

TNS TECHNOLOGIES
TELECOM • NETWORKING • STRUCTURED CABLING

FDSC-4R10MM-144

FIBER DOME SPLICE CLOSURE 144F MAX CAPACITY MECHANICAL SEALING

Structure Diagram & Description

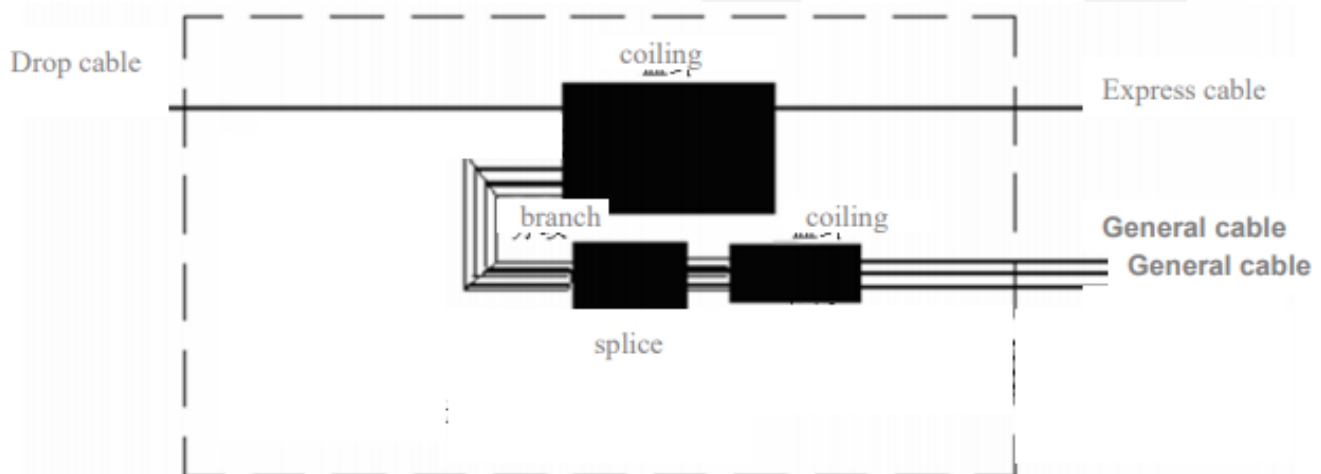


FDSC-4R10MM-144 Fiber Optic Splice Closure is a dome type with big capacity, adopt vulcanized rubber as sealing component, helical and extrusion mechanical sealing, it is suitable for different methods of branch cable connection, including the branch of uncut cable. It is used for aerial, pole-mounted, wall-mounted and buried application. The closure has goods sealing performance, convenient to operate and wide range of applications..

SPECIFICATION:

External Dimension (mm)	450×φ230	Max. Capacity	144F
Weight (kg)	4.2~4.8	Sealing type	Mechanical
Cable entrances	5 (4 Drop & 1 Express cable)	Capacity of each tray	24F
Suitable cable diameter (mm)	pinholeφ8~φ17.5 express cableφ10~φ17	PLC Splitter	1pc splitter
number of Splice trays	6		

STRUCTURE AND COMPONENTS:

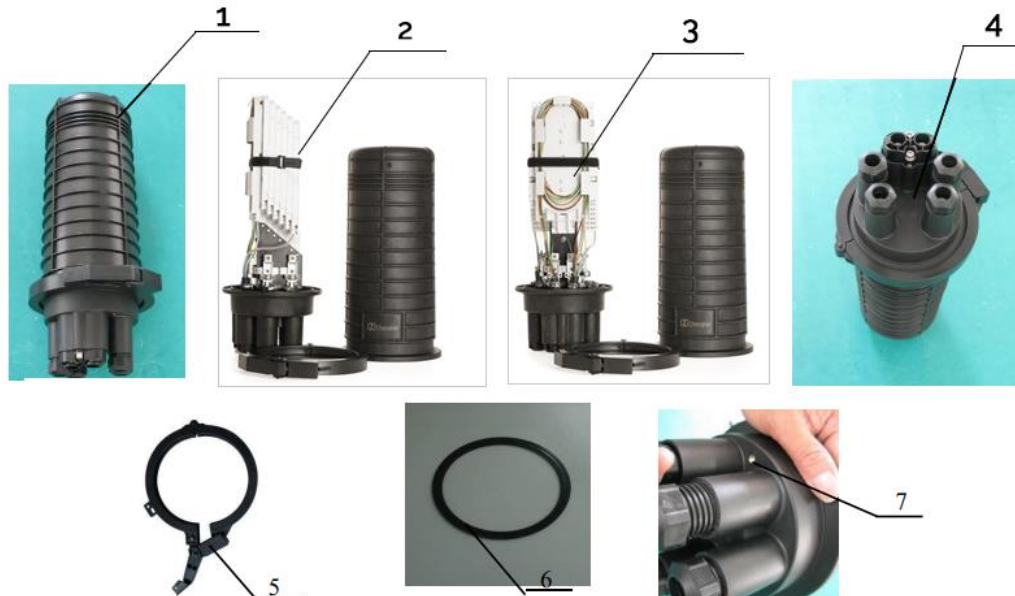


Picture 1 the inner element picture of the fiber closure



STRUCTURE AND COMPONENTS:

1.Product picture

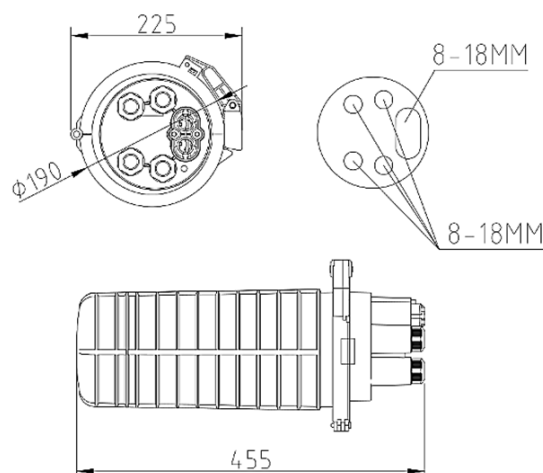


1. Splice Closure cover ; 2.Fiber Splice Trays ; 3. Splice Tray Fixing Plate ; 4. Splice Closure Base ; 5. Plastic Hoop ; 6. Circular Seal Gasket ; 7. Earthing Device

FEATURES:

- Cable diameter: 1 uncut port meet $\phi 8 \sim 18\text{mm}$ cable; 4 branch ports meet $\phi 8 \sim 18\text{mm}$ cable
- Product capacity: Single fiber max capacity is up to 144f, also support max 432f ribbon fiber
- Installation method: Suitable for direct buried, aerial, pole, pipeline, manhole, etc.
- Sealing mode: mechanical seal is adopted for cable ports, with protection grade of IP68.
- Splice tray can accommodate mini PLC if required. Also can accommodate micro cable with grommet

STRUCTURE DRAWING:



Website: www.tnstechltd.com



2. Component list

2.1 Main components

No.	Name & description	Quantity	Usage	Remarks
1	Splice Closure Cover	1	Protect Closure	H=350mm D=175mm
2	Fiber splice tray	5 sets	Protect Fiber	Fiber splice & storage
3	Splice Closure Base	1 pcs	Fixing inner components	
4	Circular seal gasket	1+1 pcs	Airproof & Waterproof	
5	Plastic hoop	1 set	Fixing dome cover and base	
6	Splice tray bracket	1 pcs	For holding splice tray	
7	Earthing device	1 set	For inner metal components grounding	Optional
8	Air Valve	1 pcs	Testing that air pressure and seal performance	Optional

BILL OF MATERIAL FOR NEW FDSC-4R10MM-144 Heat Shrink Type FIBER SPLICE CLOSURE (SUITABLE FOR 60 FIBERS)

Sl. No.	Name of item & description	Quantity	Remarks	Packing info.
1	Splice Closure cover (dome) and base	One set (1+1)	Main body	Installed
2	Plastic Hoop	One number	For fixing dome & base	Installed
3	Fiber Splice Trays	One set of Five trays	For 12 Fiber Splicing in each tray.	Installed
4	Plastic Fiber Splice tray Cover	One number	To cover the last splice tray at the end	Installed
5	Fiber Splice tray Cover (Transparent)	Four numbers	To cover the 1st4 splice trays each	Installed
6	Splice Tray Wedge	One number	To support the splice trays	Packed
7	M31 NUT Hexangular	Four numbers	For sealing	Installed
8	Two holes Compact heap	One number	For sealing	Installed
9	Splice Tray bracket	One number	For holding splice trays	Installed
10	Circular Seal Gasket	1+1 pc	Water proof and sealing	Installed
11	O9L4 seal ring	Four numbers	For sealing (could be used for dia 12-17.5 mm)	Packed
12	Circular Seal Gasket 9	Four Nos.	For sealing (could be used for dia 12-17.5 mm)	Packed
13	Plastic washer-I (12-17.5)	Four numbers	For sealing (could be used for dia 8-12mm)	Installed

Website: www.tnstechltd.com




14	Plastic washer-II (8-12)	Eight numbers	For sealing	Packed
15	Plastic Dummy Plug	Four numbers	For small ports when not used	Installed
16	Plastic Dummy Plug	Two numbers	For double holes when not used	Installed
17	Fiber cable fixing strip	One set (Six numbers)	For cable and the steel core fixing	Installed
18	Earthing strip	One number	For the metal accessories to earth	Installed
19	Two holes sealing ring	One number	For express cable(For sealing	Installed
20	Two holes sealing ring blocker	One number	For express cable(For sealing)	Installed
21	Splice protective sleeve	60+6 pcs	Fiber splice Protection	Packed
22	Nylon cable tie	12 number	For fixing fibers etc	Packed
23	Earthing presser for armor Cable	1 set (6Pcs.)	For grounding of armored cable	Installed
24	Inner grounding wire	1 set (1Pc)	For extension of grounding to outside of the closure	Installed
25	Air pressure Valve	1 set (1Pc)	Air pressurization of closure and check of air pressure.	Installed
26	Cable & Fiber Identification rings (Labeling paper)	6 Sets [6 (1-6) for cable and 5 sets (1- 12) for fibers]	For identification of cable/fibers	Packed
27	Velcro tape	1 Pc.	To hold splice trays together	Installed
28	Transport tubes	5 Meter	For protection of fibers	Packed
29	Insulation tape (black)	One roll	For miscellaneous use	Packed
30	Spanner	One	Special tool for the small inlets hole	Packed
31	Allen Key	One	Special tool for the Double hole	Packed
33	Instruction Manual	One		Packed
34	Carton Box	One	For packing the splice closure	Packed









Note:

- Installed means the components have been installed on the closure.
- Packed* means the components have been packed in the accessories bags separately

Packed accessories table

Sl..No	Name of item & description	Quantity	Picture
1	Tray wedge	1 No.	



2	inner seal ring	8No.	
3	Splice protective sleeve	66No.	
4	Nylon cable tie	12No.	
5	Cable & Fiber Identification rings (Labeling)	2 Sets	
6	Transport tubes	5 m.	
7	Insulation tape (black)	1Rolls	
8	Spanner	1No.	
10	Allen Key	1No.	
11	Instruction Manual	1No.	



INSTALLATION INSTRUCTION:

Including: Preparation, Installation chart, Laying chart

1. Preparation

1. Please check the type and accessories of optic fiber closure and fiber cable.
2. Keep dry and clean of all accessories.
3. Keep work environment clean (dry and non dust) and even
4. Use the specified and standard instrument during the peeling and installation.
5. No over bend and too much fiber cable.
6. Application too.

6.1 Auxiliary material (self—supply)

Material Name	Application
Adhesive tape paper	Marking、fixing temporarily
Alcohol	Cleaning
Gauze	Cleaning

6.2 Operation tools (self—supply)

Name of tools	Application
Optical cable radial wire stripper	Ring peeling cable skin
Optical cable portrait wire stripper	Straight portrait peeling cable skin
Beam wire stripper	peeling beam wire skin
Bare wire stripper	peeling cable coating
Tapeline	Measure length
Tube cutting knife	Beam wire peeling
Electrician's knife	
Wire-cutter	Cut metal core
Cross screwdriver	Screw down bolts
Across screwdriver	Screw down the cable fixing hoop tight
Scissors	
Splice operations area	Place products or tools

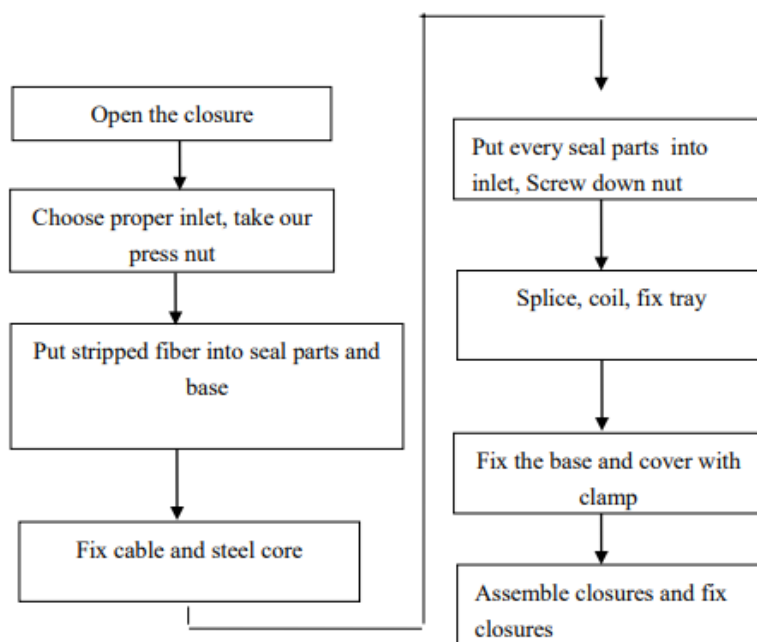
6.3 Connective and testing instruments (self—supply)

Name of instruments	Application
Heat sealing machine	Fiber connection
Optical time domain reflectometer (OTDR)	Test for connection result



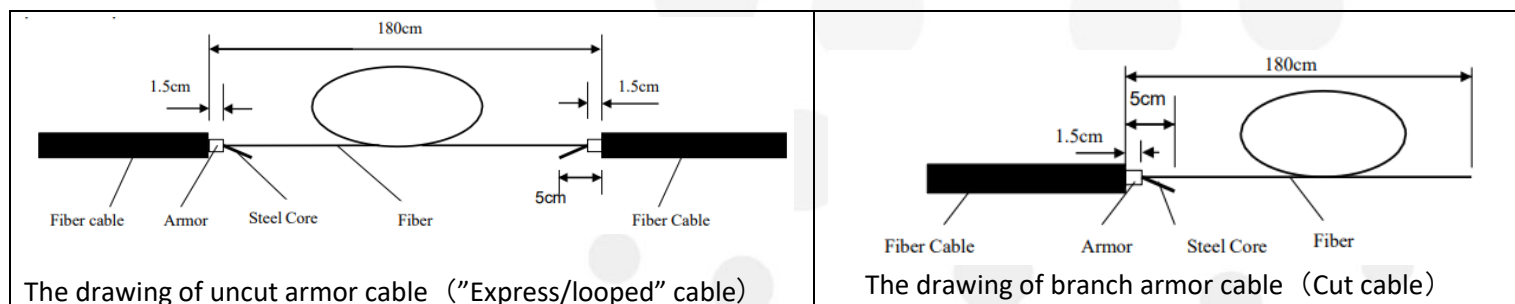
2. Installation and construction process

2.1 Installation flow chart



2.2 Cable installation

2.2.1 Mark the cutting point on the cable, the length of stripping being about 180cm or as per the requirement.



2.2.1 Needed tools when stripping cable (See picture4、picture5、picture6)



Cable(tube)Cutter



Steel core cut clamp



Cable Sheath Cutter

2.2.2 Strip the cable with above tools, and keep appropriate length as drawing.

Note:

- To ensure not to damage the optical fiber
- Do not use a damaged optical fiber cable
- Remove cable jacket without cutting, and kink or damage internal tube. In case of accident, can be cut down the subsequent cable coating to protect the cable inspection and maintain
-



2.3 Installation of fiber closure

2.3.1 Check the amount of the closure specification and accessories

2.3.2 Place the closure on the application cable

2.3.3 Open the closure Unlade the locked device on the plastic hoop, open the plastic hoop to separate the cover and base, and take out the sealing gasket.



①Pull out the handle



②Withstand the lock



③Open the hoop

block with lock plate

Note:

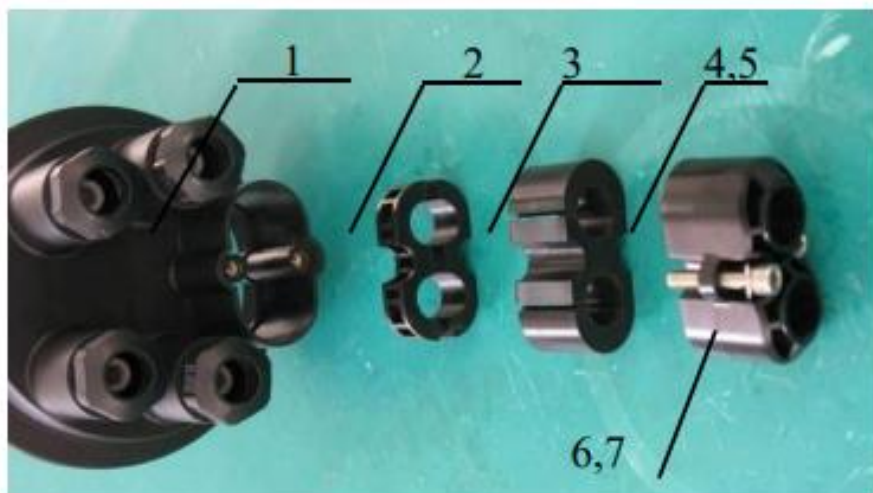
- For the good sealing performance of the box, please be care when separate the box.

Important: All ports are sealed well, please open the inlet first when using.

2.3.4 Lead "Express/looped" fiber cable into closure

Make the striped cable through components in order and then enter into closure according to following pictures

2.3.4.1 The pictures of components for "Express/looped" cable entrance



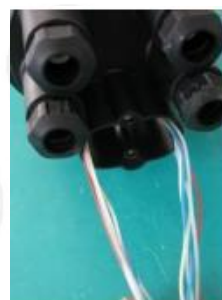


2.3.4.2 Components list for "Express/looped" cable entrance

No.	Name	Quantity	Usage
1	Base	1 set	Fixing internal structures
2	Double sealing block	1set	For sealing uncut cable (Dia $\phi 10 \sim \phi 17$)
3	Double sealing	1 pcs	
4	Double press block	1 pcs	
5	Double press insert block	2 pcs	
6	M6*30 stainless steel inner hexagonal bolt		2 pcs
7	Stainless steel washer 6		2 pcs

2.3.4.3 "Express/looped" cable installation procedure (①~⑥)

- Screw down the double press block of base, take out the cable sealing plug, sealing block. Put the uncut cable through into entrance
- Loose the cable fixing hoop with straight screwdriver, and loose the armor and steel core press with crossing screwdriver
- Fixing the cable with hoop and fixing cable armor with press patch. Fixing the steel core as picture



- Fix the uncut cable in the tray basket, refer to the pictures, fix with nylon tie, then coil and fix in the tray.



- Press the double holes presser, double seal ring, seal ring blocker, refer to the follow pictures.





- Cable sealing Through double seal ring blocker, double seal ring, double seal ring presser into the closure base. Screw down screws with the inner hexagon spanner.

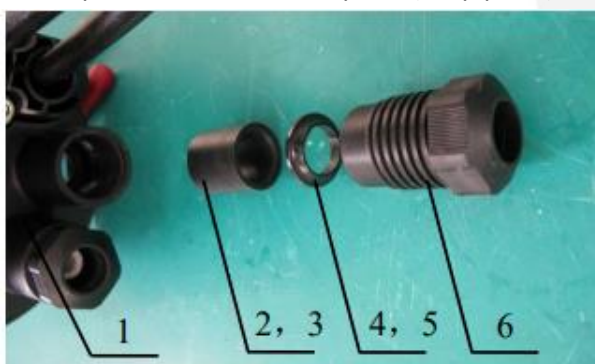


Note:

- For the seal ring is made of rubber, so the double holes presser is made of plastic. So when application, please use the appropriate force. ($F \leq 5N \cdot M$). On the base of not out of shape.

2.3.5 Small port cable (drop cable) introducing to box. There are 4 small ports for the uncut cables in the bottom box.

2.3.5.1 Pictures of components for the small ports (drop ports)



2.3.5.2 List of components (drop cable)

SL.NO	Name	QTY	Application
1	Splice Closure Base	1 set	Fixing
2	09L4 seal ring	4 No.	For cable sealing
3	09L4 inner seal ring (Φ8-12mm)	4 No.	
4	Plastic washer -I	4 No.	
5	Plastic washer -II	8No	
6	M31 Nut	4 No.	



2.3.5.3 Installation step of cables in small ports (Drop cables)

- ❖ Back-out the nuts with the spanner, and take out the sealing elements. Take out the hoop with the across screwdriver. Loose the armor cable plate and the steel fixing plate with cross screwdriver.
- ❖ Pass the peeled fiber cable by step through M31 nut (plastic), plastic washer and seal ring



Note:

- When dia. Meter of cable is less than $\phi 10$, please use cable seal ring II and inner seal ring to confirm the sealing performance.



- ❖ Through the cable into small port to closure
- ❖ Fixing the cable with hoop, then fixing the steel core to press patch (Like 2.2.3.4.3)
- ❖ The seal for cable

Press the seal gasket (liner only for necessary) and plastic washer to small port. Screw the M31 nut with spanner tightly for perfect seal.

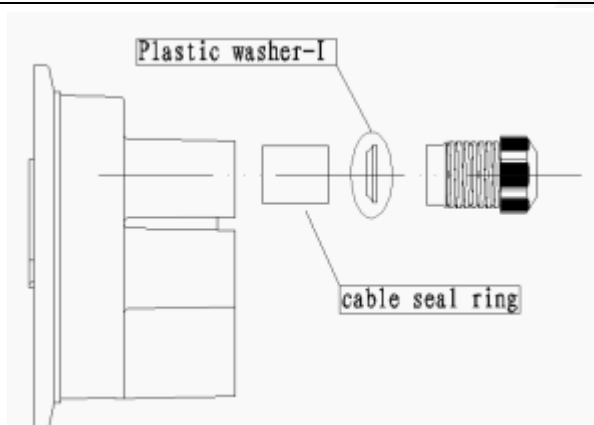


- ❖ Conduct the drop cable to tray
Measure the distance from cable fixing place to second or third tray port, strip the fiber tube, fix them to inlet of tray with nylon ties.

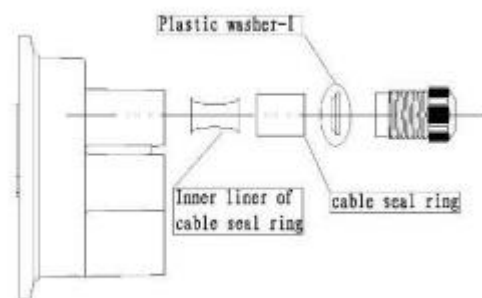


Important:

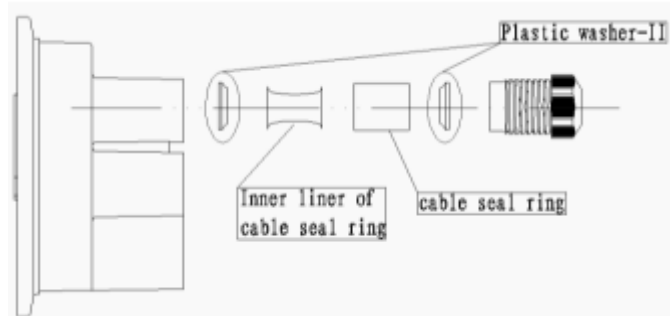
- Take care while sealing the cable entry ports
- Please note the direction of the liners when plugged into the cable port.



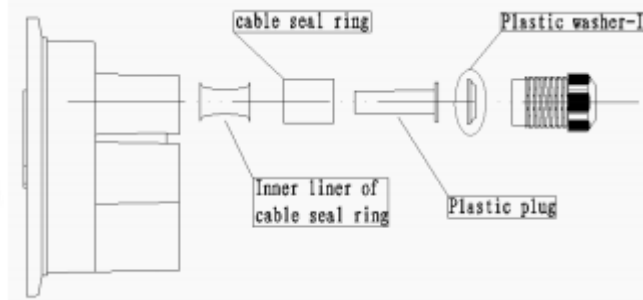
Cable diameter: $\Phi 12 \sim \Phi 17.5$



Cable diameter: $\Phi 10 \sim \Phi 12$



Cable diameter: $\Phi 8 \sim \Phi 10$



Use plugs to seal if without installation of cable

2.4 Fiber splice and mark

2.4.1 Fiber splice and mark

2.4.1.1 Remove that sheath of cable by stripper, and clean it with gauze and alcohol. Then cut the fiber by cutter (Length according to the coiling)



Tube Stripper



Naked Fiber Stripper



Fiber Cutter

2.4.1.2 Protect the fiber with tube, fixing the fiber to entrance of tray with tie when fiber into tray

2.4.2 The fiber cable entrance and splice tray

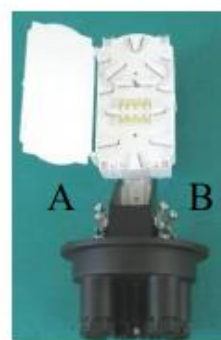
2.4.2.1 The cable ports and splice trays are as following picture. It's strongly recommended to install fibers from cable ports to the corresponding splicetrays



Base No.



Splice tray No.



Front view of splice trays

Note :

- Please refer to the front view of splice tray above, the left entrance marked with Side A while the right one as Side B, for example, 1-A=the left entrance of the 1st splice tray; 1-B=the right entrance of the 1st splice tray etc
- The route of fibers to the splice trays are as follows :

Above is only a suggestion of application step. For its convenient use, the operator can choose the loose tube and fiber path freely.

No._ Fiber in the entrance port	No. _ Fiber splice to the entrance port fiber	A/B side of the tray	No. of the drop tray
1	2	A	Any splice tray in 1,2,3,4,5
	3		
	4		
	5		
	6	B	6
2	3	A	Any splice tray in 1,2,3,4,5
	4		
	5		
	6	B	5
3	4	A	Any splice tray in 1,2,3,4,5
	5		
	6	B	5
4	5	A	Any splice tray in 1,2,3,4,5
	6	B	5
5	6	B	5

2.4.3 General fiber splice, recording the parameter after the spliced and making the cable marking, in order to the upper maintenance and management



Fiber splice machine (example)






OTDR (example)

2.4.4 Put the splice protect pipe clamp in the bracket, and put the fiber spiral storage in the splice tray ,cover the transparent cover or plastic cover

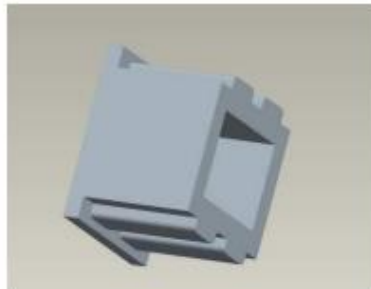
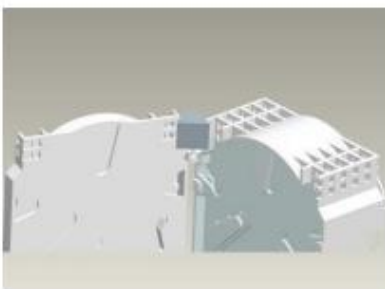
Note :

- In the process of the fiber splice and storage, the bend radius should be less than 30 mm. If the radius is too small, the fiber attenuation and the optical scatter will expand. Also, the fiber will be break after long time.
- In the process of the fiber splice and storage, please notice the direction of twist, generally ,it is “8” .Notice should not break the fiber cable; after the process, put all the optical fiber below the board of the storage fiber tray

		
Full view after installation	The transparent cover of splice tray	The plastic cover of splice tray

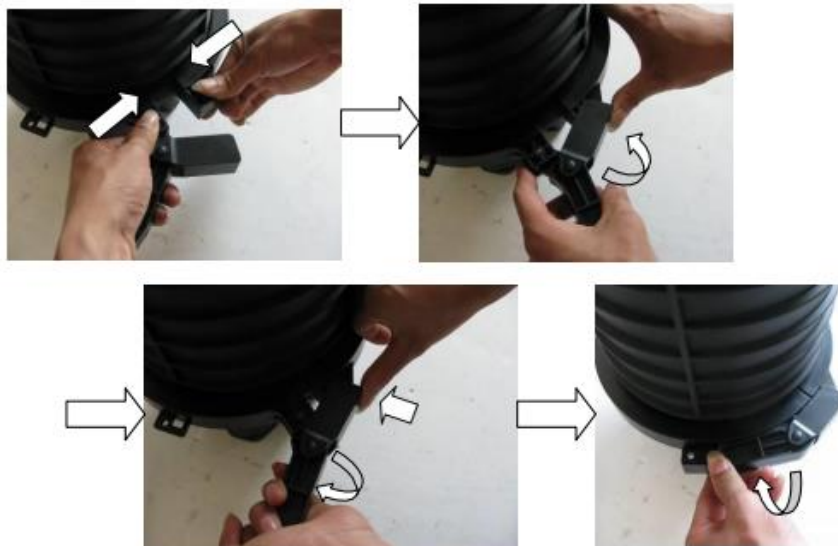
2.4.5 Open the tray clip at the right of the splice tray as picture in the middle above ;

2.4.6 When we turn to the 2nd splice tray, install the tray wedge at the connecting part of two splice trays at the trays will not fall back to the original positions.

	
The side view of tray wedge	The application of tray wedge

2.5 Box encapsulation

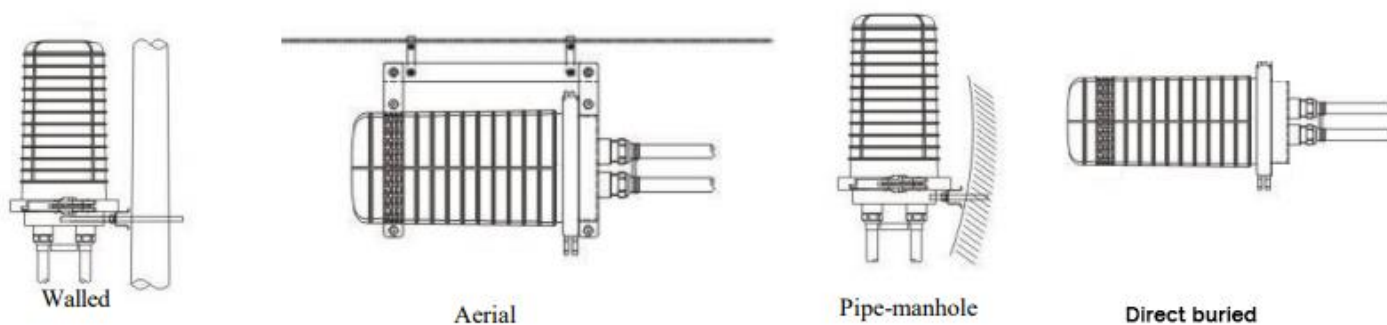
1. After application, load the cable sealing into the box, put the top box and the base together, seal the total box with plastic hoop.



2. Suggest test after being filled air in the closure and filled other inertia air according to the user application. Be sure of the safety of the out grounding. Then inspection of the all fibers inside, to confirm that no harm to any the fibers.

3. Installation of the closure

Refer to the follows :



REOPEN AND MAINTAIN:

This chapter include as follow: Reopen Maintain and fibers expansion Box re-encapsulation

1. Reopen

Please open the box according the 2.2.3.3 of the manual instruction.

Note:

- Please release the air of the closure if the protective air or other air is filled before



2. Maintain and fiber expansion

2.1 Open the tray as 2.2.4.5, choose and find optical fiber which need maintain, then maintain it

2.2 When need fiber expansion, choose the spare uncut cable entrance, loose the nut using the spanner, take out the sealing plug and the sealing elements. If the nut is tight to take it out, could pull the nut using the screwdriver.

2.3 Introduce the need fibers to expand fibers refer to the Chapter Two.

3. Box re-encapsulation

After maintain and fiber expansion, check every elements if they are in good condition. Then re-encapsulation refer to 2.2.5.

ORDERING INFORMATION:

FDSC-4R10MM-24	FIBER DOME SPLICE CLOSURE, 4 X ROUND PORT, 1 X OVAL PORT, MECHANICAL SEALING, 24 FIBERS
FDSC-4R10MM-48	FIBER DOME SPLICE CLOSURE, 4 X ROUND PORT, 1 X OVAL PORT, MECHANICAL SEALING, 48 FIBERS
FDSC-4R10MM-72	FIBER DOME SPLICE CLOSURE, 4 X ROUND PORT, 1 X OVAL PORT, MECHANICAL SEALING, 72 FIBERS
FDSC-4R10MM-96	FIBER DOME SPLICE CLOSURE, 4 X ROUND PORT, 1 X OVAL PORT, MECHANICAL SEALING, 96 FIBERS
FDSC-4R10MM-144	FIBER DOME SPLICE CLOSURE, 4 X ROUND PORT, 1 X OVAL PORT, MECHANICAL SEALING, 144 FIBERS