Fiber In-Line Splice Closure (FIC)

Installation Guideline

Introduction

This document provides installation instructions for Superior Essex family of Fiber In-line splice Closures (FIC) for aerial, direct-buried or below-grade OSP fiber deployment.

For Part Numbers:

- FIC-AD100 (Type A)
- FIC-BD100 (Type B)
- FIC-CD100 (Type C)

Superior Essex fiber splice closures provide optimum environmental protection for the splicing, management and storage of fiber for aerial, direct-buried and below-grade applications. These closure systems offer fast and easy installation, maintenance and management from central office to the customer's premises for Outside Plant (OSP), passive networks.

This installation guide assumes that the closure installer is experienced in fiber cable preparation, splicing and management and other associated techniques.

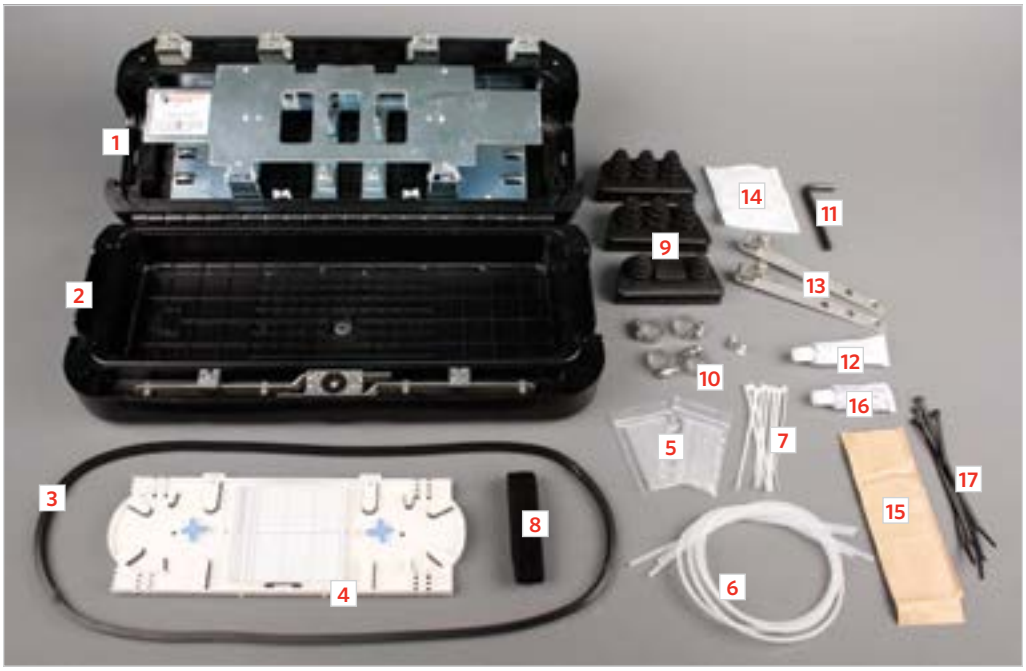
These closures can be prepared and installed from an aerial, strand-mounted position or on the ground, in a splicing tent or trailer.

Recommended Installation Tools

- Cable cutters
- Sheath slitter
- Shears
- Needle-nosed pliers
- Phillips-head screwdriver
- 216C tool with 7/8" and 7/16" sockets
- White marking pen

Components

Inventory the contents of this closure product using the image and its respective components table. If any parts are missing or damaged, contact Superior Essex at 1.800.551.8948.



COMPONENTS

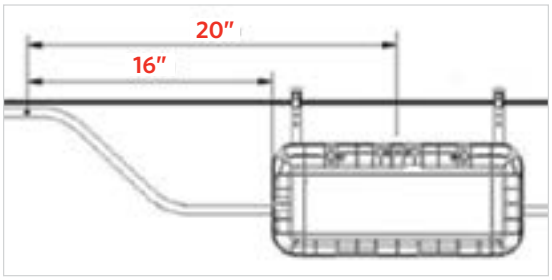
No.	Item	Unit	Quantity	Remarks
1	Upper closure body	ea	1	
2	Lower closure body	ea	1	
3	Main closure gasket	ea	1	
4	Splice tray	ea	1	FIC-TD240
5	Heat shrinkable splice sleeves	ea	24	
6	Spiral transportation tubes	ea	4	
7	Cable ties	ea	8	
8	Velcro splice tray band	ea	1	
9	Cable entry grommets	ea	3	Two (2), 3-port (installed) One (1), 2-port/16-drop (kit)
10	Hose clamps	ea	4	
11	¼ inch Allen hex wrench	ea	1	
12	High vacuum grease	ea	1	
13	Aerial hanger arms with screws	ea	2	Type B and C only
14	Silica gel pack	ea	1	
15	Silicone tape sheet	ea	1	
16	Silicone sealant	ea	1	
17	Large cable ties	ea	4	

Procedure

STEP 1:
Cable Allowance for Aerial Installation

1.1 For cable stub-in or loop-thru applications, it is recommended that the sheath be stripped or opened 72" to 96", for adequate internal slack for fiber splicing and management.

1.2 Allow approximately 16" of cable sheath from the cable/messenger wire lashing to each end of closure or approximately 20" to the center of the closure, as shown in the diagram.



STEP 2:
Opening Closure

2.1 For opening the Type B or C closure, flip the small plastic door open, to expose the ¼" square-headed nut.

2.2 Insert the ¼" hex Allen wrench into the square-headed nut and turn the wrench counter-clockwise one half turn, until the closure halves pop open.

2.3 For opening the Type A closure, loosen and disengage all eight (8) captive 7/16" hex bolts with the 216C tool to remove the upper closure cover.

STEP 3:
Installing Aerial Hangers

3.1 Using the two (2) aerial hanger arms and two (2) Phillip-head screws provided, fasten the hanger arms to the upper body of the closure.

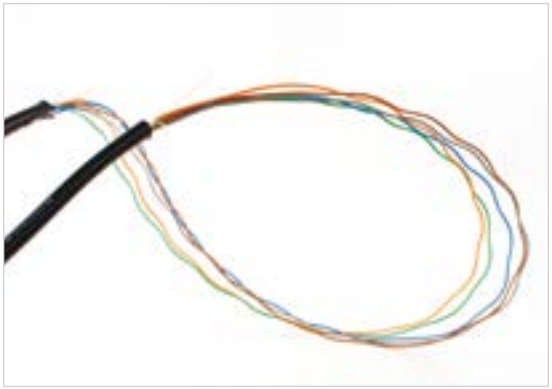
3.2 The closure can now be suspended from a cable or messenger wire, to install and prepare the fiber cable.

3.3 If the closure will be prepared on the ground, from a tent or trailer, provisions should be made to firmly secure the closure while cable is installed, spliced and stored.

STEP 4:
Cable Preparation

4.1 For cable stub-in or loop-thru applications, the sheath should be stripped or opened from 72" to 96". The photo above illustrates a loop-thru sheath opening.

4.2 Unwrap, clean and separate the buffer tubes and strength members.



4.3 Cut the strength members to 3".

STEP 5:
Cable Sheath Bonding (for Loop-Thru)

5.1 Install a locally-approved bond shield connector (not provided).

5.2 For stub-in cable applications, the bond connector should be installed after the cable is pulled through the end grommet, to prevent damage to the end grommet seal.

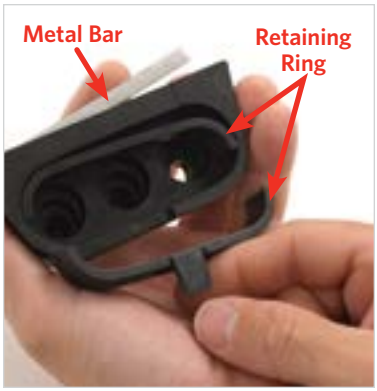
STEP 6:
Preparing End Gasket (Loop-Thru)

6.1 Remove the main closure sealing gasket. Note that the flat side of the gasket is facing upward, for future reinstallation.

6.2 Identify the diameter of the cable and refer to Table 1 to determine which concentric cone of the end grommet must be cut.

6.3 Remove the end grommet from the closure by pulling upwards, firmly. Cut the appropriate sized concentric cone of the grommet with shears.

6.4 Because the cable cannot be pushed through the end grommet on loop-thru applications, the end grommet must be cut from its top side to install the cable. Remove the metal bar and retaining ring (2 halves).



6.5 Using shears, make a clean cut from the top side of the grommet to the cable entry hole.

6.6 To ensure a proper seal between the cable and end grommet, cut a 1.5" strip of silcone tape from the sheet and wrap the tape around the cable one time. Flatten the silcone tape with fingers for consistent thickness.

6.7 Apply a generous amount of silicone sealant around the end grommet cut and adjacent cable sheath (taped).

6.8 Place cable through the cut in the top side of end grommet and reinstall the metal bar and retaining ring halves to the grommet. To ensure a weatherproof seal, a cable tie should be tightly fastened around the concentric hole of the end grommet and cable.

STEP 7:
Preparing End Grommet (Stub-in/Drops)

7.1 For stub-in and drop cables, it is not necessary to remove the end grommet from the closure. Refer to Table 1, to determine which concentric cone needs to be cut on the end grommet.

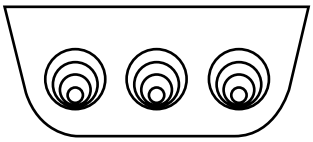
7.2 With the end grommet installed in the closure, cut a hole through the appropriate concentric cone on the end grommet, using shears. For 0.07 to 0.11 inches (2 to 3 mm) drops, a Phillips-head screwdriver can be used to open a hole in the end grommet for entry.

7.3 Push the cable through the end grommet entry hole, from the outside of the closure, inward.

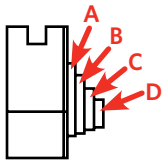
7.4 Cable preparation and bond shield connector installation can now be performed on feeder or drop cable.

TABLE 1 – RECOMMENDED CUT POINT PER CABLE DIAMETER

3-Port Type (standard)

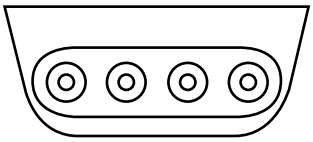


Cable Diameter:
0.23 to 0.86 inches (6 to 22 mm)

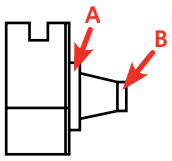


Cutting Point	Cable Diameter in (mm)
A	0.78 to 0.86 (20 to 22)
B	0.59 to 0.75 (15 to 20)
C	0.39 to 0.59 (10 to 15)
D	0.27 to 0.39 (7 to 10)

4-Port Type

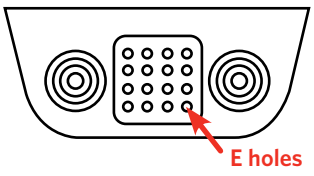


Cable Diameter:
0.23 to 0.47 inches (6 to 12 mm)

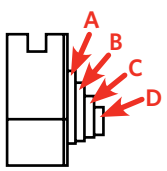


A	0.43 to 0.47 (11 to 12)
B	0.23 (6)

2-Port/16-Drop Type



Cable Diameter:
0.11 to 0.86 inches (3 to 22 mm)



A	0.78 to 0.94 (20 to 24)
B	0.59 to 0.75 (15 to 20)
C	0.39 to 0.59 (10 to 15)
D	0.27 to 0.39 (7 to 10)
E	0.11 (3)

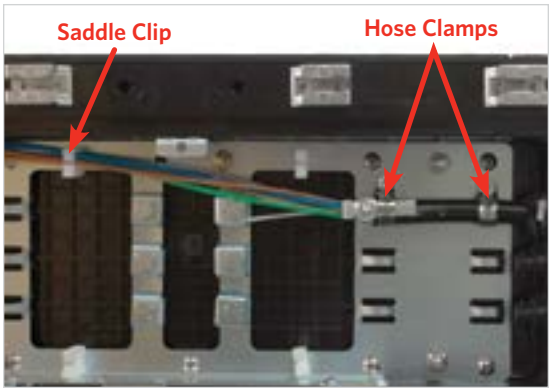
STEP 8:
Cable Attachment (Feeders)

8.1 Insert two (2) hose clamps (provided) through the dual slots of the metal back plate of closure and leave in an open position.

8.2 Lay the cable into the hose clamps and insert the strength member(s) under the 3-sided retainer clamp. Tightly fasten the hose clamps around the cable sheath using a Phillips-head screwdriver. Tightly fasten the strength member clamp bolt, using a 216C tool.

NOTE: If the strength member has an outer jacket, remove 1" of its jacket prior to inserting the strength member under the retainer clamp.

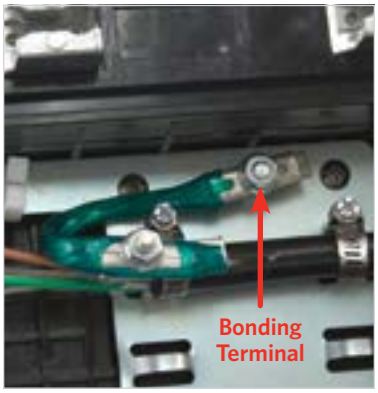
8.3 Ensure that the bond shield connector is not obstructed by the hose clamp and route the buffer tubes to the upper, far-side saddle clip.



STEP 9:
Cable Bonding

9.1 Using a locally-approved #6 bonding strap (not provided), connect the bond shield connector terminal to one of four bonding terminals of the metal back plate of closure.

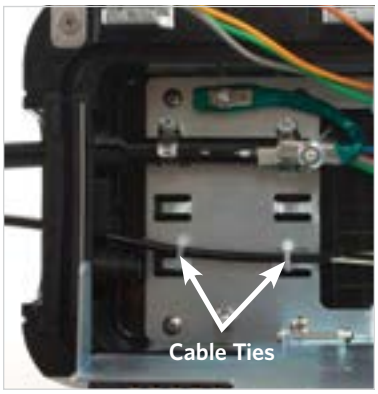
9.2 Tightly fasten both terminal nuts with a 216C tool.



STEP 10:
Cable Attachment (Drops)

10.1 Insert two (2) cable ties (provided) through the dual slots of the metal back plate of closure and leave in an open position.

10.2 Lay the drop into the cable ties and insert the strength member(s) under the 3-sided retainer clamp. Tightly fasten the cable ties around the cable sheath using a needle-nosed pliers. Tightly fasten the strength member clamp bolt, using a 216C tool.



STEP 11:
Cable Routing and Storage

11.1 Separate the drop cable(s) and buffer tube(s) to be spliced from the express buffer tubes, as these cables/tubes are to be routed to the splice trays in subsequent steps.

11.2 Carefully bundle, wrap and store the express buffer tubes using the four, white saddle clips. A circular or "Figure 8" wrap can be used, with care that radius bend limits are not exceeded and the tubes are not bent or kinked.

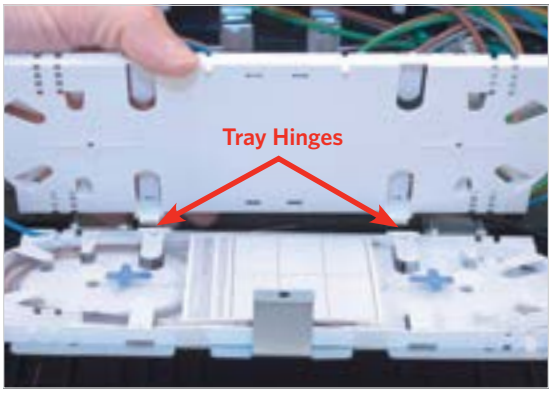
STEP 12:
Installing Splice Trays

12.1 Using the two small, pre-installed Phillips-head screws of the hinged, metal splice tray assembly, fasten the splice tray (included) to the metal splice tray assembly.

NOTE: The splice tray must be install with its molded tray hinges facing inwards of the closure.

12.2 The splice trays have been specially designed to hinge and nest together. If additional splice trays are required, a tray can easily be installed by engaging and interlocking the upper and lower tray hinges together.

CAUTION: Once these trays are interlocked, the upper tray cannot be easily removed without causing damage to the tray hinges.



STEP 13:
Installing Preconnectorized Drop to SC/APC Adapter

NOTE: When using the SC / APC adaptor panel option in conjunction with preconnectorized drops in the Type B and Type C closures, use the following installation steps:

13.1 Install the drop in one of the 16 drop entry positions and secure as illustrated in STEP 11.2 above.

13.2 Route the drop buffer tube slack through the white saddle clips, ensuring that bend radius limits are not exceeded.

13.3 Remove the caps from both sides of the designated SC/APC connectors being used.

13.4 Insert the male drop SC/APC connector until it snaps into place.

13.5 Route pigtail from splice tray splitter to the opposite feed side of the SC/APC adapter through the white saddle clips.

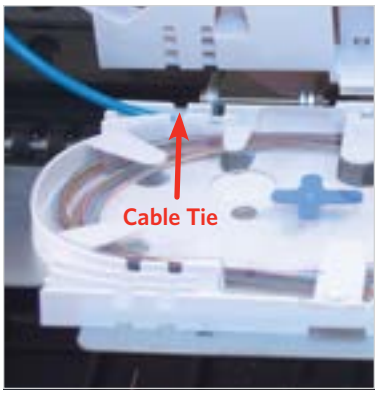
13.6 Insert male pigtail connector until it snaps into place completing the installation.

STEP 14:
Routing to the Splice Trays

14.1 The drop cable and buffer tubes can now be routed to the appropriate splice tray. Spiral transportation tubes are included with the closure to provide additional protection to Central Tube fiber, as they are routed to the trays.

NOTE: For buffer tubes less than 3 mm, transportation tubes are recommended for securing buffer tubes to the splice tray.

14.2 Allowing for sufficient tube slack for tray hinge movement, the tubes should be routed and secured to the tray using cable ties.



STEP 15:
Closing Splice Tray Compartment

15.1 Swing the tray assembly to a closed position, aligning the captive screw with its threaded hole in the upper body of the closure. Ensure there are no tubes kinked or pinched in the process.

15.2 Fasten the captive screw securely with a Phillips-head screwdriver.

STEP 16:
Closing Splice Closure

16.1 Reinstall the main sealing gasket with the round side of gasket facing downward into closure body and the flat side of gasket facing upward.

16.2 For closing the Type B or C closure, move the upper and lower bodies of the closure together and squeeze firmly with one hand.

16.3 With the other hand, flip the small plastic door open, to expose the ¼" square-headed nut and insert the ¼" hex Allen wrench into the square-headed nut. Turn the wrench clockwise one half turn, until the closure halves are tightly sealed/closed.

16.4 For closing the Type A closure, engage and securely fasten all ten (10) captive 7/16" hex bolts with the 216C tool or torque wrench, until the closure halves are tightly sealed/closed.

NOTE: Torque should not exceed 55 inch pounds.

STEP 17:
Grounding Splice Closure

17.1 Connect a locally-approved #6 ground braid cable (not provided) to the external ground terminal on the back of closure.

17.2 Tightly fasten ground terminal nut with a 216C tool.

STEP 18:
Flash Test Valve (Type A only)

18.1 A Flash Test Valve has been provided on the Type A closure to ensure a water-proof seal.

18.2 Remove valve cap and inflate closure with a maximum of 10 psi. Apply liquid soap to all seams and cable entries. Local practices will take precedence.

18.3 If there is no presence of air bubbles (leaks), release pressure from closure and replace cap.

Product Installation Complete