

Charles Fiber Optic Round Closure FORC Series General Description and Installation

1. GENERAL INTRODUCTION	1
1.1 Document Purpose	1
1.2 Product Purpose.....	1
1.3 Product Mounting and Location.....	1
2. PRODUCT DESCRIPTION	1
3. SAFETY PRECAUTIONS	2
4. INSTALLATION	3
4.1 Preparing the Feed Cable	3
4.2 Opening the FORC.....	3
4.3 Installing Feed Cable	4
4.4 Sealing the Branch Ports.....	5
4.6 Splicing Operations.....	6
4.7 Using the FORC with Micro-Duct.....	6
4.8 Using a Disk Marker	7
4.9 Closing the FORC.....	7
4.10 Mounting the FORC.....	7
5. TECHNICAL ASSISTANCE AND REPAIR SERVICE	8
6. SPECIFICATIONS	8
7. PART NUMBER INFORMATION	8



Figure 1 FORC

1. GENERAL INTRODUCTION

1.1 Document Purpose

This document provides installation instructions for the Charles Fiber Optic Round Closure (FORC). The FORC is shown in Figure 1.

-NOTE-
Hereafter the Charles Fiber Optic Round Closure Series will be referred to as the "FORC" or "closure."

1.2 Product Purpose

The FORC is a fully sealed (IP68) closure that is used for FTTH network connections.

1.3 Product Mounting and Location

The FORC is a sealed unit that can be direct buried, mounted below grade in a hand hole, on a wall or pole, in a pedestal, or on an aerial strand.

2. PRODUCT DESCRIPTION

The FORC has a dual feed port and two branch ports. The unit is used for repair closure. In addition the branch ports can be fitted with multi-cable grommets to splice in drops and can be used as a drop closure.

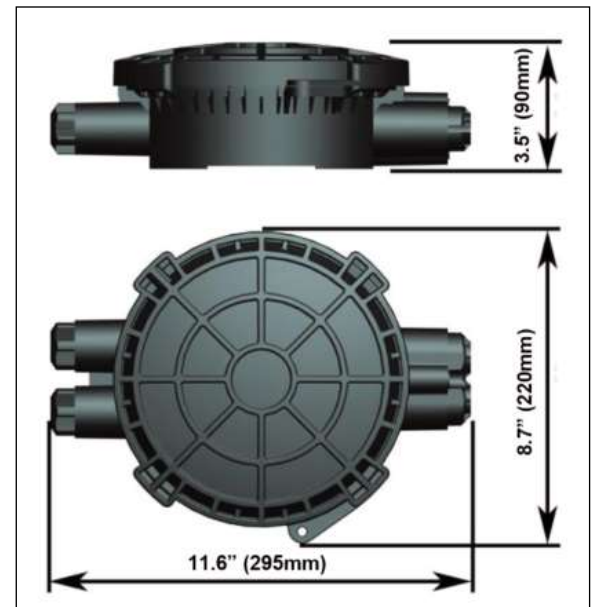


Figure 2 FORC Dimensions



Figure 3 Tools and Accessories

3. SAFETY PRECAUTIONS



— WARNING —

Risk of serious eye damage! Never look into the end of a fiber optic line or use a magnifier in the presence of laser light or radiation. Exercise caution when installing, testing or maintaining live circuits. If eyes are exposed to laser light or radiation occurs, immediately seek treatment by a medical professional.



— WARNING —

Cable and fiber cleaning solvents may contain hazardous or harmful materials. Maintain good housekeeping practices and refer to the SDS when working with cleaning solvents or similar products.

Shards and cleaved glass fibers are very sharp and can easily pierce the skin. Use tweezers to pick up cut glass fibers and place them in a specifically designated container. Do not consume any food products near the cable installation site.

Corrugated metal or armor in feed cables is very sharp when cut or exposed. Exercise extreme caution to prevent personal injury. Use protective work gloves when handling armored cable.



— CAUTION —

Perform all bonding and grounding prior to making any electrical and communications connections.

Be careful not to damage any buried cables or service wires while digging either to expose cables or to prepare a hole or trench, or while driving stakes. Buffer tubes and fibers are sensitive to excessive bending, pulling, and crushing forces. To avoid kinking of buffer tubes and fiber damage or breakage, exercise great care when working with fiber, and do not exceed or violate minimum bend radius requirements for fibers, buffer tubes, and cables.

4. INSTALLATION

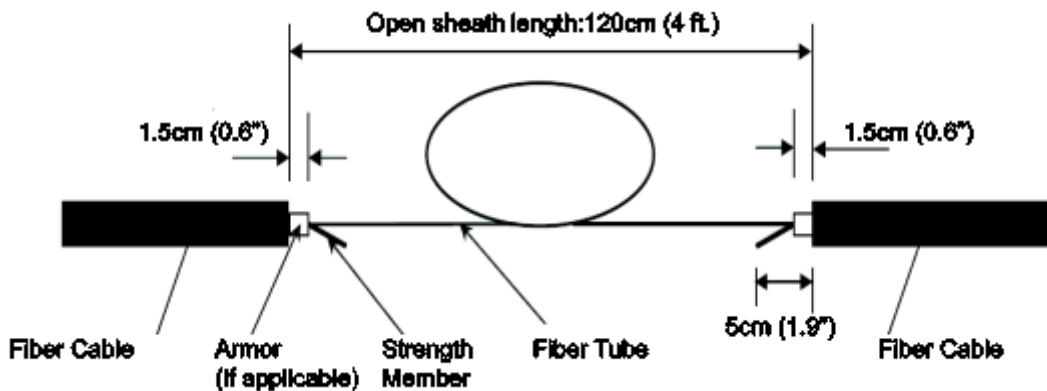
Gather the following equipment to perform the FORC installation.

- Philips and flathead screwdrivers
- Measuring tape
- Cable marking tool
- Assorted cable ties
- 5mm or 3/16" Allen wrench
- Tools and Accessories kit (provided with the FORC)
- Knife or snips
- Buffer tube stripper tool (score/cut buffer tubes)
- Fiber optic stripper tool
- Fiber splicing tools and equipment
- Safety glasses and work gloves

4.1 Preparing the Feed Cable

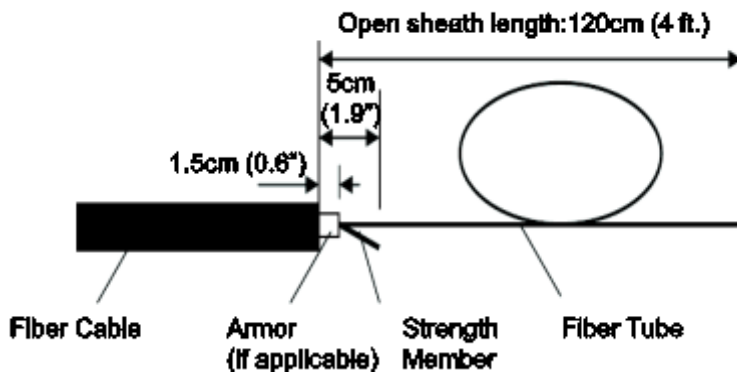
4.1.1 Loop-Through Feed Cable

For loop-through cable applications, cut the feed cable as shown.



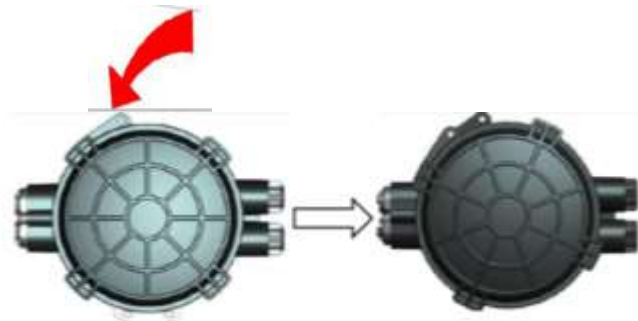
4.1.2 Cut Feed Cable

For cut cable applications, cut the feed cable as shown.



4.2 Opening the FORC

To open the FORC, twist and slide the cover.



4.3 Installing Feed Cable




Step #	Instruction		
1	<p>Pull up on the black nob to release the tray bracket. Lift up to access the fiber basket.</p>		
2	<p>Slide the unsheathed end of the fiber loop through the feed port opening. A 96-fiber cable is shown.</p>		
3	<ol style="list-style-type: none"> 1. Insert hose clamps into the slots on the cable support fixture. 2. Secure cable with hose clamp. 3. Fit the strength member under the "U" clip. The installer might need to trim the jacket from the strength member to fit. 4. A cable clamp is only used with armored cable to bond the armor. 	<p style="text-align: center;"> Strength member clamp Cable clamp Hose clamp </p>	

4	<ol style="list-style-type: none"> 1. Remove sealing components from the feed port. 2. Fit the inner hard plastic gasket around the cable. 3. Fit the middle soft rubber grommet around the cable. Note: The installer must slit the grommet on each side to fit around the cable. There are two grommet sizes available. The smaller is for 10-12mm cable and the larger is for 12-17mm. 4. Fit the outer hard plastic gasket around the cable. 5. Slide these components together and into the feed port. 6. Use a 5mm or 3/16" Allen wrench to fully tighten the bolts. <p>Note: If no cable will be inserted into the feed port, then insert the solid plugs (included with FORC) into the 12-17mm feed port grommet and tighten to seal.</p>	
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4.4 Sealing the Branch Ports

Step #	Instruction											
1	<ol style="list-style-type: none"> 1. Select the proper size grommet for the cable or duct. 2. Slide the cable through the port nut and grommet and insert into and through the branch port. 3. Secure cable with a hose clamp. 4. Tighten the port nuts with the included wrench. Optionally, the installer can use vice grip pliers or channel locks. If using pliers, ensure that the jaws are plastic coated so as not to damage the port nuts. 5. If a branch port is unused, seal it using the included plugs with 12-17mm grommet. 6. For drop cable, select the appropriate grommet for round or flat cable. <p>Note: If a multi-cable grommet is less than fully populated with cable, the grommet will compress around the installed cable and seal as the port screw is fully tightened.</p>	<div style="display: flex; justify-content: space-around;"> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 30%;">View</th> <th style="width: 70%;">Cable Sizes</th> </tr> </thead> <tbody> <tr> <td></td> <td>12 - 17mm</td> </tr> <tr> <td></td> <td>8 - 12mm</td> </tr> <tr> <td></td> <td>4x 5 - 7 mm</td> </tr> <tr> <td></td> <td>2x flat drop 8.5 x 4.2mm</td> </tr> </tbody> </table> </div>	View	Cable Sizes		12 - 17mm		8 - 12mm		4x 5 - 7 mm		2x flat drop 8.5 x 4.2mm
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4.6 Splicing Operations

Step #	Instruction	
1	Release the tray by depressing the latch between the trays. Raise the tray.	
2	Each tray has six splice holders. The splices can be double stacked for a 12-splice capacity per tray (36 splices in total).	
3	Route fiber into the trays and follow company splicing procedures. Secure buffer tubes to the entry and exit points on the tray using felt and cable ties.	

4.7 Using the FORC with Micro-Duct

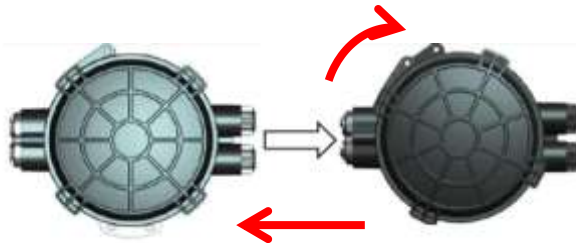
Step #	Instruction	
1	<ol style="list-style-type: none"> Some part numbers have been configured for use with micro-duct. If a standard part number is in use but must be field-configured for micro-duct, then remove the cable clamp and strength member U-clips. This will allow the duct to seat properly. Secure the duct with hose clamps. Route the fiber around the base and up to the splice trays. 	

4.8 Using a Disk Marker

Step #	Instruction	
1	<ol style="list-style-type: none"> 1. For below grade applications, an EMS disk marker is available that can be attached inside the FORC cover. 2. In order to fit the disk marker, first remove two splice trays. This means that only twelve splices are possible when using the disk marker. 3. Charles recommends using a 3M 1411 Telecom marker, which has a depth range of 5 feet. <p>Note: The FORC can optionally be ordered with an EMS marker installed. Contact Charles for details.</p>	

4.9 Closing the FORC

Closing the unit is reverse of opening. Slide the cover on and twist until the holes line up. The installer can use a cable tie or a lock through the hole to prevent tampering.



4.10 Mounting the FORC

The FORC can be directed buried, installed in a hand hole, or mounted on a pole, wall, or aerial strand. Contact Charles for details on available mounting hardware.

5. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

847-806-8500

techserv@charlesindustries.com (email)

<http://www.charlesindustries.com/techserv.htm>

6. SPECIFICATIONS

Physical	
Dimensions and Weight	LxWxH: 295 x 220 x 90 mm; 11.6" x 8.6" x 3.5" Approximately 4.4 lbs. (2 kg) as shipped
Materials	Glass-filled Polypropylene
Two Feed Cable Ports	0.393" to 0.669" OD (10 to 17 mm)
Dual Branch Ports: Grommet options	8 to 12mm, 12 to 17 mm OD cable Multi-cable grommets available for (4x) 5 to 7 mm (2x) flat drop cable: 8x4.5mm
Splice Capacity	36 (12 per tray)
Environmental	
Ambient Temperature Range	- 40°F to + 149°F (- 40°C to + 65°C)
Environmental Rating	IP68 (2m depth)

Table 1 FORC Specifications

7. PART NUMBER INFORMATION

Model	Description
FORC36CF5	FORC, Includes three 12 fiber splice trays, extra grommet kit for 5-7mm and flat drops, 36 splice protection sleeves
FORC12DX	FORC, layout for use with micro-duct, includes one 12 fiber splice tray, 12 splice protection sleeves
FORC12DXMCA	FORC layout for use with micro-duct, includes one 12 splice trays, 12 splice protection sleeves, 3M EMS disk marker 1411 installed

Table 2 Part Numbers