Opticube®

SAM3-BS403A

Splice Closure for Fiber Optic Cable
User Manual Rev.5

VISSM ELECTRONICS

1. Introduction

1.1 General

SJOF-RTC-BS403A protects fiber optic splicing point in various installation conditions such as aerial, manholes, ducts, wall and direct buried applications.

It is specially designed for FTTH network and applicable to multi branching installation by using mid-plate which is for increasing core capacity and complying with the requirements in each point of network. The flat type gasket ensures reliable sealing performance by preventing air and water leak and the corn type sealing socket provides easy and reliable installation.

This closure has high mechanical strength against any environmental conditions.

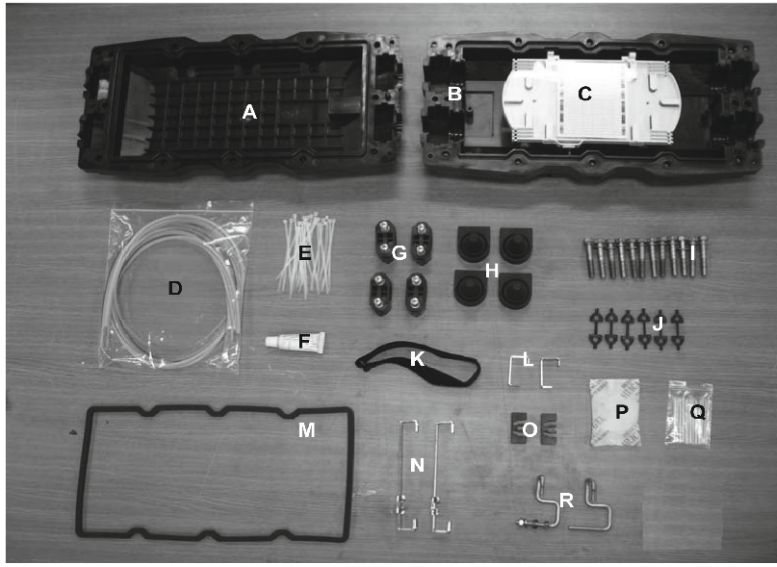
With SJOF-RTC-BS403A, you can improve your network system to the higher level.

1.2 Specifications

Items	BS403A-SS	BS403A-SD	BS403A-DD
Size (mm) L×W×H	435 x 205 x 113	435 x 205 x 167	435 x 205 x 221
Weight (kg)	2.8	3.8	4.8
Main Entry Ports	4 ports/EA	8 ports/EA	12 ports/EA
Sub Entry Ports	8 ports/Main Entry Port	8 ports/Main Entry Port	8 ports/Main Entry Port
Cable Dia.(mm)	6 ~ 20mm	6 ~ 20mm	6 ~ 20mm
No. of Splice Tray	4	6	8
Tray Capacity	24F (up to 48F)	24F (up to 48F)	24F (up to 48F)
Splice Capacity	up to 192F	up to 288F	up to 384F
Splice Method	Fusion, Mechanical, Connector		
Splice Protector	Heat Shrinkable Sleeve		
Tension Member	Galvanized Steel Wire, FRP		

1.3. Configuration

1.3.1. Standard Type (SS-Type)



Items	Descriptions	Unit	Q'ty	Remarks
A	Upper Main Body	EA	1	
B	Lower Main Body	EA	1	
C	Splice Tray	EA	1	Standard
D	Unit Protection Tube	EA	4	Standard
E	Cable Tie	EA	No. of Splice Trays × 4	
F	High Vacuum Grease	EA	1	
G	Sheath Holder	SET	4	Note 1
H	Sheath Gasket	SET	4	Note 2
I	Main Body Screws	EA	12	
J	Sheath Holder Adapter	EA	No. of Mono-Branch Type Sheath Holder × 3	Note 3
K	Splice Tray Band	EA	1	
L	Unit Guider	EA	2	
M	Main Body Gasket	EA	1	
N	T/M Ass'y	SET	2	

O	Drop Cable Guider	EA	-	Note 4
P	Silica Gel	EA	1	
Q	Splice Protection Sleeve	EA	-	Note 5
R	Manhole Hanger	SET	2	

Note 1. *The type of sheath holder shall be accordance with type of sheath gasket. (mono, di or octa-branch type)*

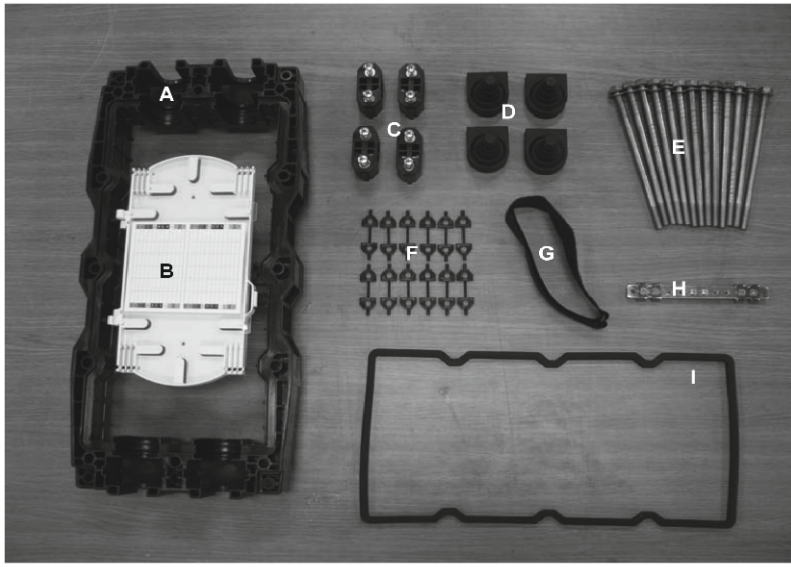
Note 2. *The type of sheath gasket shall be accordance with customer's requirements.*

Note 3. *Do NOT provide for di and octa-branch type sheath gasket.*

Note 4. *The number of drop cable guider shall be same as the number of octa-branch type sheath gasket, and do NOT provide for mono and di-branch type sheath gasket.*

Note 5. *The number of splice protection sleeve shall be accordance with the fiber count to be installed.*

1.3.2. Mid Plate Set (SD-Type, DD-Type)



Items	Descriptions	Unit	Q'ty	Remarks
A	Mid Plate	EA	1	
B	Splice Tray	EA	1	
C	Sheath Holder	SET	4	Note 1

D	Sheath Gasket	SET	4	Note 2
E	Main Body Screw	EA	12	
F	Sheath Holder Adapter	EA	No. of Mono-Branch Type Sheath Holder × 3	Note 3
G	Splice Tray Band	EA	1	
H	T/M Middle Ass'y	SET	1	
I	Mid Plate Gasket	EA	1	

Note 1. *The type of sheath holder shall be accordance with type of sheath gasket. (mono, di or octa-branch type)*

Note 2. *The type of sheath gasket shall be accordance with customer's requirements.*

Note 3. *Do NOT provide for di and octa-branch type sheath gasket.*

2. Direction

2.1. Getting Started

2.1.1. Confirm the cable structure and the fiber type before starting the work. Different types of fibers can NOT be spliced together.

2.1.2. Seal the splicing part perfectly to minimize cable damages by moisture. Do NOT apply any impact to the splicing part.

2.1.3. Keep the working place free from moisture or dust. Do NOT give any impact on the cables. Do NOT bend or twist cables.

2.1.4. During the sheath stripping and the closure assembly procedures, use permitted tools according to an approved fiber optic splicing standard in your region.

2.2. Cable Preparation

2.2.1. Secure the cables firmly on the working table.

2.2.2. Cut off about 1m from the cable end including the pulling eye.

2.2.3. Clean the cut area by using clean tissues.

2.3. Marking a Cutting Point

2.3.1. Mark a sheath removing point on the cable with a piece of tape at a 150cm point from the cable cut end. (Figure-1)

[Figure-1]

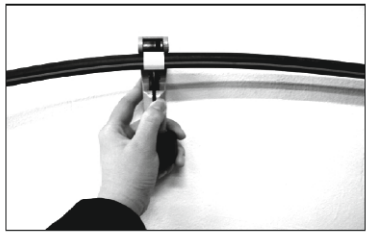
2.4. Removing Sheath

2.4.1. Remove the cable sheath from the marked point by using a sheath stripper. (Figure-2)

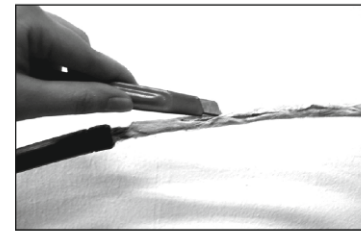
Note. *Be sure NOT to damage the fiber optics.*

2.4.2. Remove all plastic tape and dummy filler tubes. (Figure-3)

2.4.3. After trimming off dummy filler tubes, clean the loose tubes by using a jelly cleaner.



[Figure-2]



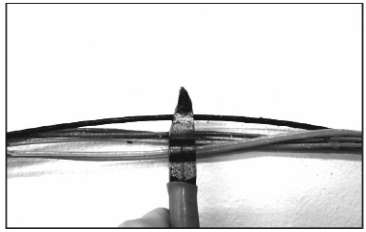
[Figure-3]

2.5. Cutting Tension Member (T/M)

2.5.1. Leave about 7cm from the cable and cut off the tension member. (Figure-4)

Note. *Be careful NOT to cut loose tubes.*

2.5.2. Remove PE coatings from the tension member if required.



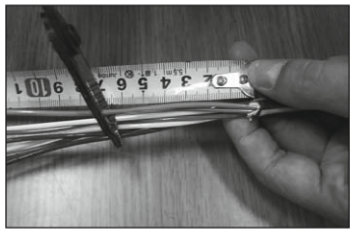
[Figure-4]

2.6. Removing Loose Tubes

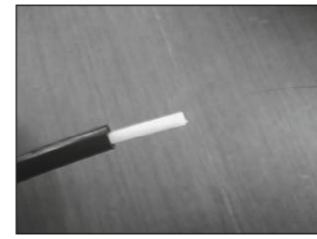
2.6.1. Leave about 4cm from the cable sheath end and remove the rest of the loose tube. (Figure-5)

2.6.2. In case of single tube type drop cable, leave about 1.5cm from the cable sheath. (Figure-6)

2.6.3. Clean the cut area by using a jelly cleaner.



[Figure-5]

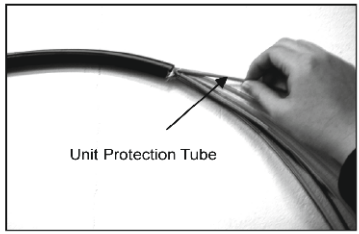


[Figure-6]

2.7. Inserting Unit Protection Tube

2.7.1. Insert fibers into the unit protection tubes carefully all the way up to the point where loose tubes end. (Figure-7)

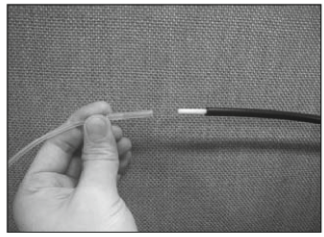
2.7.2. Wrap the tape around the end point of protection tube at cable side. (Figure-8)



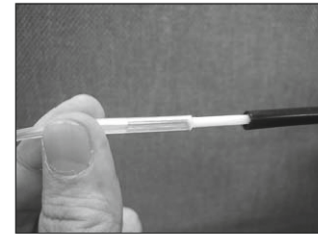
[Figure-7]

[Figure-8]

2.7.3. In case of single tube type drop cable, do NOT wrap the tape. (Figure-9, Figure-10)



[Figure-9]



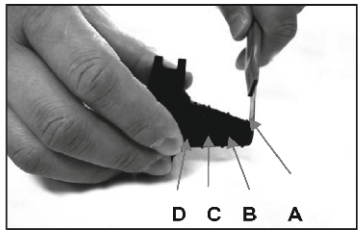
[Figure-10]

Note 1. *Be careful NOT to damage inner fibers.*

Note 2. *The unit protection tube is provided in different colors for unit identification. The colors are blue, orange, green, red, yellow, violet and natural.*

2.8. Cutting Sheath Gasket

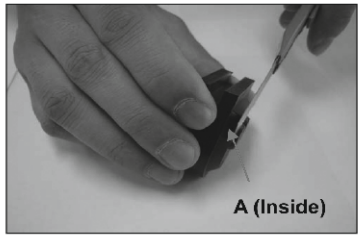
2.8.1. Check the outer diameter of the cable and cut off the sheath gasket according to the cable diameter marked on it. (Figure-11, Figure-12, Figure-13)



[Figure-11]

Mono-Branch Type

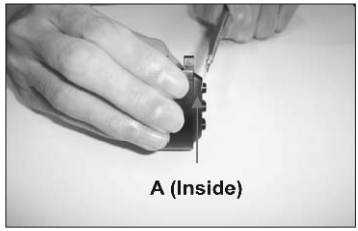
Cutting Point	Cable Diameter
A	6mm
B	8 ~ 10mm
C	12 ~ 14mm
D	16 ~ 18mm



[Figure-12]

Di-Branch Type

Cutting Point	Cable Diameter
A (Inside)	11 ~ 12mm

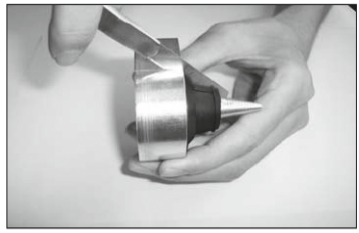


[Figure-13]

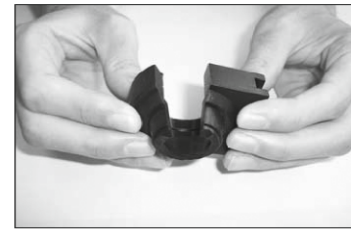
Octa-Branch Type

Cutting Point	Cable Diameter
A (Inside)	5 ~ 6mm

2.8.2. In case of mid-span branching with mono-branch type sheath gasket, insert sheath gasket into the cutting tool and cut off one side of sheath gasket, or by using an equivalent. (Figure-14, Figure-15)



[Figure-14]



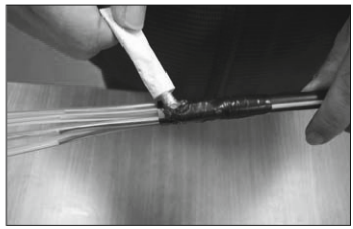
[Figure-15]

2.9. Applying High Vacuum Grease

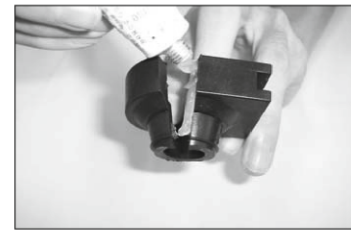
2.9.1. Apply the high vacuum grease on the cable end to prevent the cable sheath from scratch and make

it easy for sheath gasket insertion. (Figure-16)

2.9.2. In case of mid-span branching with mono-branch type sheath gasket, apply the high vacuum grease on the cutting surface of sheath gasket. (Figure-17)



[Figure-16]



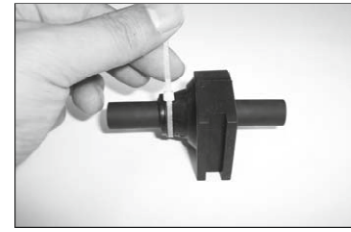
[Figure-17]

2.10. Inserting Sheath Gasket

2.10.1. Pass the unit protection tubes through the sheath gasket to the cable cut end. (Figure-18)

2.10.2. In case of mid-span branching with mono-branch type sheath gasket, insert cable into sheath gasket and fasten sheath gasket to the cable by using cable tie. (Figure-19)

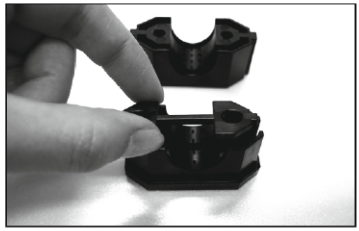
[Figure-18]



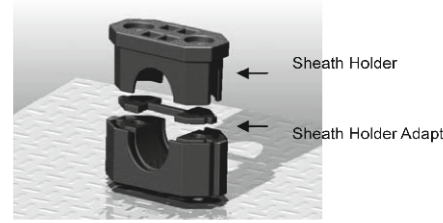
[Figure-19]

2.11. Assembling Sheath Holder Adapter

2.11.1. Put the required number of sheath holder adapters on the lower groove of the sheath holder according to the cable diameter. (Figure-20, Figure-21)

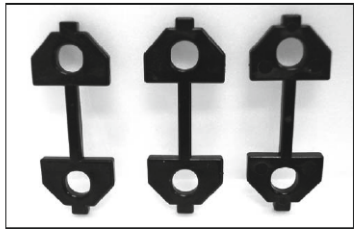


[Figure-20]



[Figure-21]

2.11.2. Insert the lower part of the sheath holder into the inlet of the closure. (Figure-22)



Cable Diameter	Required Q'ty
6 ~ 8mm	-
9 ~ 13mm	1
14 ~ 17mm	2
18 ~ 20mm	3

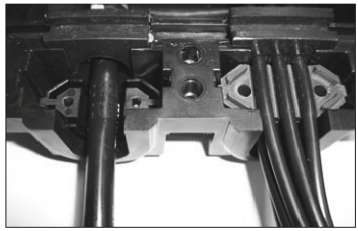
[Figure-22]

Note. *Do NOT use the sheath holder adapter for di and octa-branch type sheath gasket.*

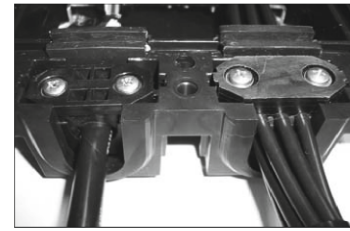
2.12. Fixing Cable Sheath

2.12.1 Put the fiber optic cable with sheath gasket on the entry of the closure and close it with upper sheath holder. (Figure-23)

2.12.2. Fix the cable sheath by using a screwdriver. (Figure-24)



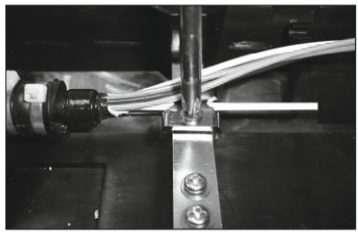
[Figure-23]



[Figure-24]

2.13. Fixing Tension Member

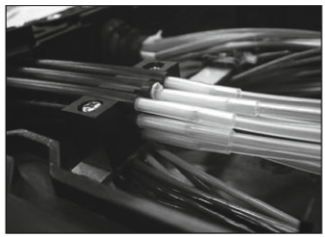
2.13.1 Lift up the splice tray and place the T/M (Tension Member) on the T/M supporter and put the T/M supporter cover on the T/M and tighten them together by using a screwdriver. (Figure-25)



[Figure-25]

2.14. Drop Cable Guiding (if required)

2.14.1. In case of using octa-branch type sheath gasket, for guiding insert the drop cable from lower side into the drop cable guider by turns. (Figure-26)



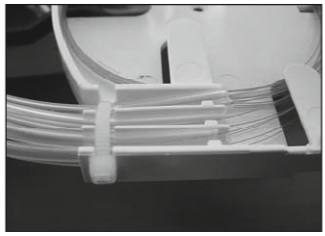
[Figure-26]

2.15. Arranging Protection Tubes

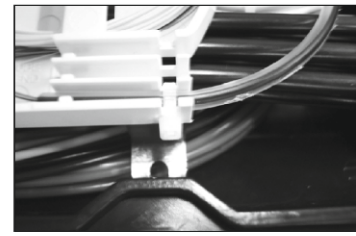
2.15.1 Arrange the protection tubes considering the bending radius.

2.15.2 Insert the protection tube into the inlet on the splice tray and fix the unit protection tubes by using cable ties. (Figure-27, Figure-28)

Note. *Be careful NOT to damage the inner fibers*



[Figure-27]



[Figure-28]

2.16. Splicing and Storing Fibers

2.16.1. Preparation

2.16.1.1. Clean the working desk and check the fibers carefully.

2.16.1.2. Cut each fiber end carefully to make a perpendicular cut to the fiber axis.

2.16.2. Splicing

2.16.2.1. Splice fibers in accordance with splicing method to be approved.

Note 1. *Be careful NOT to twist or bend fibers.*

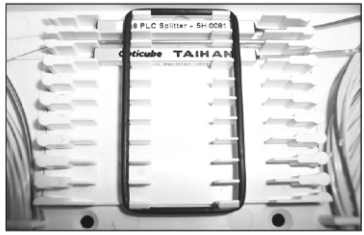
Note 2. *There should be no damage or flaw on the cut area and keep the fibers from dust to minimize the data loss.*

Note 3. *Single mode fibers should be spliced together carefully to maintain a constant center axis.*

Note 4. *If there is any problems with the splice, then cut the bondage and splice them together again*

2.16.3. Arranging the splices

2.16.3.1. After the splice, insert the splice protection sleeve in each slit accordingly. (Figure-29, Figure-30)



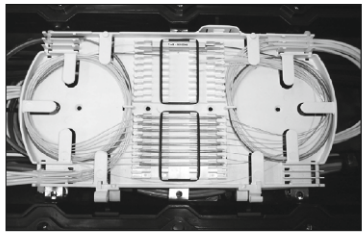
[Figure-29]

[Figure-30]

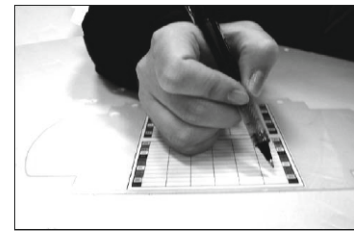
2.16.3.2. Coil surplus fibers in the tray in a figure 8 shape. (Figure-31)

2.16.3.3. After the arrangement, apply the O-ring into the slit and close the tray lid.

2.16.4. Record each splice on the index card on the lid. (Figure-32)



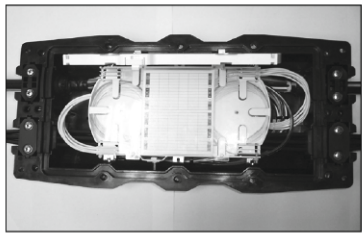
[Figure-31]



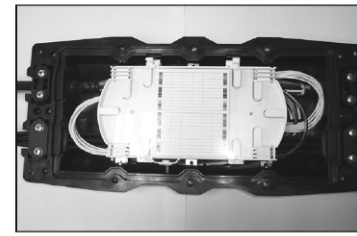
[Figure-32]

2.17. Stacking Splice Trays

2.17.1. Place the tray cover on the tray properly and stack the trays by using the connection parts on the side and repeat the splicing procedure. (Figure-33, Figure-34)

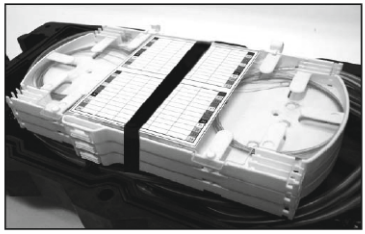


[Figure-33]



[Figure-34]

2.17.2. Tie the splice trays by using a splice tray band to be provided. (Figure-35)



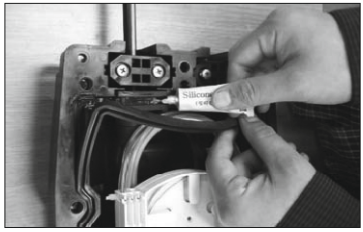
[Figure-35]

2.17.3. Place the silica gel to be provided around the splice trays.

2.18. Putting Gasket

2.18.1 Apply the high vacuum grease on the part of sheath gasket only after cleaning.

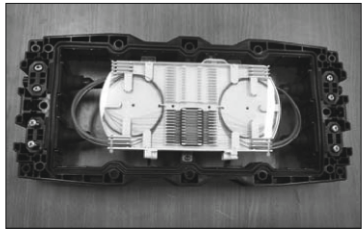
2.18.2 Put the main body gasket on the groove. (Figure-36)



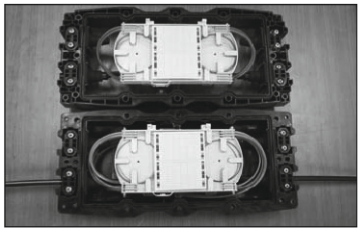
[Figure-36]

2.19. Assembling the Mid Plate (if required)

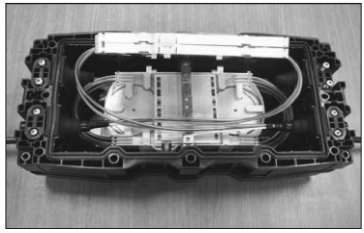
2.19.1. Assembling the mid plate in accordance with Procedure 2.1 ~ 2.17 above mentioned.



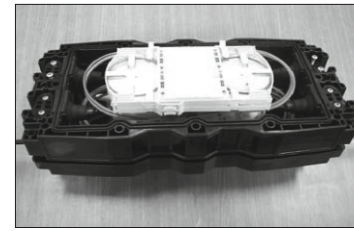
[Figure-37]



[Figure-38]



[Figure-39]

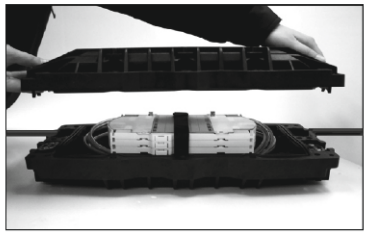


[Figure-40]

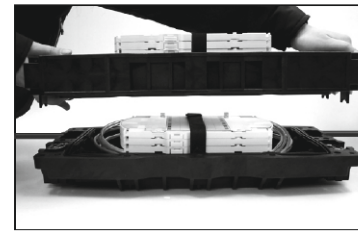
2.20. Assembling the Closure

2.20.1. Place the upper main body to the lower one properly. (Figure-41)

2.20.2. In case of using the mid-plate, place it on to the lower main body and cover the upper one. (Figure-42)

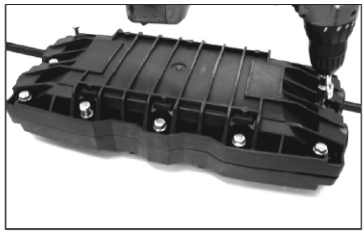


[Figure-41]



[Figure-42]

2.20.3. Tighten the closure body by using screws to be provided and listed below. (Figure-43)



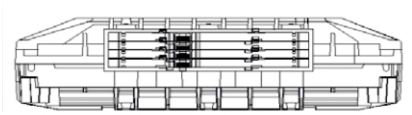
[Figure-43]

Type	Size	Q'ty
BS403A-SS	M8*L50	12
BS403A-SD	M8*L104	12
BS403A-DD	M8*L160	12

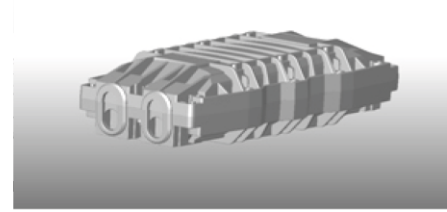
[Mid-Plate]

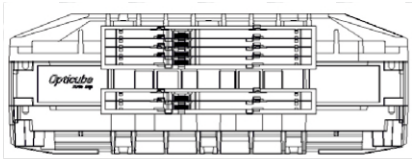
The mid-plate provides various ways of installation in terms of multi branching and increasing core capacity

Note. *In case of using the mid plate, max. 2 pcs of splice trays can be located on the lower case.*

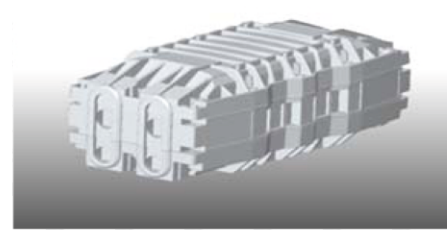


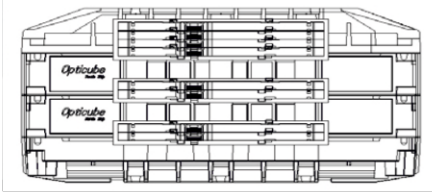
[BS403A-SS]



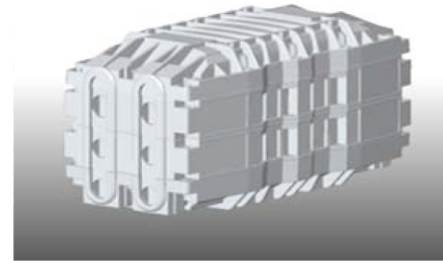


[BS403A-SD]





[BS403A-DD]



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