

## For Fiber Optic Splices, Taps, and Drops

### TELECOM OUTSIDE PLANT

## 1.0 General Product Description

The FOSC 400 A8/B8 fiber optic closure is environmentally sealed using heat-shrinkable sleeves with hot-melt adhesives. The FOSC 400 A8/B8 closure can also be cold-sealed for above-grade applications. This closure can be direct buried or installed in manholes, hand holes and aerial locations. The FOSC 400 A8/B8 closure has one oval port for two cables or a mid-span cable entry, and eight small round ports. The individual drop port approach simplifies the provisioning, repair, and restoration of subscriber services. Cable blocking is not recommended due to space constraints.

The maximum single splice capacity is 96, with 24 splices stored on four trays. The maximum mass fusion splice capacity is 216, using three trays with six splices per tray. The FOSC 400 A8/B8 closure can house pre-configured splitters as well as up to four adapters in a specially modified "bulkhead" basket. A standard slack basket must be used to store ribbon slack. Loose buffer tubes can be stored in a standard storage basket or in a storage sock. The sock can be positioned along under the trays or under the slack basket, if both are necessary. For the FOSC 400 B8 closure, a slightly larger sock area accommodates loop-through of 144-fiber midspan cable.



## 2.0 Kit Contents

- Dome
  - Clamp
  - O-Ring
  - Base
  - Oval port cable seal
  - 2 Pieces of aluminum tape
  - Branch-off clip
  - Cleaning tissue
  - Abrasive strips
  - 2 Bond wires (optional)
  - Slack storage sock
  - Basket with or without bulkhead (baskets are optional) and mounting screws
  - FOP Tubing
  - Transportation tubing (standard and ribbon sizes)
  - Ribbon spiral wrap
  - Loose buffer tube wrap
  - Small white tie wraps
  - Identification labels
  - Velcro fastener with tray holding clip
  - Tray support bracket and 2 screws
  - Installation Instructions
- Tray Kit (optional):
- 1 standard tray with cover
  - Small white tie wraps

### Ordering Information

FOSC 400-A8 - bb\_\_ - c - d e f or  
FOSC 400-B8 - bb\_\_ - c - d e f

#### bb: Tray Type

12 = with tray, 2 SM6 splice modules  
16 = with tray, 2 SM8 splice modules  
24 = with tray, 2 SM12 splice modules\*  
NT = No trays

c: No. of Trays Pre-installed  
0 = no tray (standard)  
1 = one tray

#### d: Basket type

N = none (includes storage sock)  
A = with basket (limit 3 trays)  
B = with basket (limit 3 trays)  
P = with bulkhead basket (limit 3 trays)  
T = with tall basket (limit 2 trays)

e: Ground Feed-through Lugs  
G = with grounding  
N = none

f: Valve for flash testing  
V = valved

\*Use SMOUV-1120-01-US splice protection sleeves with SM12 modules

### 3.0 Technical Product Information

<b>Dimensions and Capacities</b>	<b>FOSC 400 A8 Closure</b>	<b>FOSC 400 B8 Closure</b>
Diameter	7 inches (including clamp)	7 inches (including clamp)
Length	16 inches (top of dome to end of port)	21 inches (top of dome to end of port)
Splice Capacity	96 splices	96 splices
Tray Capacity	4 A-size trays (3 trays with installed basket) 8 slim trays (6 slim trays with installed basket)	4 A-size trays (3 trays with installed basket) 8 slim trays (6 slim trays with installed basket)
Slack Storage Capacity	Up to 600 linear inches of 3mm diameter loose buffer tube (Standard midspan of 72" +/- 3", using 96 fiber count cable)	Up to 756 linear inches of 3mm diameter loose buffer tube cable (Standard midspan of 72" or 63" using 144-fiber cable)
Oval Port	0.4" to 1.0" cable diameter	0.4" to 1.0" cable diameter
Round Ports	0.2" to 0.4" cable diameter	0.2" to 0.4" cable diameter

#### Splitters

The FOSC 400 A8 or B8 closure will accommodate the FOSC OC 6 splitter, with capacity as follows:

<b>Splitter size</b>	<b>Splitter type</b>	<b>Description</b>	<b>Max per closure</b>
1x4	FBT	FOSC-OC-6A11400	3
1x8	FBT	FOSC-OC-6A11800	2
1x16	Planar	FOSC-OC-6P11G00	2
1x32	Planar	FOSC-OC-6P11W00	1

#### Accessory Kits

<b>Kit Name</b>	<b>Description</b>
FOSC-ACC-A-TRAY-12	A-size splice tray with 2 SM6 splice modules
FOSC-ACC-A-TRAY-16	A-size splice tray with 2 SM8 splice modules
FOSC-ACC-A-TRAY-24	A-size splice tray with 2 SM12 splice modules
FOSC-ACC-B-TRAY-12	B-size splice tray with 2 SM6 splice modules
FOSC-ACC-B-TRAY-16	B-size splice tray with 2 SM8 splice modules
FOSC-ACC-B-TRAY-24	B-size splice tray with 2 SM12 splice modules
FOSC-AS-TRAY-S6-1	Slim tray with 6 splice capacity
FOSC-ACC-A8/B8-CABLE-SEAL	Round port heat-shrink seal kit
FOSC-ACC-A8-BASKET	Slack storage basket
FOSC-ACC-A8-ADP-BASKET	Slack storage basket w/bulkhead
FOSC 450 A TALL BASKET	Tall slack storage basket
SC RETAINER	Retainers for installing up to 4 SC adapters in bulkhead basket
FC RETAINER	Retainers for installing up to 4 FC adapters in bulkhead basket
ST RETAINER	Retainers for installing up to 4 ST adapters in bulkhead basket
FOSC-ACC-LASHING-STRAPS	Kit for lashing closure directly to an aerial strand
FOSC-ACC-UNIV-AERIAL-CLMP	Kit for offset mounting closure to an aerial strand
FOSC-ACC-WALL/POLE-MOUNT	Kit for mounting closure to a wall or a pole
FOSC-ACC-WORK-STAND	Optional work stand
FOSC-ACC-CV-1981-110V	110V Heat gun with reducer tip for installing hot air cable seals
FOSC-ACC-CV-1981-220V	220V Heat gun with reducer tip for installing hot air cable seals
FACC-HEAT-GUN-TIP-01	Heat gun tip for installing small round port seals
FOSC-ACC-BOND-CLAMP-5.5	Alligator bond clamp with #8 wire and hooked eyelets
SMOUV-1120-01-US	62mm long single fusion splice protection sleeves
SMOUV-1120-02-US	42mm long single fusion splice protection sleeves
FOSC-ACC-A-PED-MTG-BKT	Kit for mounting in pedestal
FOSC-ACC-A8-PORT-CONE	Pack of 8 cones for cold sealing
FOSC-ACC-A8-PORT-CONE-BP	Bulk pack of 20 cones for cold sealing

## 4.0 Installation Instructions

### 4.1 Remove Dome/Base Seal

1. Push the handle to the side to release the pin from the notch, then lift the handle. See Figure 1 Step 1.
2. Hook the "feet" of the handle behind the two posts and pry open one half of the clamp. See Figure 1 Steps 2 and 3.
3. Open the handle fully. Pull the other half of the clamp to release it from the dome.
4. Support the dome before removing the clamp. Remove dome and O-ring. Hang O-ring on top of dome.
5. Protect dome from dirt during installation. DO NOT SIT ON DOME!
6. Place the base in the work stand.

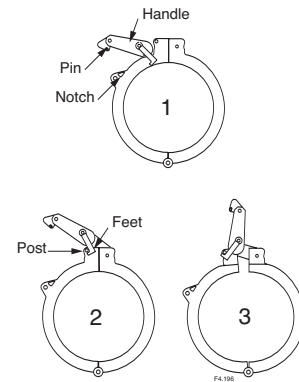


Fig. 1

### 4.2 Install Basket (optional)

Follow these steps to install the FOSC-ACC-A8-BASKET or FOSC-ACC-ADP-BASKET (bulkhead basket) slack storage baskets on the FOSC 400 A8 or B8 closure tray bracket.

1. Holding the basket open side up (like the splice trays), insert the tab of the basket through the slot in the tray bracket. (Figure 2)
2. Insert two screws (supplied with basket) through the holes in the bottom of the basket, and through the corresponding two holes in the tray bracket. Tighten screws completely. (Figure 3)
3. For the bulkhead basket, snap plastic retainer clips into bracket.



Fig. 2

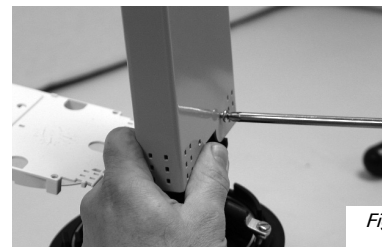


Fig. 3

### 4.3 Install Standard Tray Kit (optional)

If no trays have been factory-installed in the kit, the tray kit must be installed. Additional trays can be installed at any time. The procedure differs slightly, depending upon the presence or absence of a basket:

#### 4.3.1 Tray Kit Installation With a Basket in Place

With the closure right side up, insert the FOSC 400 A or B closure tray in the second slot of the tray bracket. Insert one tray pin in the tray bracket first, then pivot the tray to pop the second pin into place.



Fig. 4

#### 4.3.2 Tray Kit Installation With No Basket Installed

1. With the closure right side up, insert the FOSC 400 A or B closure tray in the lowest slot of the tray bracket. Insert one tray pin in the tray bracket first, then pivot the tray to pop the second pin into place. (Figure 5)
2. Holding the tray in place, turn the closure over exposing the bottom of the tray holder.
3. Install the tray bracket under the bottom tray with the two supplied screws. Use the shiny, bright-finish screws; the larger, duller screws are for use with other closures. See Figure 6.

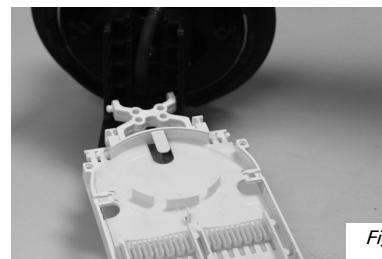


Fig. 5

### 4.4 Install Tray for Pedestal Mount Without Basket

With the closure right side up, insert the FOSC 400 A or B closure tray bottom side up in the lowest slot on the tray bracket. Insert one tray pin in the tray bracket first, then pivot the tray to pop the second pin into place.

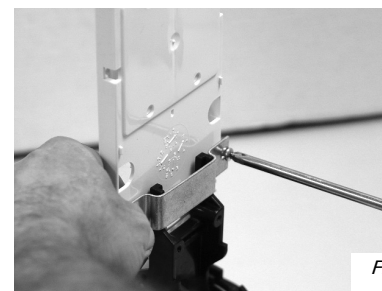


Fig. 6

#### 4.5 Install Tray for Pedestal Mount With Basket

With the closure right side up, insert the FOOSC 400 A or B tray bottom side up in the second slot of the tray bracket. Insert one tray pin in the tray bracket first, then pivot the tray to pop the second pin into place. (Figure 7)

Note: For routing, refer to Section 4.7.

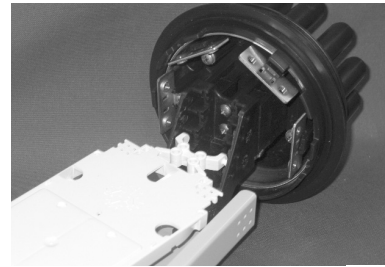


Fig. 7

#### 4.6 Prepare Cables

Note: The maximum midspan length recommendations listed in Table 1 (below) will be limited with higher count loose buffer tube (LBT) cable. The recommended fiber count is 96 for a midspan cable entry. For midspan cable entries, it is recommended to find the reverse oscillation in the buffer tubes and measure 36" in each direction.

<b>Table 1:</b>			
<b>Cable Type</b>	<b>Entry</b>	<b>Length of fiber to expose</b>	<b>Notes</b>
		<b>A8 or B8</b>	
Loose buffer tube (LBT)	Midspan	114"	If routing to basket and then to tray, cutting tubes in center of midspan
	Midspan	72"	If routing tubes directly to tray, cutting tubes dead to the field
	Ends	57"	If routing to basket and then to tray
	Ends	36"	If routing tubes direct to tray
Core Tube (loose fiber)	Midspan	72"	Use spiral wrap to route fibers directly to tray. Store slack on tray.
	Ends	36"	Use spiral wrap to route fibers directly to tray.
Ribbon (de-ribbonized)	Midspan	72"	Use spiral wrap to route fibers directly to tray. Store slack on tray.
	Ends	36"	Use spiral wrap to route fibers directly to tray.
Ribbon (mass fusion)*	Midspan	93"	If routing to basket and then to tray, cutting ribbons in center of midspan
	Midspan	72"	If routing to basket and then to tray, cutting ribbons dead to the field
	Ends	36"	If routing to basket and then to tray

\*Note: Ribbons for mass fusion splicing must always be routed to the basket and then routed via transportation tubes to the tray.

#### Cable Preparation for All Cable Types

(continued below for Ribbon or Central Core Tube)

- Using the information in Table 1 as a guide, ring cut and remove the outer sheath and shield (if present) from the cables.
- If using ground clamps, pull rip cords 1" past ring cut and refer to Grounding section, below.
- Remove yarn and cloth, trim components at ring cut, and clean exposed fiber or buffer tubes.
- Cut each strength member 2" from the ring cut. (Figure 8)

Note: For loose buffer tube cable, separate the buffer tubes to provide easy access to the shortened strength member.

**IMPORTANT:** If using Central Core Tube or Ribbon Cable, continue with subsequent steps below.

#### Central Core Tube Loose Fiber Cable Preparation

- Cut the core tube 1" from the ring cut and extend with spiral transportation tubing. (Figure 9)

#### Ribbon Cable Preparation (Basket recommended)

- Ring cut and remove all but 6" of core tube. (Figure 10)

Loose Buffer Tube Cable

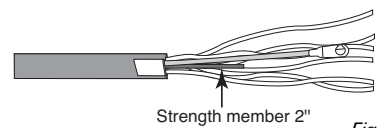


Fig. 8

Central Core Tube Loose Fiber Cable, routed directly to tray

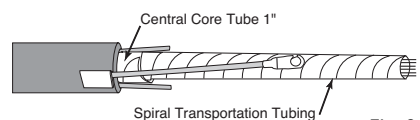


Fig. 9

Ribbon cable, routed to basket

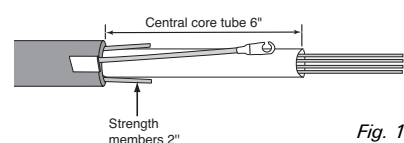


Fig. 10

6. When routing de-ribbonized fibers directly to the tray, cut the core tube 1" from the ring cut and extend with spiral or transportation tubing.
7. De-ribbonize the ribbon near the base and use transportation or spiral tubing to protect the fibers as they are routed onto the trays.

### Grounding for All Shielded Cable Types

**IMPORTANT:** For cables in the oval port, bond wires can be installed before cables are threaded through the port. For cables in the round ports, thread cables through ports BEFORE installing bond wires.

If the FOSC 400 A8 or B8 closure kit is equipped for grounding, the kit contains two solid ground wires equipped with 5.5" crimp connectors and eyehooks. If not supplied with kit, the recommended ground clamp kit is FOSC-ACC-BOND-CLAMP-5.5.

1. Pull the rip cord 1" past the ring cut, creating an opening for the crimp connector. Open the sheath and armor and crimp around both armor and outer jacket, with hooks facing the exposed cable components.
2. Wrap the end of the cable and crimp with vinyl tape.

### 4.7 Install Cables

1. Open the desired port(s). Heat the ports first with a hot air gun to soften them, then cut at the ridge with a hook-blade utility knife or a hacksaw. (Figure 11)
2. Place the port seal over the cables, with the non-adhesive end facing the base (arrow on sleeve facing base).

**IMPORTANT:** Make sure the port seal is slid over the cable BEFORE installing the cable into the port. The arrow on the seal must point toward the closure base.

3. Loosen the bolts on the strength member attachments.
4. Slide the cable through the selected port. Do not over-bend buffer tubes, ribbons, or fibers.
5. For the oval port, loosen the strength member bolts, guide the strength members under the square strength member washers and tighten. (Figure 12)
6. For round ports, the cable fastening hardware is included in the round port sealing kits, and must be installed. See instructions included with round port sealing kits.
7. To bond the cables in common for grounding, attach the bond wires to the closure's ground cable, and attach an external ground wire to the bolt on the outside of the base.

### 4.8 Store Slack

1. Use the tray holder clip (found on the Velcro fastener) to hold the tray(s) up out of the way. (Figure 15)
2. Separate the buffer tubes, ribbons, or fibers to be spliced and store the remaining excess fibers as described below:
  - a. **Loose Buffer Tubes:** Coil tubes in the slack basket or sock and secure with tie wraps. Use the sock if deploying the bulkhead basket with connectors, or when more than three trays are installed. (Figures 13 and 14)
  - b. **Ribbons:** Route the 6" core tubes directly to the slack basket, and store the uncut ribbons in the basket. Attach the core tubes to the inside of the basket with cable ties. (Figure 15)

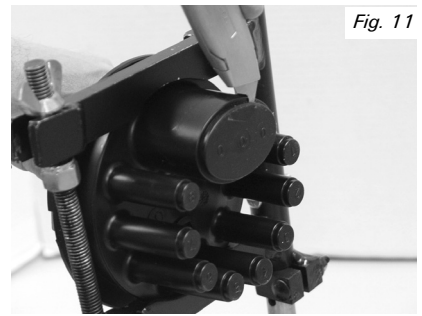


Fig. 11

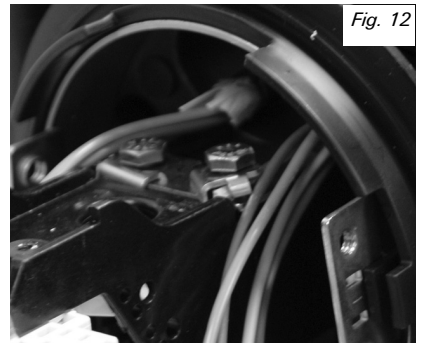


Fig. 12

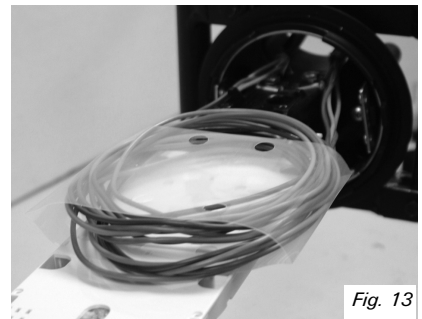


Fig. 13



Fig. 14

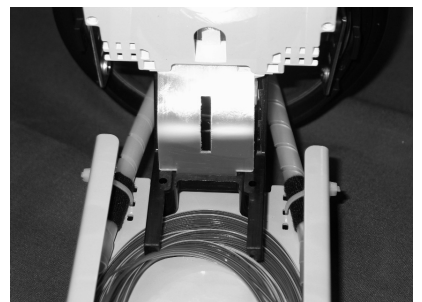
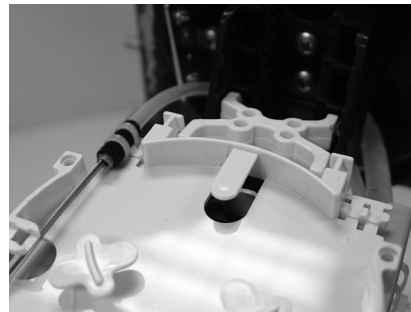


Fig. 15

- c. Central Core Tube/Loose Fiber Cable: Do not store bare fibers in the slack basket. Cut the piece of large spiral tubing included in the kit in half. Attach one end to the 1" core tube and the other end to the bottom splice tray. Route the bare fibers around the perimeter of the tray for storage. Use tray-to-tray transfers to route fibers to upper trays for splicing (see Section 4.7, Step 7). (Figure 16)

Fig. 16



#### 4.9 Route Fibers and Store Before Splicing

General routing instructions:

Loose Buffer Tube: Route selected buffer tube directly to the splice tray for splicing. Store unspliced fibers around perimeter of splice organizer tray.

Central Core Tube Loose Fiber: Route all fibers directly onto lower splice organizer tray via spiral tubing. Store unspliced fibers around perimeter of lower splice organizer tray. Route fibers to be spliced to upper splice trays via Tray-to-Tray Transfers (see below).

Ribbon: Route selected ribbon from the basket up to the designated tray under the tray tower using ribbon transportation or spiral tubing. De-ribbonized fibers can be routed directly to the tray. De-ribbonize the fibers near the base and use spiral or transportation tubing to protect the fibers as they are routed onto the trays.

**Note: Ribbon slack will have to be pulled back into the basket. Ribbon cannot be stored on the tray unless it has been de-ribbonized.**

1. If routing transportation tubing or buffer tubing from the basket, route the tubing around behind the tray tower to the other side of the tray.
2. Place the tubes to be spliced on the tray and place a mark on the tube 7/8" from the back of the tray (Figure 17). Allow enough slack for the tray to hinge. Ring cut the tube on the mark and remove buffer tube or excess transportation tube. Clean fibers with approved cleaning solution.
3. Cut a 1" piece of loose buffer tube (LBT) wrap. (LBT wrap is the soft, black, adhesive-backed strip included in the kit.) Position the tube on the tray and install the LBT wrap around the buffer tube or transportation tube where it will align with the two tie wrap holes in the tray. (Figure 18)

**Note: Using LBT wrap will make the buffer tubes or transportation tubes more resistant to pull-out.**

4. Attach buffer tubes or transportation tubes to the tray with two tie wraps.
5. For midspans, follow steps 2 through 4 and shave off the buffer tube.
6. Store cleaned fibers around the outer part of the tray.
7. Tray-to-Tray Transfers: Cut the ribbon-sized transportation tube to 12". Cut a 1" piece of LBT wrap. Position the tube on the basket or tray and install the LBT wrap around the transportation tube where it will align with the two tie wrap holes in the basket or tray. Secure the tube to the basket or tray.

Route the empty transportation tube around the back of the tray bracket and up onto the selected tray. Again, apply one layer of LBT wrap to keep the tube from slipping out of the two tie wraps. Thread the organized ribbons or fibers through the secured transportation tube.

**Note: Figure 19 shows the pedestal application of the FOSC 400 A8 or B8 closure.**

Fig. 17

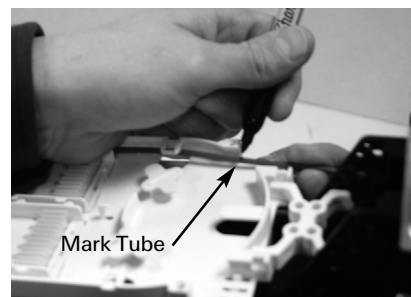


Fig. 18

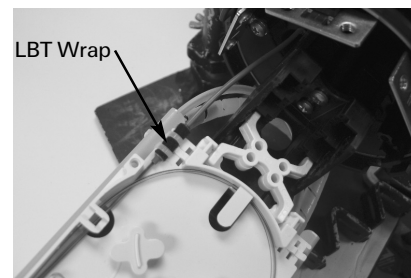
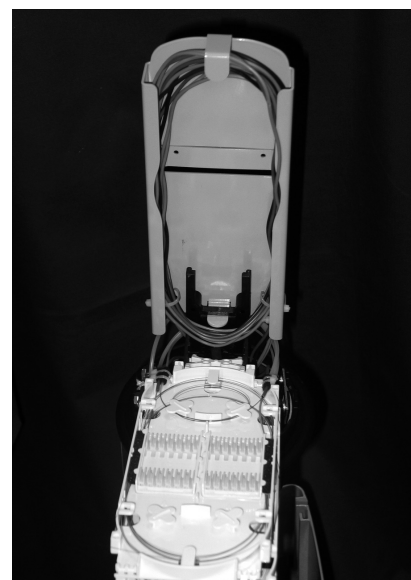


Fig. 19



#### 4.10 Seal Cables in Oval Port

**NOTE:** For instructions on sealing drop cables in the round ports, refer to the installation instructions included with the round port sealing kit.

1. Clean the port and 8" of the cable sheath beyond the port edge with the supplied cleaning tissue.
2. Abrade the port and 8" of cable with the supplied abrasive strip, and remove any abraded material from the port with a clean dry cloth.
3. Slide the port seal up against the base and mark the cables at the end of the seal.
4. Slide the tube back off the port. (Figure 20)
5. Wrap each cable with aluminum tape by placing the blue stripe over the line made on the cable. (Figure 21)

**Note:** Make sure the longer side of the tape is facing away from the sleeve. The aluminum tape is used to protect the outer sheath only and not for sealing.

6. Slide the tube up against the base.
7. Place the yellow branch-off clip between the two cables. Place a cable tie around both cables at the end of the aluminum tape. (Figure 22 and 23)
8. With the FOSC CV1981 heat gun set on 10, begin heating the port sleeve at the base, shrinking a one inch strip around the port. Direct the air around the sleeve until the green paint turns dark brown.
9. Let cool for 15 seconds and continue heating the remainder of tube evenly until it has completely conformed to the cables. (Figure 23)

The seal is completely installed when:

- Melted adhesive appears at the cable end (Red from the tube & yellow from the branch off clip).
- All green thermochromic paint on the seal is dark brown.

**Note:** Using heat gun reducer tip FACC-HEAT-GUN-TIP-01 will help reach interior spaces between ports when shrinking multiple round port seals.

#### 4.11 Organize and Splice Fibers

1. Always begin splicing with the bottom tray. Install trays as you go. Hinge the upper trays and secure them out of the way, using the plastic holder on the Velcro fastener to place between the tray hinges. (Figure 24)
2. Remove all stored un-spliced fibers from the tray.
3. Arrange the fibers around the outside of the tray or in a circular pattern by following the designated routing arrows on the tray. Lay the fibers to be spliced in the tray to see how they will fit when spliced. Plastic tabs are included with the trays to help hold down the stored fibers.
4. Refer to routing diagrams on page 7 for various fiber/splice configurations.
5. Trim fibers as necessary and splice per locally approved practices.
6. Begin storing the splices on the outside of the splice modules and work toward the middle. Store the splices on the tray one at a time, or remove the splice module from the tray, fill it, and snap the filled splice module into the tray.

**Note:** Pull slack ribbon back into storage basket after splicing. See Ribbon Routing diagram, page 7.

7. When all splices are completed and stored, replace the tray covers.
8. Secure all trays to the bottom tray or basket with the Velcro fastener. (Be sure to put the tray holder back on the Velcro fastener.)



Fig. 20



Fig. 21



Fig. 22



Fig. 23

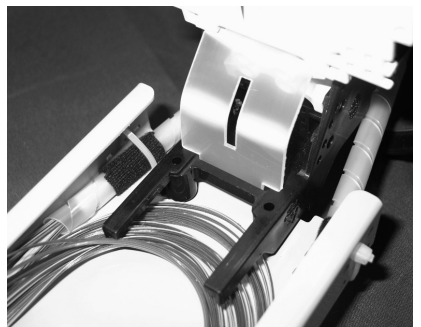
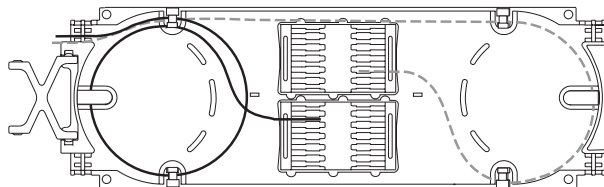
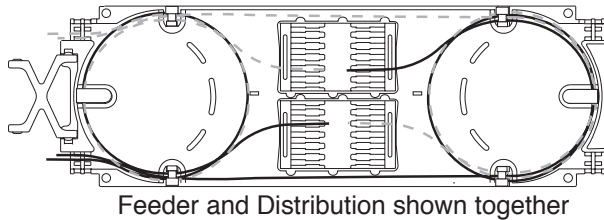
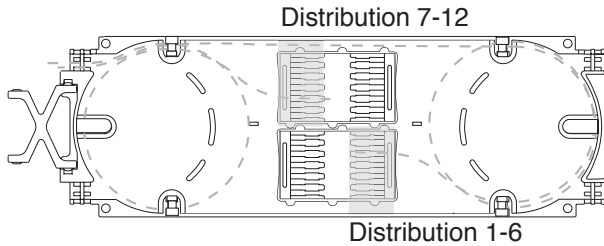
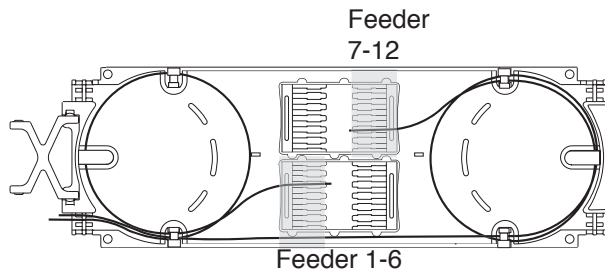
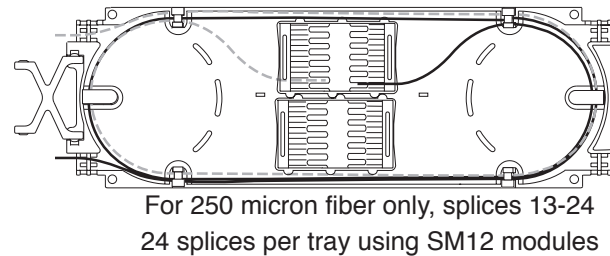
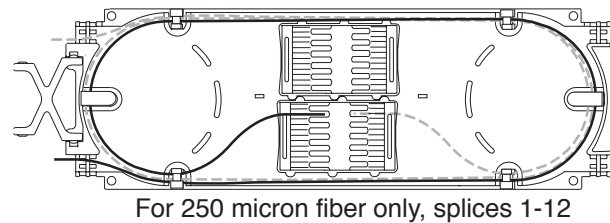
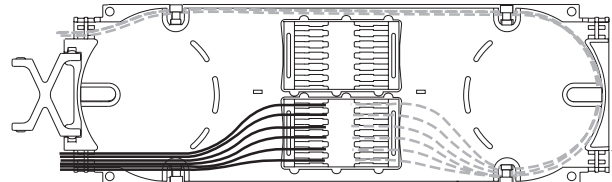
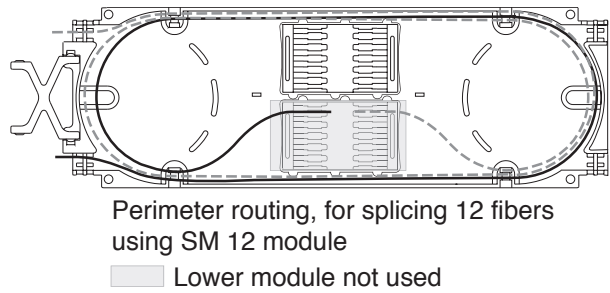


Fig. 24



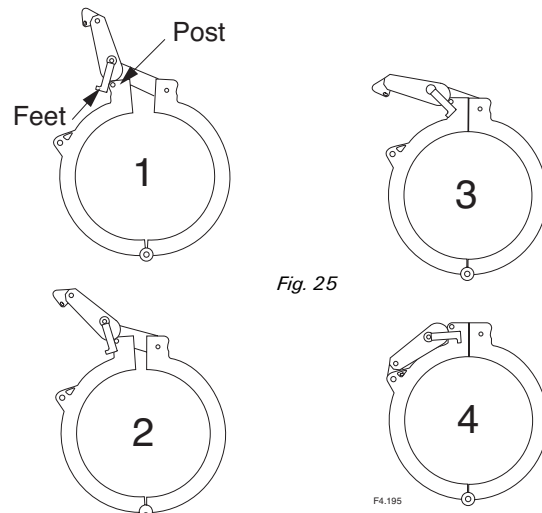


**WRONG!** Both of these patterns will cause signal attenuation!



#### 4.12 Seal Closure

1. Clean the O-ring and the O-ring sealing area with a clean dry, cloth. Water or alcohol wipes can be used. Sealing area must be free of contaminants that will prevent a good sealing surface. Inspect for damage. Re-install the O-ring.
2. Mount the dome on the base by aligning arrows on the dome and base. Install the clamp around where the base and dome join together.
3. Position the feet of handle in front of the two posts and push down on the handle to pull the two halves of the clamp together. (Figure 25)
4. Continue to push handle down until the small pin on the handle snaps into the triangular hole in the clamp.
5. If desired, insert a security lock or tie wrap through the holes in the handle and the clamp to lock the closure.





### 4.13 Test Seals (Kits with Valves Only)

Ensure that all heat-shrinkable parts are cool to the touch. Pressure-test the closure with no more than 5 psi. Thoroughly soap all seals and the valve to check for seal integrity.

**Important:** After flash testing, bleed all pressure from the FOSC 400 A8 closure through the valve.

### 4.14 Mount Closure

After the closure has been successfully tested, mount it for storage. The following kits provide appropriate hardware for mounting the closure in various applications:

- |                           |  |
|---------------------------|--|
| FOSC-ACC-LASHING-STRAPS   | Kit for lashing closure directly to an aerial strand (Figure 26) |
| FOSC-ACC-UNIV-AERIAL-CLMP | Kit for offset mounting closure to an aerial strand (Figure 27)  |
| FOSC-ACC-WALL/POLE-MOUNT  | Kit for mounting closure to a wall or a pole (Figure 28)         |
| FOSC-ACC-A-PED-MTG-BKT    | Kit for mounting closure in pedestal. (Fig 29)                   |

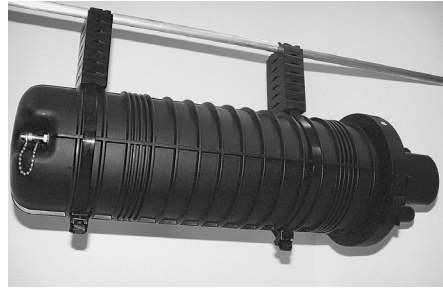


Fig. 26

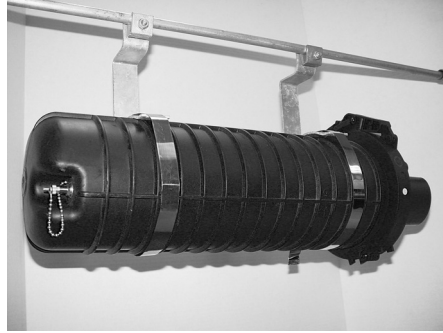


Fig. 27



Fig. 28

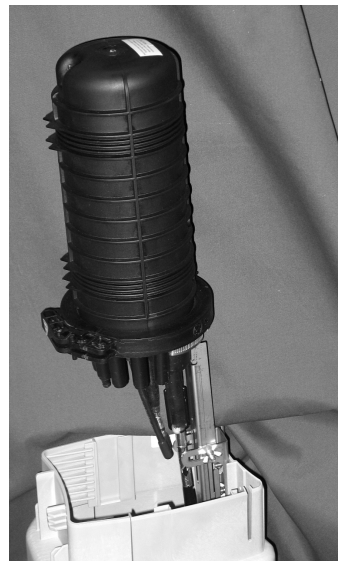


Fig. 29





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