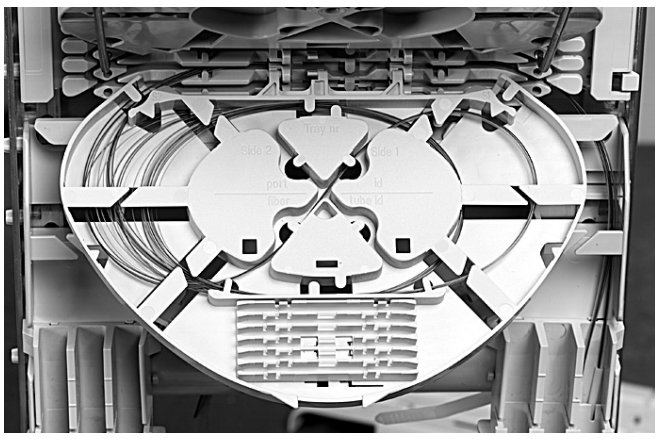
6.6 Identify the tray to be worked on and make it accessible. If the routing block and trays are in vertical position you will have to support the trays above the selected one using the tray wedge which fits in the cavities of the wraparound groove plate. Position the wedge carefully such that the groove 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).



6.7 Route the fiber in the grooves of the wraparound groove plates to the entrance of the appropriate tray. Fiber must be routed in the groove below the hinge of the tray!



6.8 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.

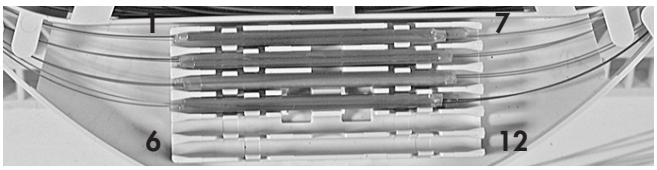


6.9 Store the fibers temporarily on a tray (picture shows the case of a loopback).

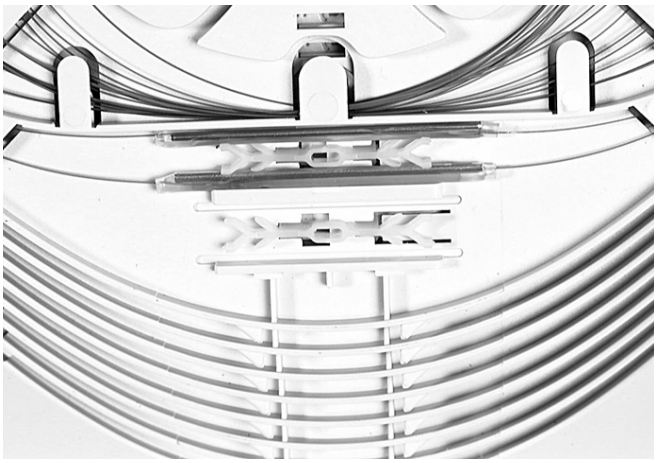
6.10 Storing dark fibers can be done in different ways.
1) Organise dark fibers into the different trays, following instructions as described.
2) Organise dark fibers together into the first available tray (i.e. with a max. of 24 cut or 12 loops primary coated fibers in one SE-tray).

7 Fiber routing on tray

7.1 Take the splice protector and put it centred towards the splice holder



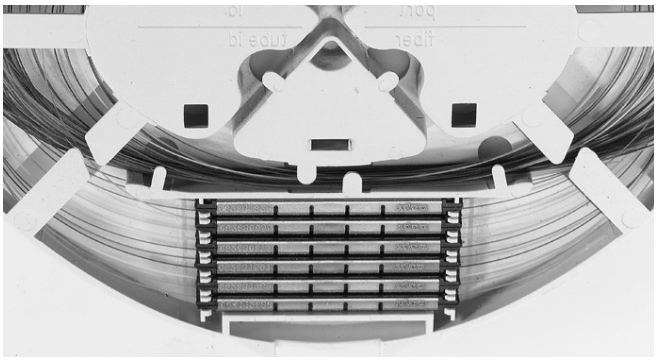
7.2 SMOUV in SE tray (1-6-bottom layer, 7-12-upper layer).



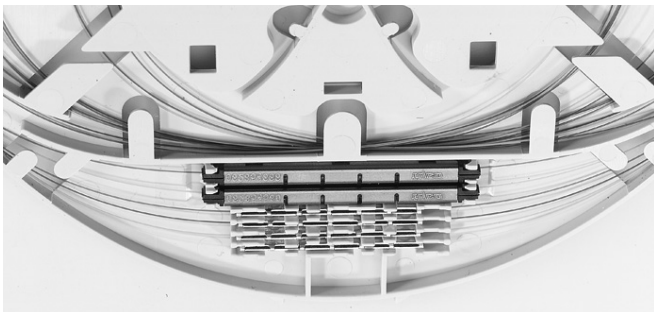
7.3 SMOUV in SC tray.

7.4 ANT in SE tray.

7.5 RECORDsplice in SC tray.

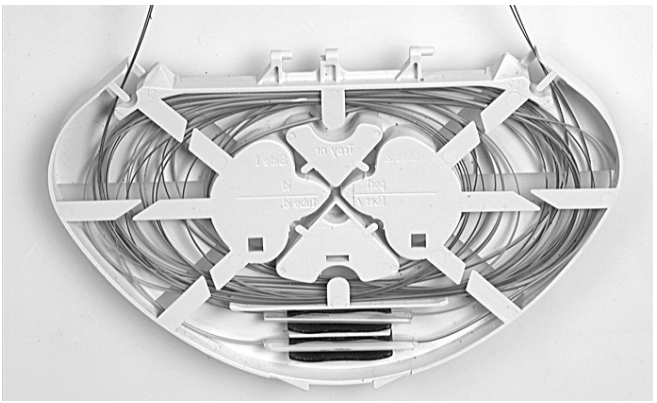


7.6 RECORDsplice in SE tray.

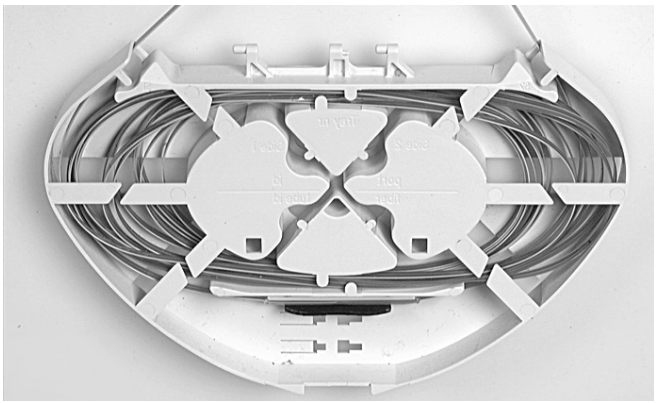


7.7 RECORDsplice/ANT in SC tray.

7.8 ANT in SC tray.

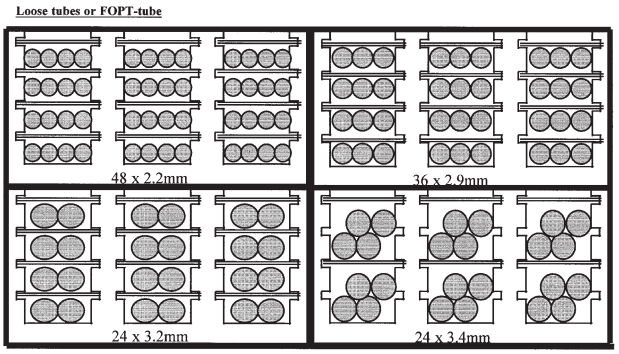


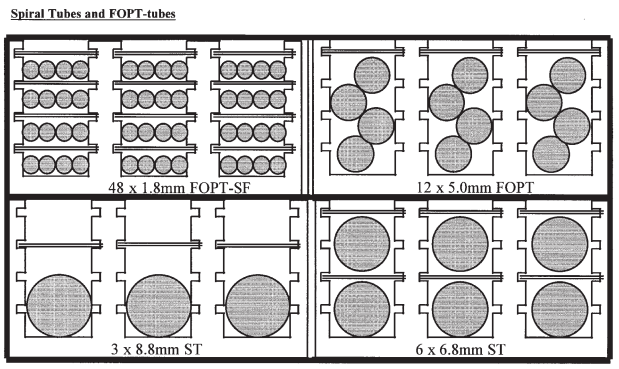
7.9 Ribbon 4/8 tray.

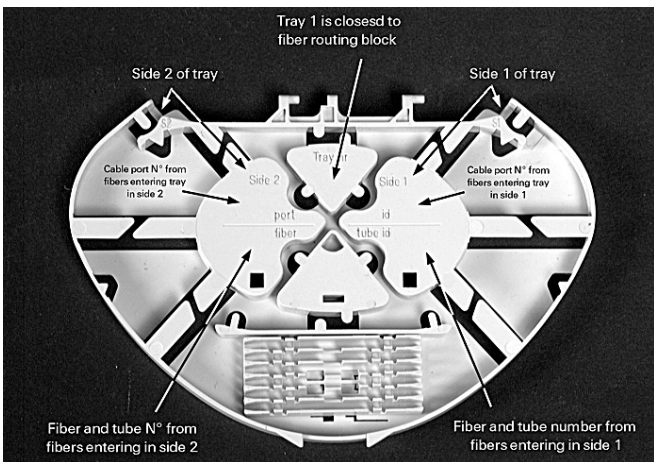


7.10 Ribbon 12 tray.

8 Tube holder capacity and tray identification
Number x outer diameter loose tube (mm)

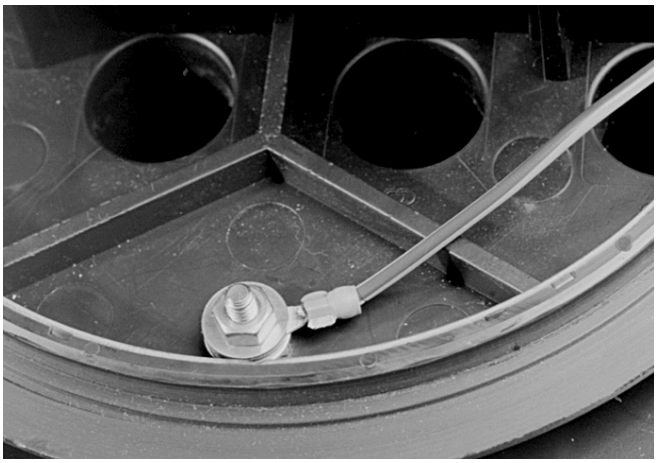






8.1 Use a permanent marker to write on the tray.

9 Cable grounding

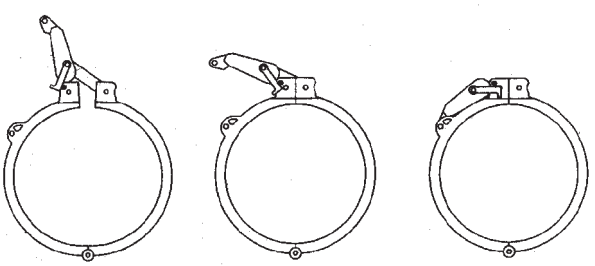


9.1 In case of grounding,mount grounding wire on the grounding bolt

10 Closing the closure

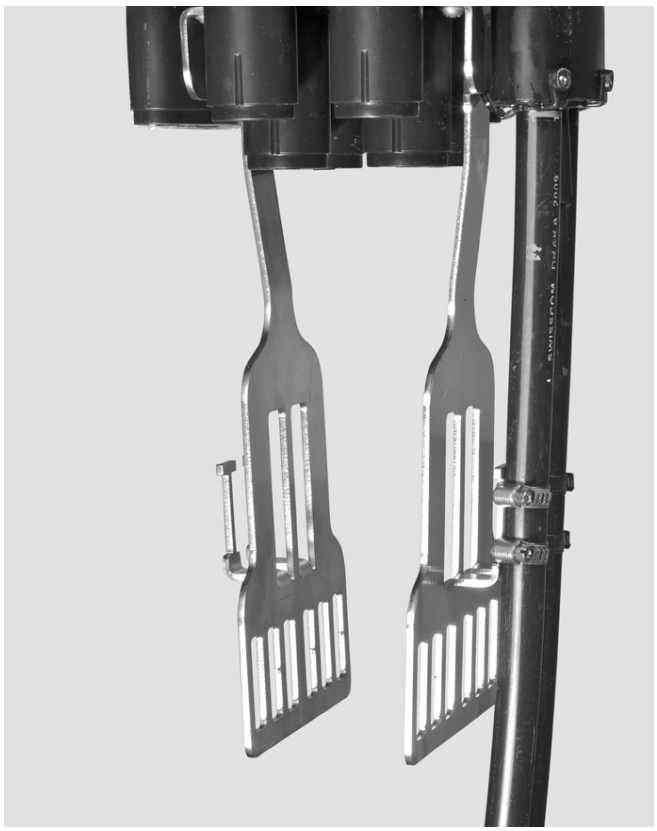
10.1 Remove the outer bag and place the Silica gel in the closure (be careful, do not disturb any fiber or tube routing)

10.2 Place the o-ring back on a clean base and place the dome on top of it.



10.3 Close with clamp.

11 Cable extension



12 Important steps during installations

- Make sure that grooves on the wraparound groove plate are clean.
- Clean the fibers.
- Be sure that fibers are not stored to tight in the trays, to prevent stress on the fibers.
- Loose tubes routed up to the tube holder should be routed in such a way that one still has complete acces of the stored tubes between UMS profile.This is needed for later routing of loose tubes from the loops to the tube holders without creating crossings and without creating disturbtions on the loose tubes allready routed up to the tube holders.
- Use correct lengths in the tubeholder.
- Make sure not to loose ID.
- Use only 45 mm long SMOUV.
- Be secure when preparing window cut on loose tube cable for storing uncut fibers.
- Avoid in all cases crossings of fibers and loose tubes in the cable brackets.
- When using cables with a diameter smaller than 12 mm in a cable bracket,bend the sharp edges towards the cable and use some tape around the bracket to protect the heatshrink.
- Replace the Silica gel each time the closure has been opened.
- Do not place the aluminum protection foil too deep in the heatshrink.

13 Re-arrangement

Avoid to pull fibers inbetween groove plates.
Avoid fiber movement between tubeholder and first containment lip on the routing block.
Take special care rearanging fibers from E to O side or reverse.
If accidentaly active fibers are removed from the containment devices,reposition them carefully.

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