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4. Tools for assembly and essential goods (P4) 5. Assembly procedure (P5~P18)

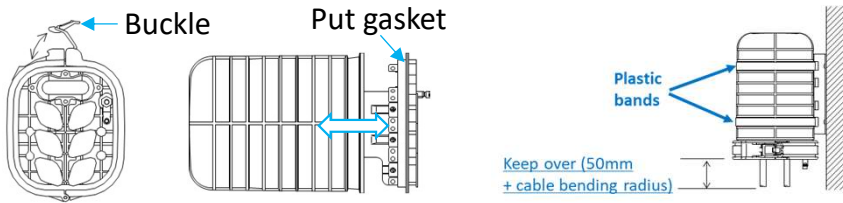
1. Safety



- During fiber preparation, broken fiber may injure eyes or other parts of body.
- Always wear eye protection when handling optical fibers and dispose cleaved ends properly.
- Do not eat drink or smoke when handling fiber.

2. Process overview

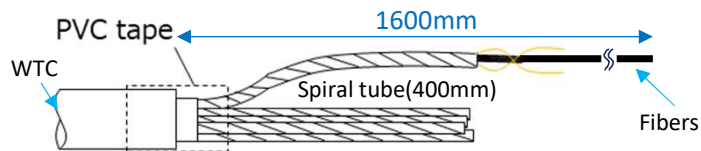
(1) Open closure, (6) Close closure, (7) Wall mount



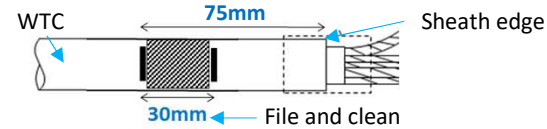
(2)-(3) Main cable installation/Branch cable installation of Fujikura's WTC

a) Remove sheath and install tubes

Main cable/Branch cable

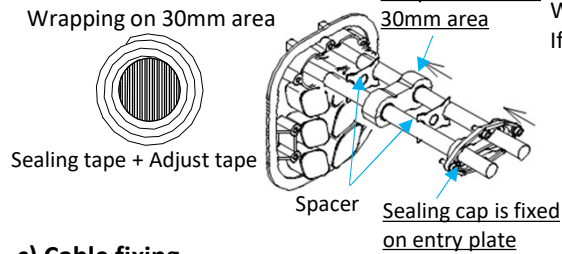


b) Cable sealing

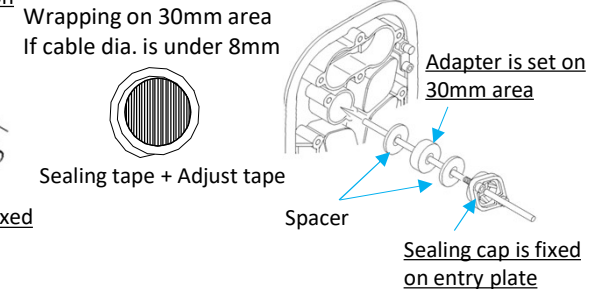


Please check "5. Assembly procedure details ,(4) Branch cable installation of Loose tube cable" for loose tube cable installation.

Main cable(Pass through)



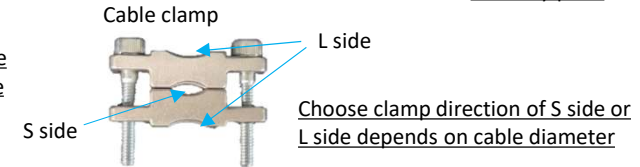
Main cable(Straight joint)/Branch cable



c) Cable fixing

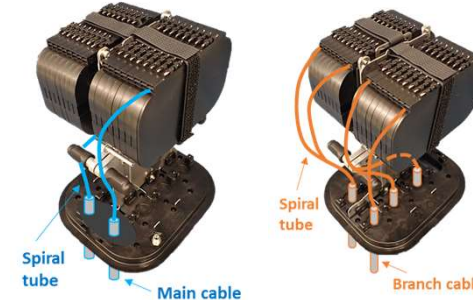


Clamp through the hole of entry plate

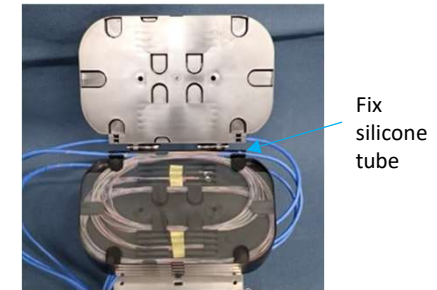


(4) Fiber splicing

a) Wire fiber



b) Fiber splicing



Please check "5. Assembly procedure details" for detail.

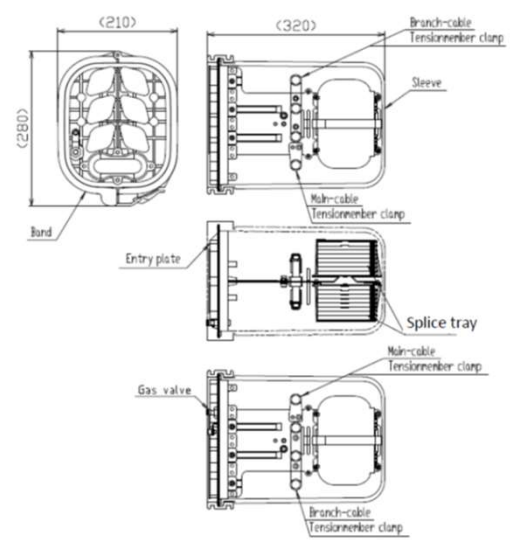
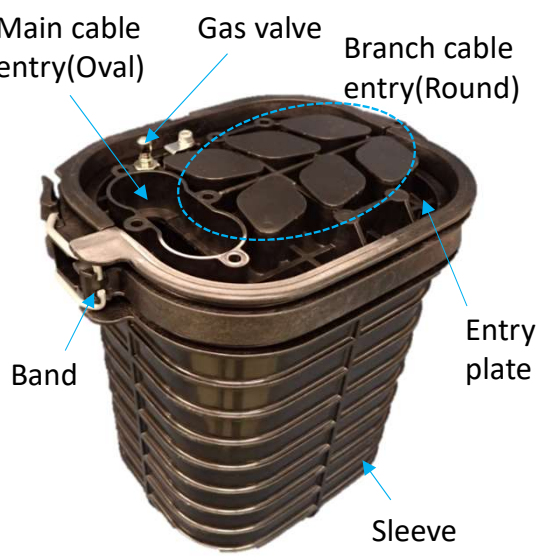
3. Product name and components

Related products of FSCO-HHS/BH16

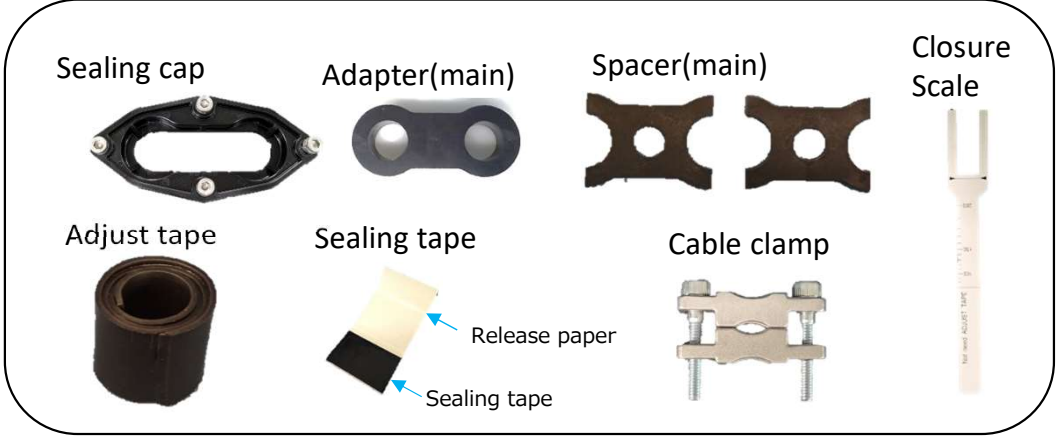
	Product name	Remark
1	FSCO-HHS/BH16	Joint closure with 16pcs tray
2	Branch cable kit<HS1>	<u>Optional parts: For 1pc branch cable (φ6-13) installation</u> / Sealing cap, Adapter(S1) with slit, Spacer(S1), Adjust tape, Cable clamp, Protection tube
3	Branch cable kit<HS2>	<u>Optional parts: For 1pc branch cable (φ13-16) installation</u> / Sealing cap, Adapter(S2), Spacer(S2), Cable clamp, Protection tube
4	Branch cable kit<HM>	<u>Optional parts: For 1pc branch cable (φ15-19.5) installation</u> / Sealing cap, Adapter(M), Spacer(M), Cable clamp, Protection tube
5	Main cable end plate for HHS	<u>Optional parts:</u> End plate for entry one main cable only
6	Branch cable end plate for HHS	<u>Optional parts:</u> End plate for removing branch cable
7	Wall mount parts for HHS	<u>Optional parts: For wall mount</u> / Bracket, Fixing band

Components of FSCO-HHS/BH16

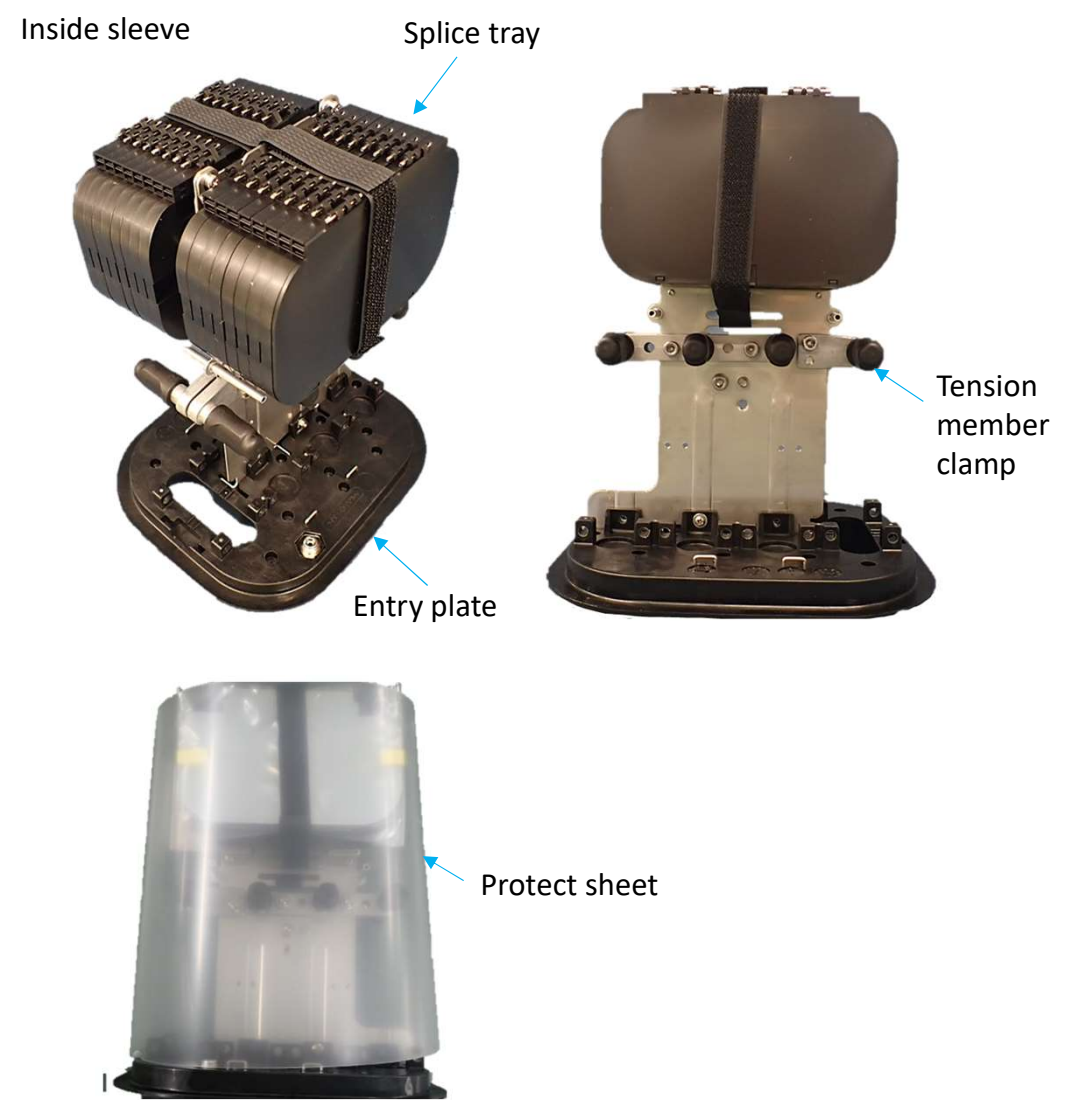
	Content	Q'ty	Remark
1	Sleeve	1 set	
2	Band	1 set	
3	Entry plate	1 set	With gas valve
4	Splice tray	16 pcs	
5	Main cable tension member clamp	2 set	
6	Branch cable tension member clamp	2 set	
7	Main cable kit	1 set	Sealing cap, Adapter(main), Spacer(main), Adjust tape, Sealing tape, Cable clamp, Closure scale
8	Protection tube	1 set	Spiral silicone tube



Main cable kit



Protection tube/ Spiral silicone tube



4. Tools for assembly and essential goods

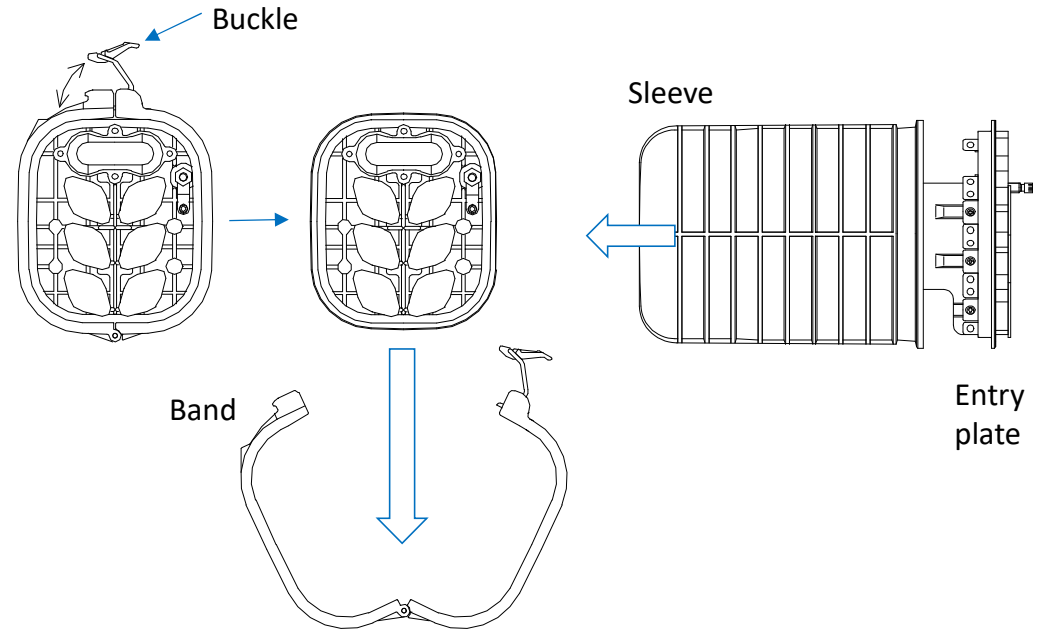
No	Item	Remark
1	Allen key	Size 5mm
2	Sheath cutter	For removing sheath
3	Wire cutter	For cutting sheath & tension member
4	Loose tube cutter	
5	Knife	
6	Measure	
7	White marker	
8	Ethanol	> 95% purity
9	Sand paper	
10	PVC Tape	
11	Splice sleeve	

5. Assembly procedure

Process flow

Process	Details	Page
(1) Open closure		5
(2) Main cable installation of Fujikura's WTC	a) Remove sheath and install tubes	6
	b) Cable sealing and fixing	7-9
(3)-1 Branch cable installation of Fujikura's WTC	a) Select type of cable branch kit	10
	b) Remove sheath and install tubes	10
	c) Cable sealing and fixing	11-12
(3)-2 Branch cable installation of Loose tube cable	a) Select type of cable branch kit	13
	b) Remove sheath and install tubes	13-14
	c) Cable sealing and fixing	14
(4) Fiber splicing	a) Fiber routing	15
	b) Fiber splicing	16
(5) Close closure	a) Set sleeve	17
	b) Check airtight	17
(6) Wall mounting		18

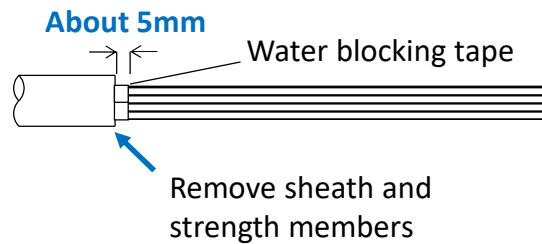
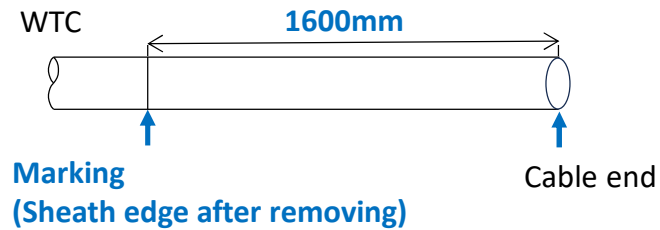
(1) Open closure



(2) Main cable installation of Fujikura's WTC

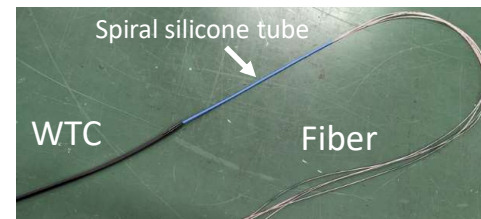
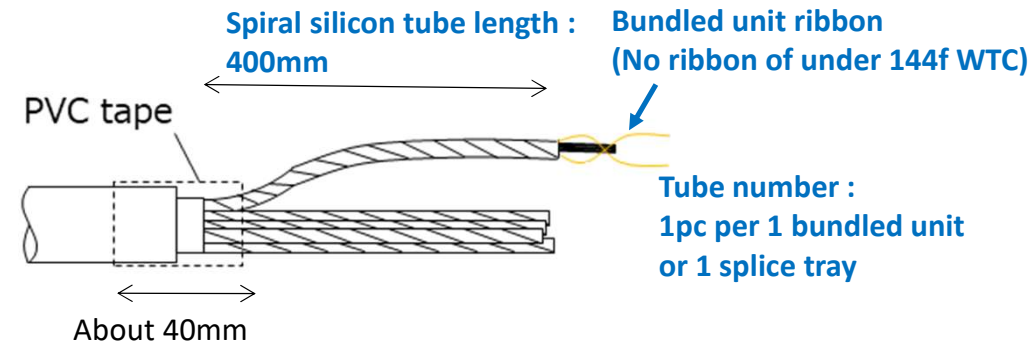
a) Remove sheath and install tubes

① Remove sheath as below



- ② Cut spiral silicon tubes
- ③ Pass spiral silicone tubes to fiber
- ④ Fix silicone tubes

Remain the bunching tape for identification to splice tray.

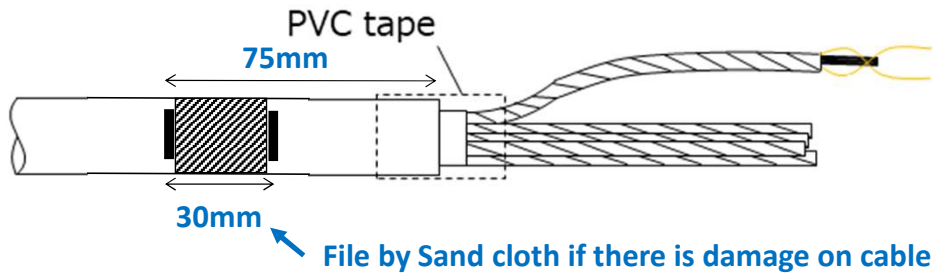


Marking fiber/unit number at tube tip or etc. for identification

(2) Main cable installation of Fujikura's WTC

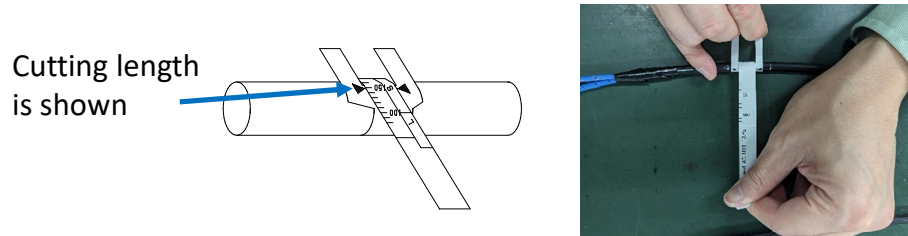
b) Cable sealing and fixing

- ① File the sheath as below, ② Clean filed area after filing using ethanol

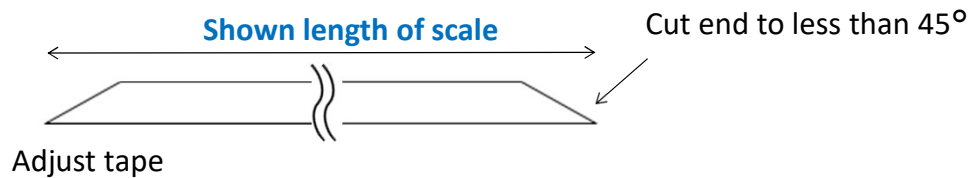


③ Wrap sealing tape and adjust tape

- ③-1 Measure cutting length of adjust tape using closure scale.



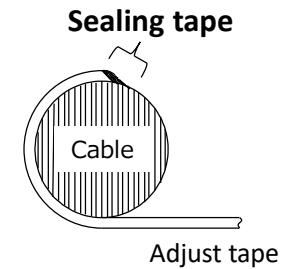
- ③-2 Cut shown length of adjust tape with slant angle



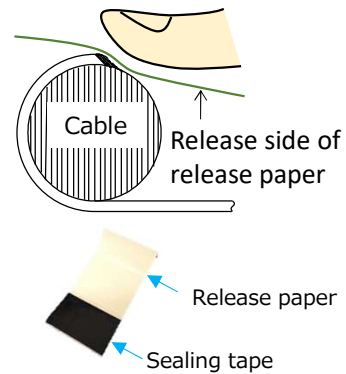
- ③-3 Cut and put sealing tape on adjust tape



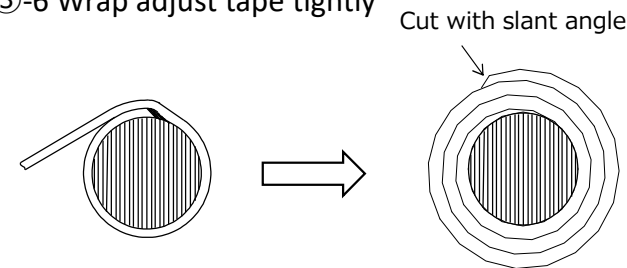
- ③-4 Wrap adjust tape on filed 30mm area



- ③-5 Press sealing tape by finger to prevent big step



- ③-6 Wrap adjust tape tightly



No space between 1st layer and Cable

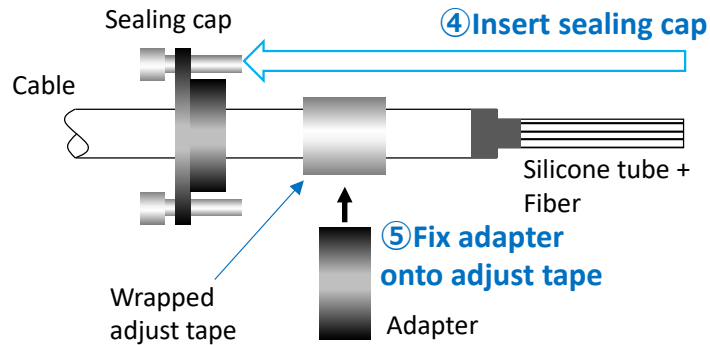
Wind adjust tape without stretching and slacking

Not to make space between each layer of adjust tape and cable sheath

(2) Main cable installation of Fujikura's WTC

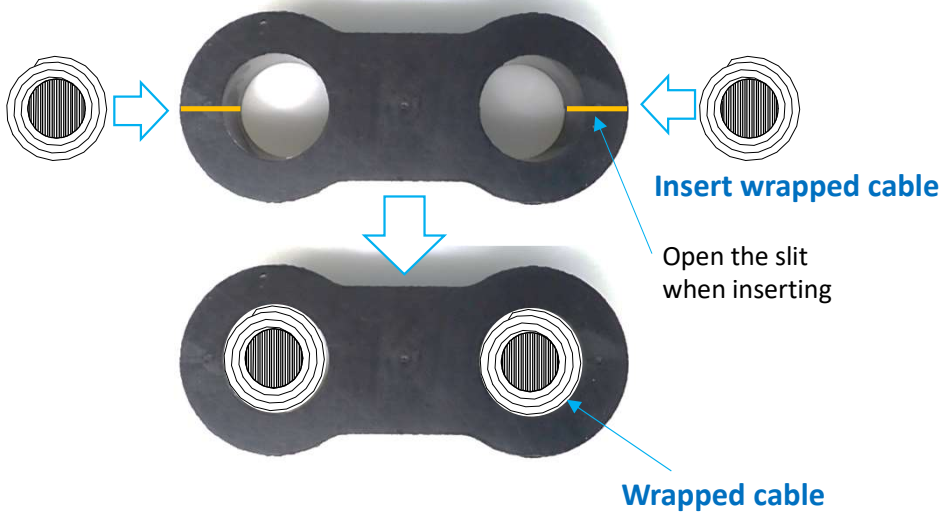
b) Cable sealing and fixing

- ④ Insert sealing cap to cable, ⑤ Fix adapter onto wrapped cable



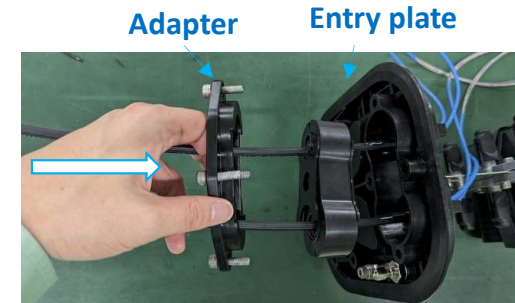
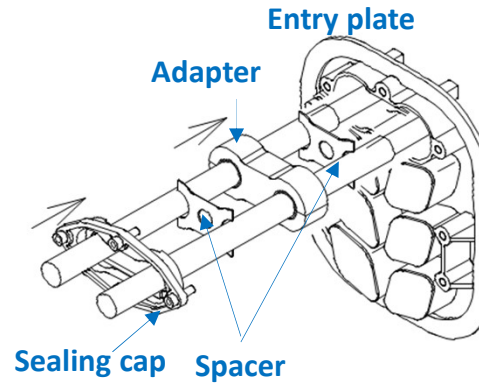
Pass sealing cap to fiber and cable.
Be careful not to break fiber.

Side view of adapter



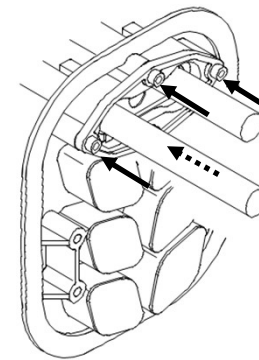
Be careful not to break fiber when inserting cable

- ⑥ Insert 2 spacers to cable, ⑦ Insert sealing cap to entry plate

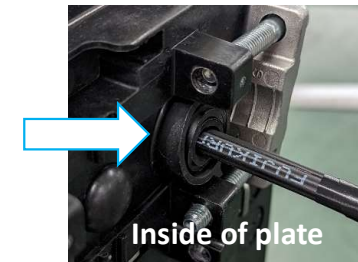


Spacer + Adapter + Spacer

- ⑧ Fix sealing cap on entry plate temporary by 4 screws



If screws are tightened up before fixing cable clamp, cable clamp can not be fitted by tapes.



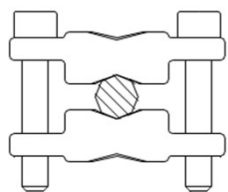
(2) Main cable installation of Fujikura's WTC

b) Cable sealing and fixing

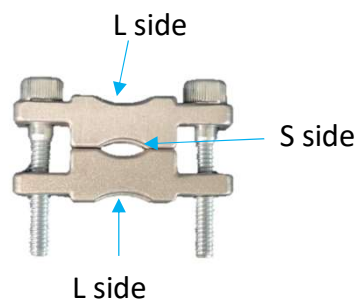
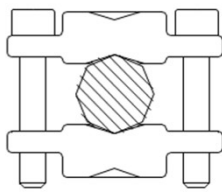
⑨ Fix cable by cable clamp at entry plate

⑨-1 Choose clamp direction of S side or L side depends on cable diameter

S side clamping
(For small size cable)

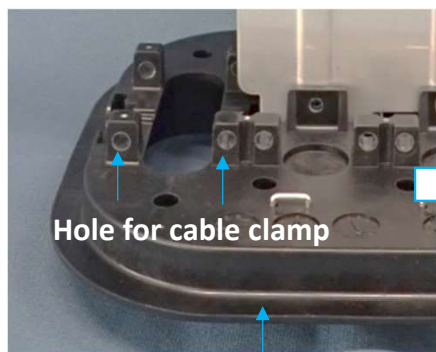


L side clamping
(For large size cable)



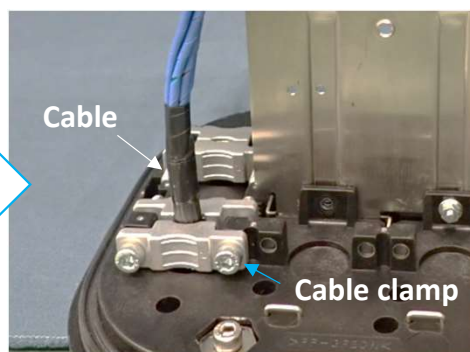
⑨-2 Clamp through the hole of entry plate

⑨-3 Screw bolt is tightened until clamp libs bit into the cable sheath



Hole for cable clamp

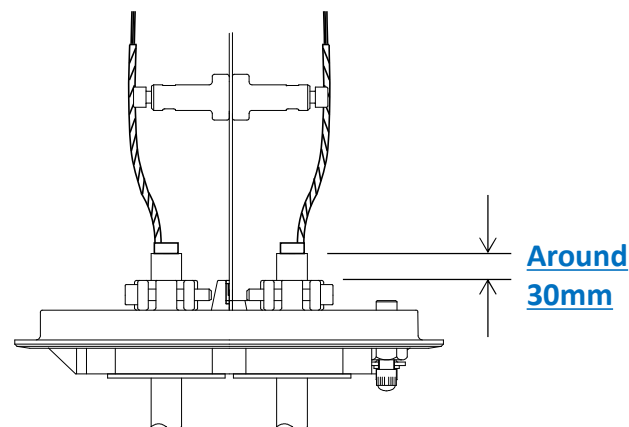
Entry plate



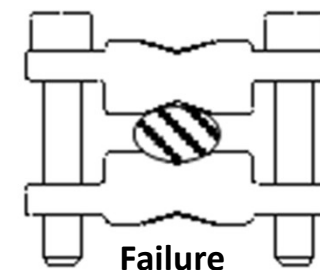
Cable

Cable clamp

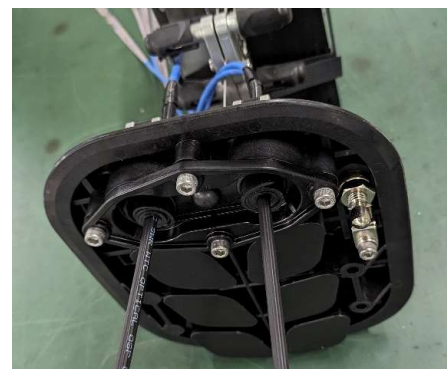
⑨-4 Check sheath end



Do not tighten bolt until cable is deformed to oval shape to prevent to damage cable and fiber



⑩ Tighten up 4 screws



Tighten screw until no gap between sealing cap and entry plate.

Avoid overtightening the screws; tighten it only as much as necessary.

(3)-1 Branch cable installation of Fujikura's WTC

Optional parts of “*Branch cable kit<HS1>*, *Branch cable kit<HS2>* or *Branch cable kit<HM>*” is required when installing branch cable.

a) Select type of branch cable kit

Cable dia. (mm)	Type of Branch cable kit	Remark
6-8	HS1	Wrap tape to adjust diameter (c), ② Process
8-13	HS1	
13-16	HS2	
15-19.5	HM	

b) Remove sheath and install tube

① Remove cover and make hole from entry plate

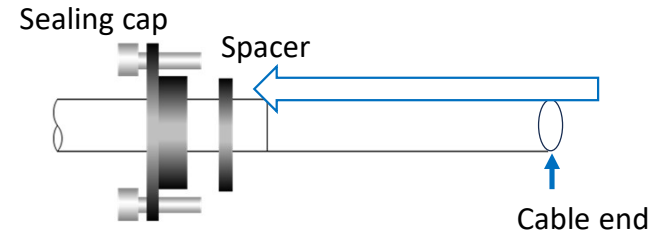
- Remove cover



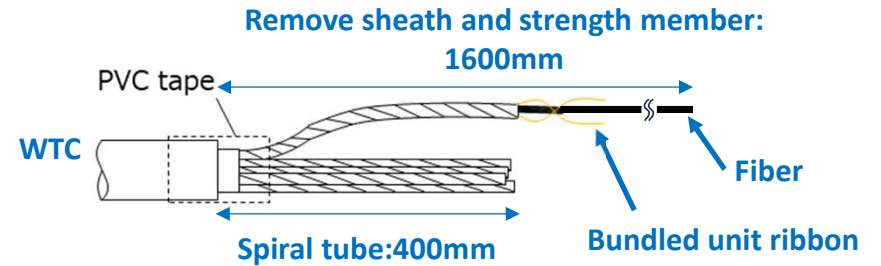
- Make hole using shaft



② Pass Sealing cap and Spacer through cable



③ Process cable tube as below



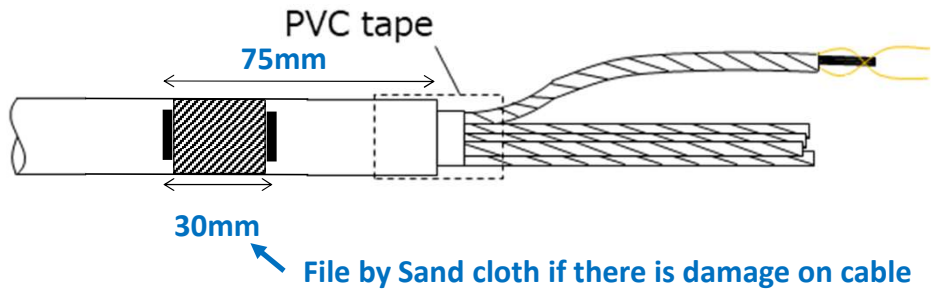
Remain the bunching tape for identification to splice tray.

Mark fiber/unit number at tube tip or etc. for identification

(3)-1 Branch cable installation of Fujikura's WTC

c) Cable sealing and fixing

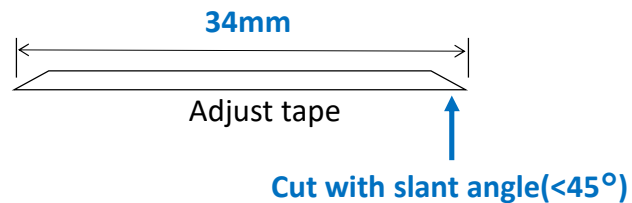
① Mark and file the sheath as below



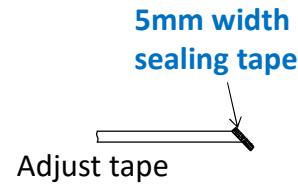
② Wrap sealing tape an adjust tape

If cable diameter is over 8mm, it is not needed to wrap adjust tape, please move to next page

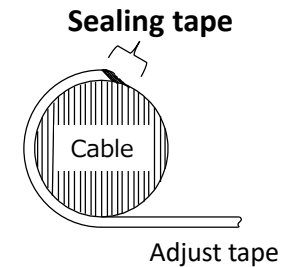
②-1 Cut adjust tape as below



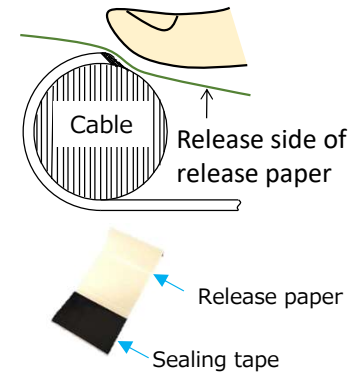
②-2 Cut and put sealing tape on adjust tape



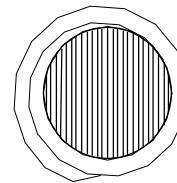
②-3 Wrap adjust tape on filed 30mm area



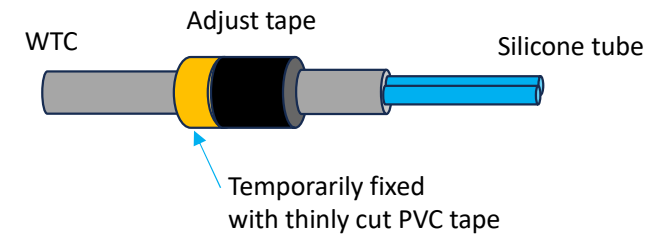
②-4 Press sealing tape by finger to prevent big step



②-5 Wrap adjust tape certainly



②-6 Fix one side of tape by cut PVC tape temporarily

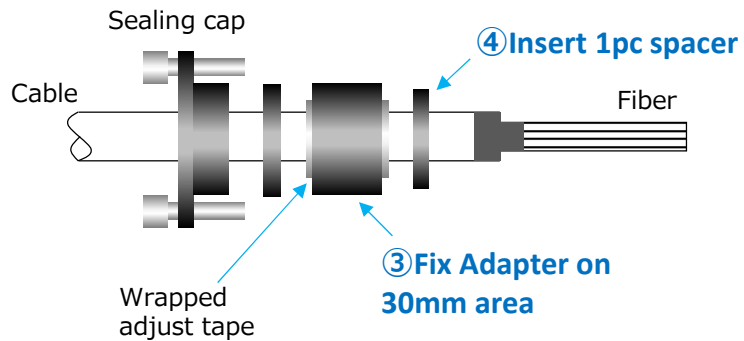


Not to make space between each layer of adjust tape and cable sheath

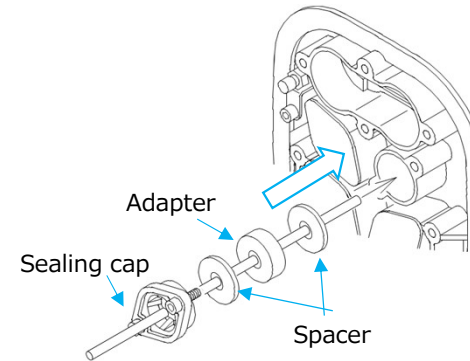
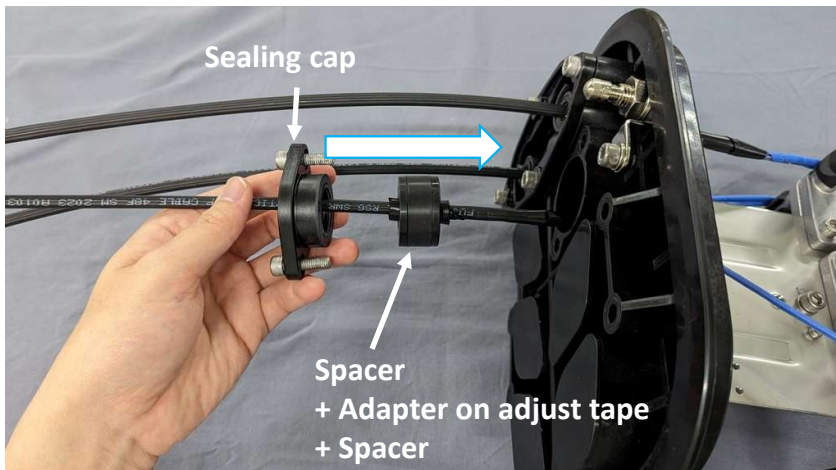
(3)-1 Branch cable installation of Fujikura's WTC

c) Cable sealing and fixing

- ③ Insert Adapter to wrapped cable, ④ Insert 1pc spacer to cable

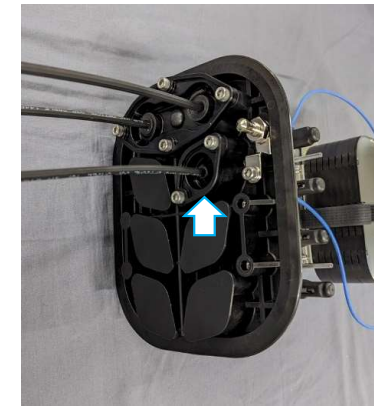
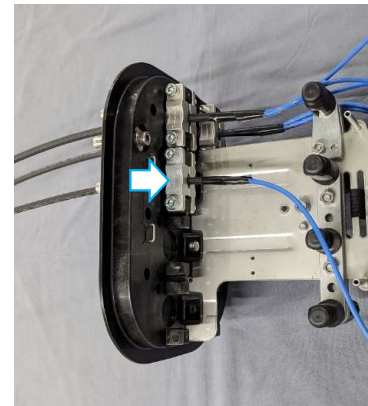


- ⑤ Insert sealing cap to cable



Be careful not to break fiber when inserting fiber into entry plate

- ⑥ Fix sealing cap on Entry plate temporary by 2 screws
⑦ Cable fixing Refer to page 9
⑧ Tighten up 2 screws



Tighten screw until no gap between sealing cap and entry plate.

Avoid overtightening the screws; tighten it only as much as necessary.

(3)-2 Branch cable installation of Loose tube cable

Optional parts of “*Branch cable kit<HS1>*, *Branch cable kit<HS2>* or *Branch cable kit<HM>*” is required when installing branch cable.

a) Select type of branch cable kit

Cable dia. (mm)	Type of Branch cable kit	Remark
6-8	HS1	Wrap tape to adjust diameter (c), ② Process
8-13	HS1	
13-16	HS2	
15-19.5	HM	

b) Remove sheath and install tubes

① Remove cover

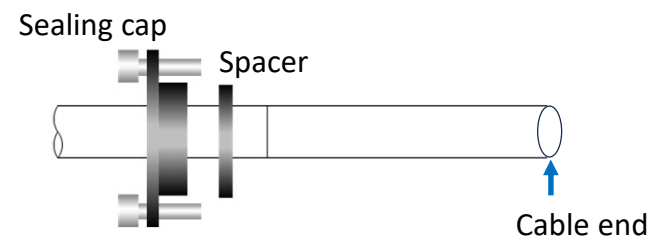
①-1 Remove cover



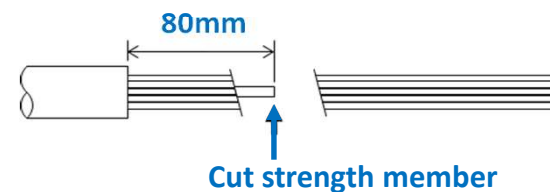
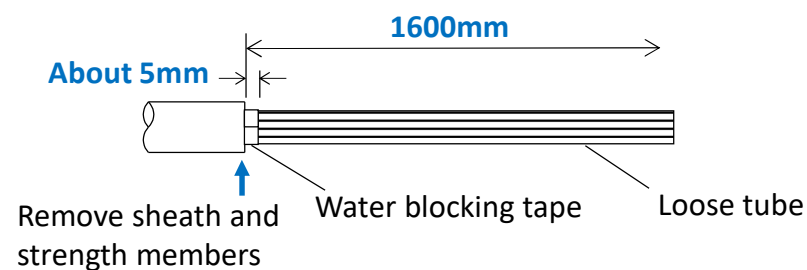
①-2 Make hole using shaft



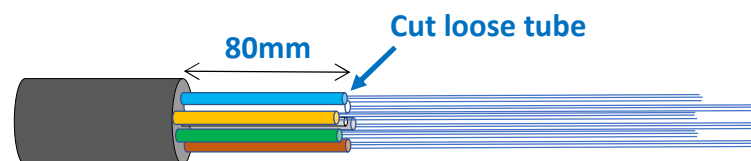
② Pass 1pc sealing cap and 1pc spacer through cable



③ Remove sheath as below



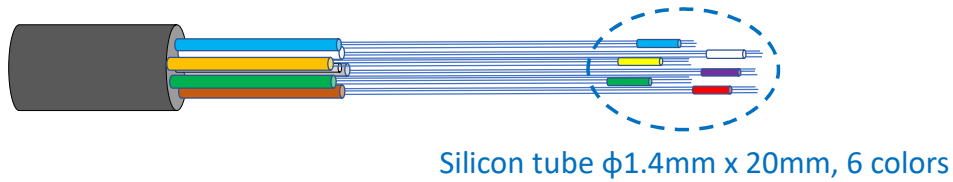
④ Cut loose tube



(3)-2 Branch cable installation of Loose tube cable

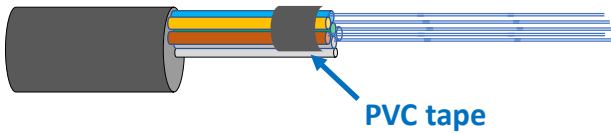
b) Remove sheath and install tubes

- ⑤ Insert silicone tube for identification inside tray.

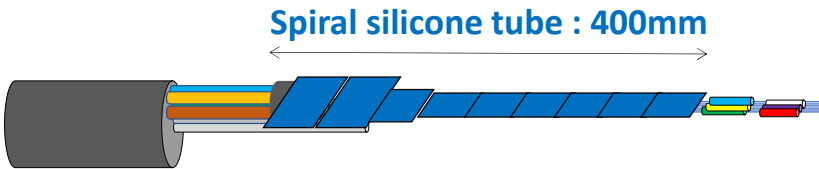


- ⑥ Insert spiral silicone tube per fibers route to splice tray

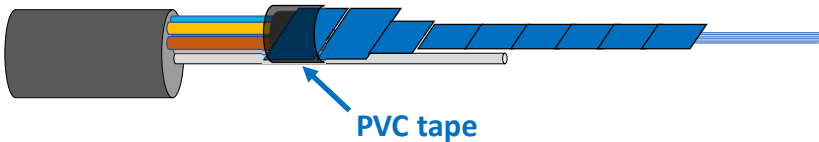
- ⑥-1 Fix loose tubes by PVC tape



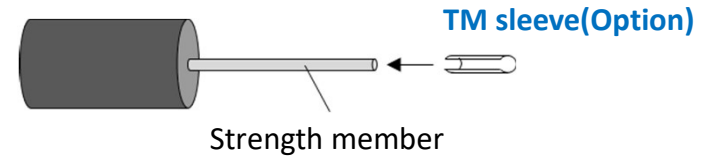
- ⑥-2 Cut spiral silicone tube to 400mm and pass to fibers



- ⑥-3 Fix spiral silicone tube by PVC tape



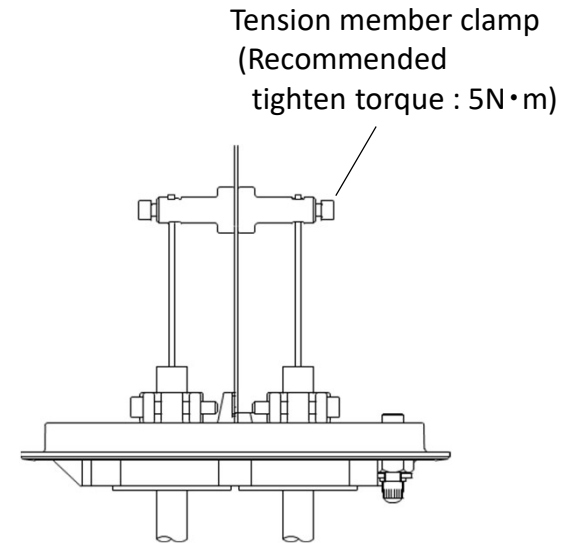
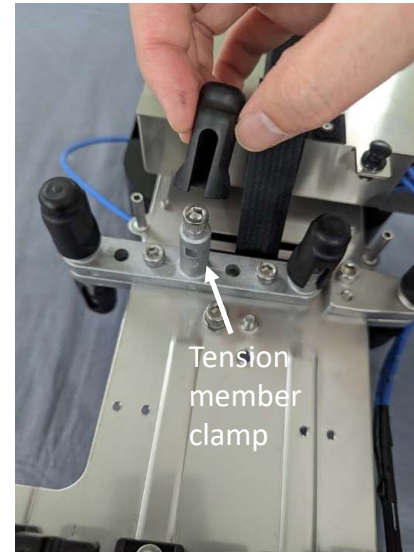
- ⑦ Insert TM sleeve to strength member



c) Cable sealing and fixing

Refer to page 11-12 and page 9

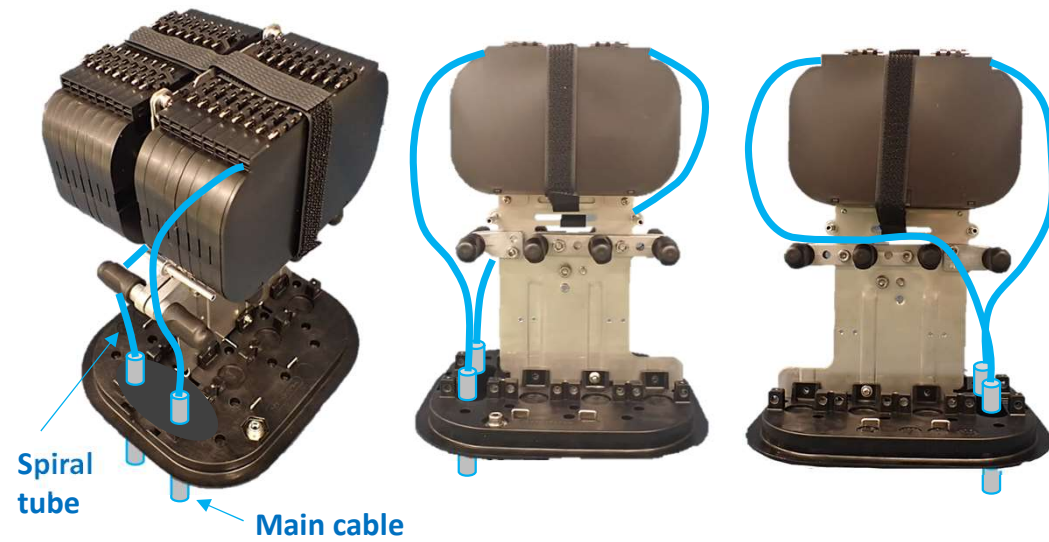
Fix strength member



(4) Fiber splicing

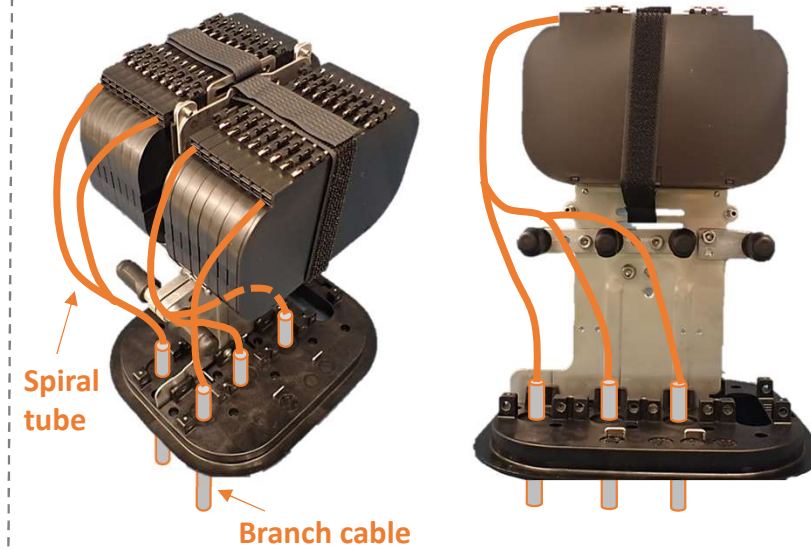
a) Fiber routing

① Main cable wiring



Check and make sure fiber is not pulled when splice tray is being open and closed

② Branch cable wiring

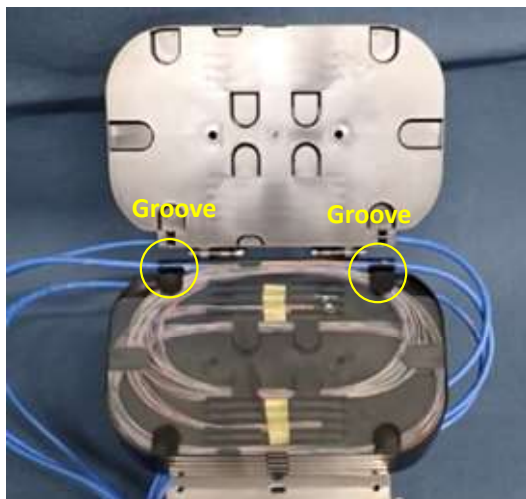


Check and make sure fiber is not pulled when splice tray is being open and closed

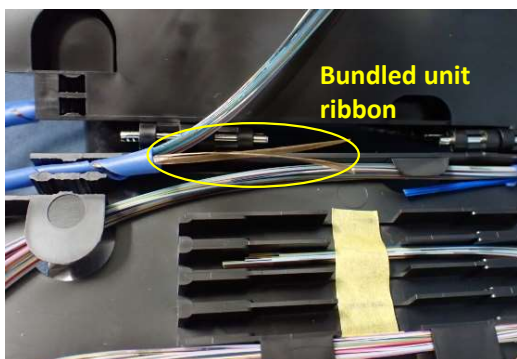
(4) Fiber splicing

b) Fiber splicing

① Fix tubes on groove of splice tray

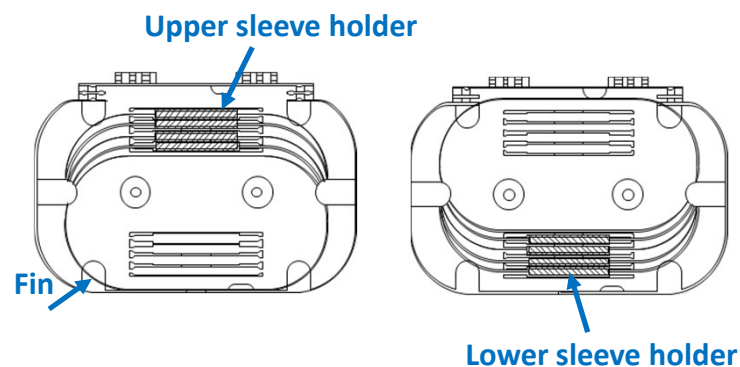


Take care and make sure not to break fibers during the opening and closing of splice tray



Remain bundled unit ribbon for fiber identification

② Fiber splicing, ③ Put splice sleeve on sleeve holder, ④ Stall fiber to splice tray

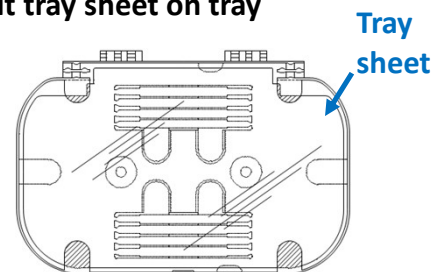


Keep fiber bending radius

Check if fiber is not on the fins after stalling

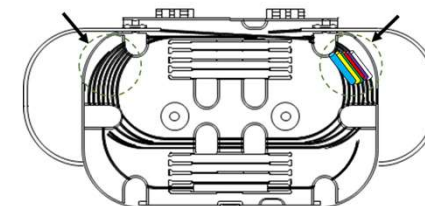
Sleeve capacity of tray: 12f SWR :Max 6pcs/Tray, Single fiber : Max 16pcs/Tray

⑤ Put tray sheet on tray



Check and make sure there is no fiber jumped out from gap of sheet and tray

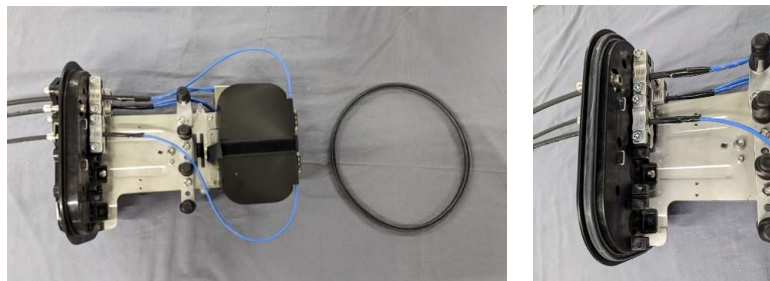
Note: Put silicon tube $\phi 1.4\text{mm} \times 20\text{mm}$ for identification of loose tube unit at below area



(5) Close closure

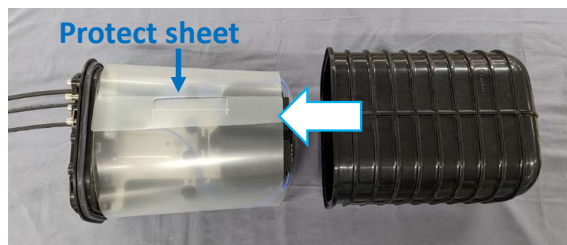
a) Set sleeve

① Set sleeve gasket



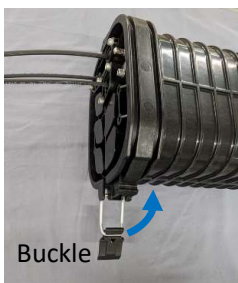
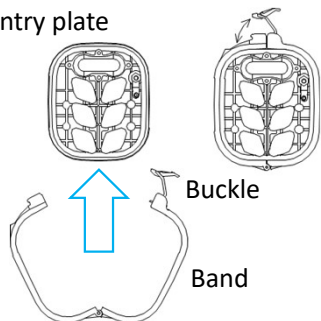
② Set protect sheet

③ Close closure



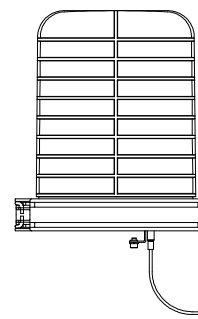
Make sure that there is no fiber twisted or broken when setting protect sheet

Entry plate



b) Check airtight

- ① Supply air of 40kPa via gas valve on the end plate.
- ② Put soap water on the sleeve joining line and cable entry ports.
- ③ Check that there is no air bubble and no leakage.
- ④ Rinse soap on closure by water, and remove the air in closure.



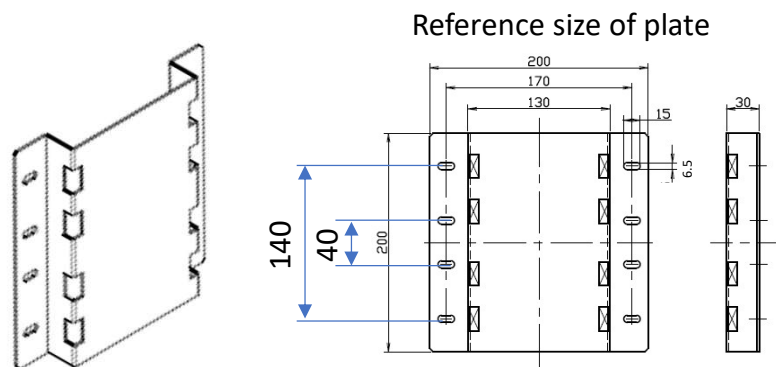
Dry pressure air (40kPa/0.4kgf/cm²)

Re-assemble if air leakage is found

(6) Wall mounting

Optional parts of “*Wall mount for HHS closure*”
is required when mounting on wall

① Set mount plate on wall



② Fix closure

