Charles Fiber Optic Dome Closure
FODCB Series
General Description and Installation

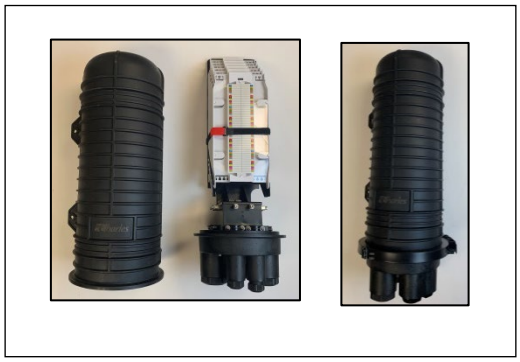


Figure 1 FODCB

1. GENERAL INTRODUCTION

1.1 Document Purpose

This document provides installation instructions for the Charles Fiber Optic Dome Closure, size B (FODCB). The FODCB is shown in Figure 1.

-NOTE-

Hereafter the Charles Fiber Optic Dome Closure Series will be referred to as the "FODCB" or "closure."

1.2 Product Purpose

The FODCB is a sealed splice closure (IP68 rated) that is used to link or break down fiber connections.

1.3 Product Mounting and Location

The FODCB is a sealed unit that can be aerial strand mounted or pole mounted. Brackets for aerial and pole mounting are sold separately. The dome closure can also be used in a pedestal or vault.

2. PRODUCT DESCRIPTION

The FODCB is a closure that allows splicing operations for splitting signals. The FODCB includes multiple splicing trays for splicing feed fiber to branch fiber. The FODCB can splice a maximum of 288 single fusion splices or 1,152 mass fusion splices.

The FODCB dimensions are shown in Figure 2. The FODCB ships with a number of tools and accessories, shown in Figure 3.

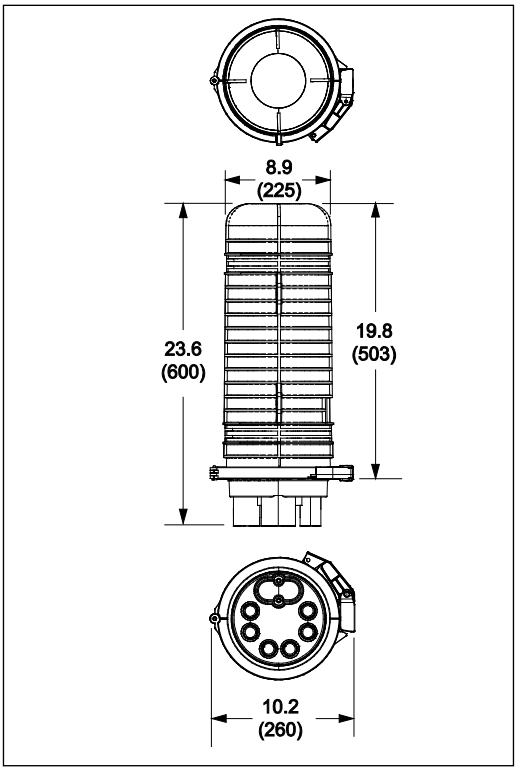


Figure 2 FODCB Dimensions in inches (mm)

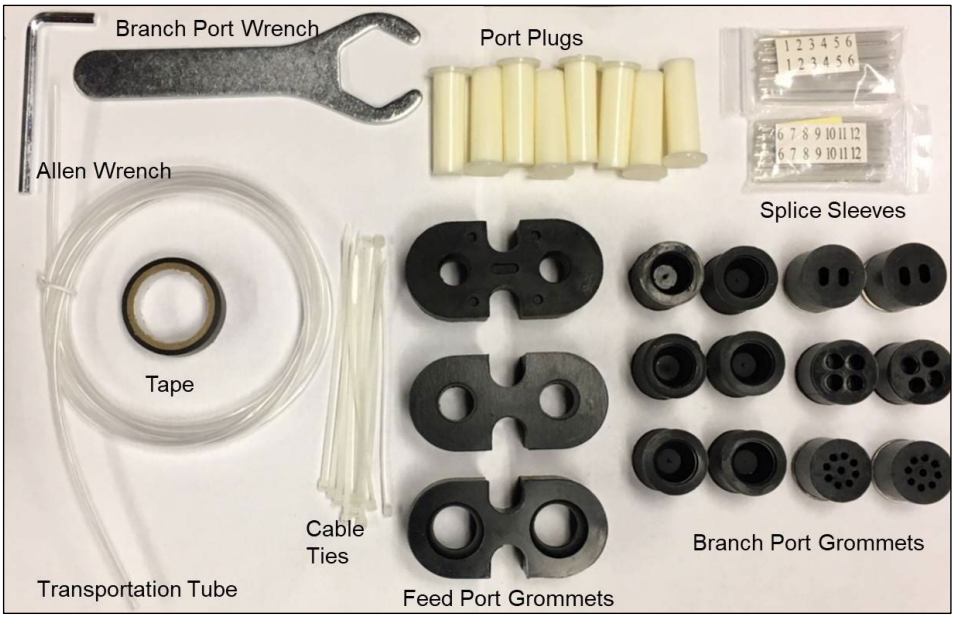


Figure 3 Tools and Accessories, included with all models

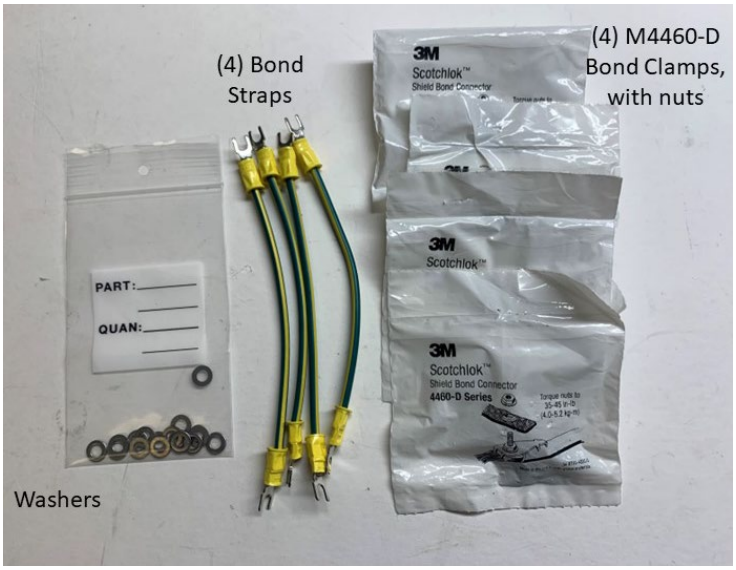


Figure 4
Grounding Kit Components, included only with FODCB288BG

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.

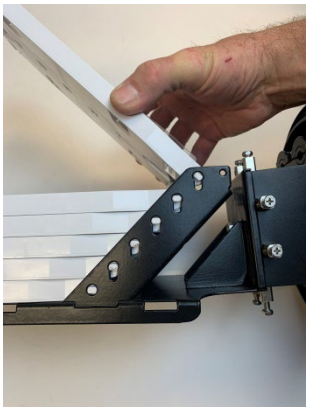
Be careful not to damage any buried cables or service wires while digging either to expose cables or to prepare a hole or trench, or while driving stakes. Buffer tubes and fibers are sensitive to excessive bending, pulling, and crushing forces. To avoid kinking of buffer tubes and fiber damage or breakage,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

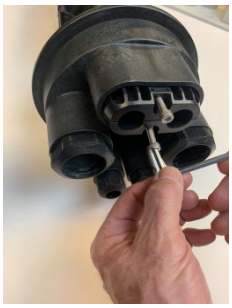
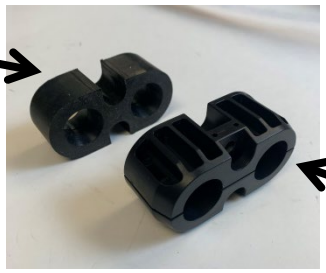
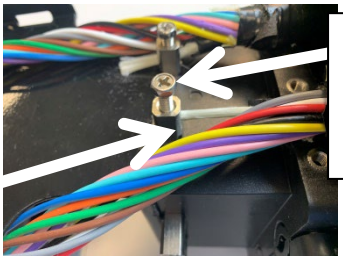
4. INSTALLATION

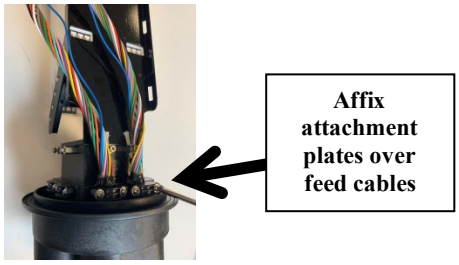
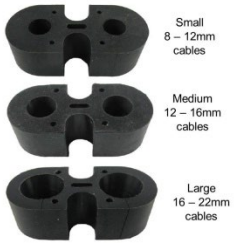
Gather the following equipment to perform the FODCB installation.

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

4.1 Route Express Cable Loop into Closure

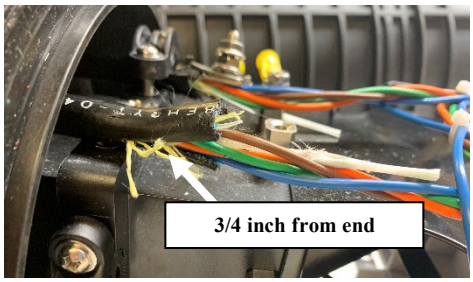
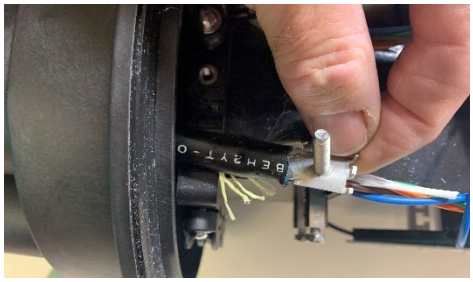
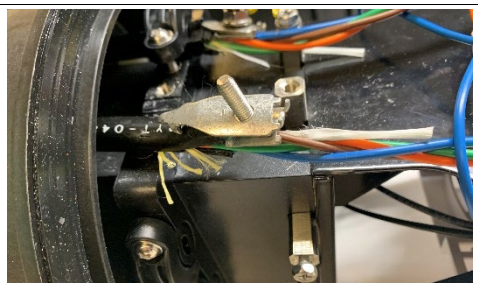
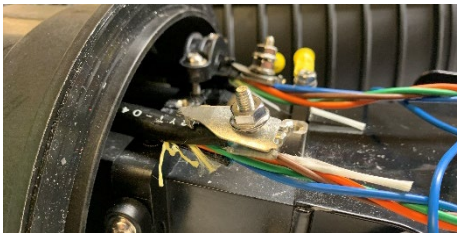
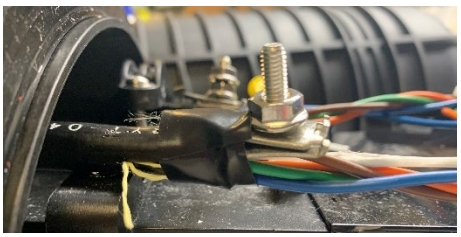
Step #	Instruction	
1	Open the clamp at the base of the dome. Remove the clamp. Remove the O-ring that fits inside the base of the FODCB. Slide the dome off of the FODCB assembly. Set the clamp, dome, and O-ring aside for later use.	  
2	The splice trays are attached to a pair of tray brackets on the FODCB. The tray tabs on each side fit into the keyholes on the tray bracket. To pivot the tray, ensure that the tabs are in the pivot position (the upper, round section of the keyhole. To lock the tray upright, slide the tabs downward into the lock position (the lower, narrow section of the keyhole. **Warning: If the tray is in the lock position, and the user attempts to pivot the tray without re-positioning the tabs, the tabs WILL break off. ALWAYS reposition the tabs before pivoting the tray.** Remove the splice trays from the transport tray and set aside.	  

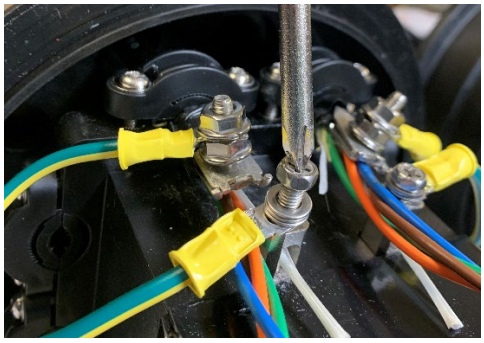
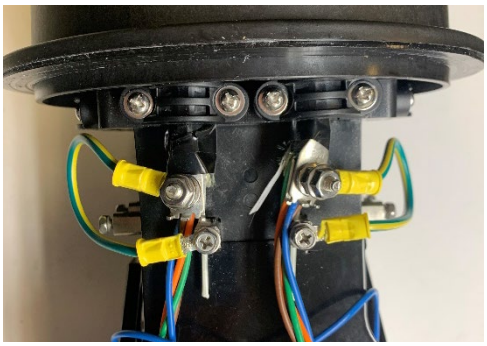
3	Locate the express port (oval port) on the base of the FODCB. Use a 5 mm (or 3/16”) Allen wrench to remove the screws securing the express port closed. Remove the sealing components. The inner and outer gaskets are shipped inside the express port.	  
4	Locate and remove the two attachment plates just above the express port on the FODCB base. The attachment plates are held in place by two Phillips screws per plate. Save these screws for later reuse. The attachment plates have a inner adapter to size down for smaller cable, this adapter should be removed for larger cables. Two strength member brackets are located above the attachment plates. These brackets have a hole for inserting the strength member with a set screw to secure the strength member in place.	
5	Insert a length of unsheathed cable into the express loop hole. • If using a 96-fiber cable, insert an 8 ft. length. • If using a 144-fiber cable, insert a 6 ft. length. Route this loop through the opening in the transport tray.	
6	Secure both strength members using the strength member bracket set screws. The strength member brackets have a hole through the center for inserting the strength member. A set screw in the top of the bracket applies pressure to the strength member to hold it in place.	

7	Replace the attachment plate, securing with the two screws removed previously.	
8	Select the buffer tube(s) that will be routed into the splice tray(s). Separate this buffer tube from the twisted bundle, all the way to the bottom of the cable loop (near the attachment plates). Route this buffer tube underneath the transport tray, to the splice tray side. Loop the remaining buffer tubes inside the transport tray, managing as needed using cable ties. Note: If the reverse twist of the coil prevents the selected tube from exiting the coil near the cable sheathing opening, it may be necessary to cut and re-splice the fibers in that buffer tube.	
9	Three sizes of express feed port grommets are supplied. Selection depends on the diameter of the cable used: • Small size for 8 to 12mm cables • Medium size for 12 to 16mm • Large size for 16 to 22mm cables. Select the appropriate size grommet and slit through the outer edges of the grommet to allow fitting around the cable.	
10	Fit the inner rubber grommet around the cables. Push this gasket inward into the express loop port.	
11	Reassemble the plastic outer gasket around the cables and push it into the express loop port. Use the 5 mm (or 3/16”) Allen wrench and the screws removed previously to secure the express port sealing components back together in the express feed port.	 

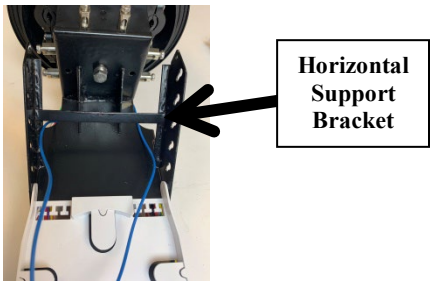
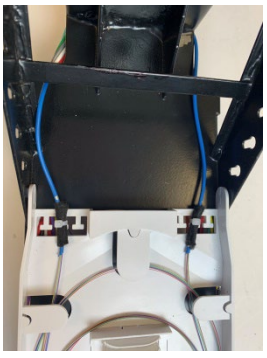
4.2 Install Armored Cables

This section describes how to install and bond armored cable inside the FODCB. It is recommended to use the grounding components that come with the FODCB288BG. However, customer supplied alternative bonding connectors and ground wires can also be used with other FODCB part numbers

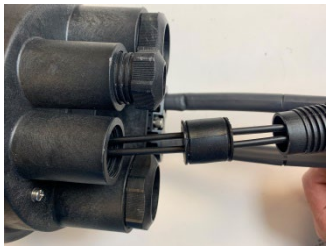
Step #	Instruction	
1	If not already done, ensure that the strength member from the armored cable passes through the strength member bracket.	
2	Pull the rip cord on the armored cable back from the sheath opening by 3/4 inch.	
3	Insert the inner side of the bond clamp (the side with the post) underneath the armored cable sheath.	
4	Place the outer side of the bond clamp onto the post.	
5	Secure the bond clamp using the nuts that were included with the bond clamp.	
6	Use electrical tape to wrap the bottom portion of the bond clamp and secure it to the armored cable.	

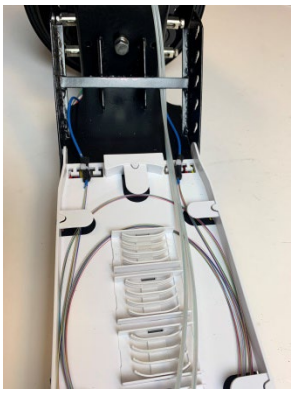
7	Screw one nut onto the bond clamp post. Fully tighten the nut. Place one end of the bond strap over the nut on the bond clamp post. Then secure the bond strap by tightening a second nut on top of the strap terminal end.	
8	Connect the other end of the bond strap to the strength member bracket screw. Use washers on top of the bond strap connector to ensure a good fit. Three washers are shown here, but the number of washers needed may vary depending on the size of the strength member. Fully tighten the screw into the bracket.	
9	Repeat this procedure on the second cable sheath opening. The FODCB with completed grounding is shown.	

4.3 Route Fibers in Tray

Step #	Instruction	
1	The FODCB includes six splice trays, each with 16 slots to hold splice sleeves. Each tray can accommodate 16 splices single stacked, 32 splices double stacked, or 48 splices triple stacked. The maximum splice capacity for the closure is 288 single fusion splices. If using ribbon fiber, can accommodate 16 ribbons and 192 mass fusion splices per tray and 1,152 in the closure. Install the splice trays on the tray bracket by inserting the tray tabs into the keyholes on the bracket. Remove the tray cover and set it aside. **Warning: If the tray is in the lock position, and the user attempts to pivot the tray without re-positioning the tabs, the tabs WILL break off. ALWAYS reposition the tabs before pivoting the tray.**	
2	When routing the separated buffer tube from the transport tray side, ensure that the buffer tube passes underneath the horizontal support bracket located on the splice tray bracket.	
3	Place the separated buffer tube into the tray, marking the points on each side where the buffer tube enters the tray.	
4	Remove the buffer tube sheathing between the two marks. Route the loose fibers inside the tray.	
5	Use felt and cable ties to secure the buffer tube at both entry points on the tray.	

4.4 Install Plugs and Branch Cable into FODCB

Step #	Instruction	
1	Determine which branch cable ports will be used for cable and which will not be used in this installation. See the table in section 7 for available branch port grommets. The following are standard with part number FODCB288BCDEF: 6 pc grommet B, 2 pc grommet C, 2 pc grommet D, 2 pc, grommet E, and 2 pc grommet F. FODCB can be configured with different grommet selections. Please contact Charles to determine the correct part numbers.	
2	Locate the branch cable ports on the bottom of the closure. Open the ports by removing the compression screw using the wrenches included in the tools and parts bag.	
3	**Follow this step for all branch cable ports that will not be used.** Seal all unused branch ports using the plugs included in the FODCB accessories kit. Insert a plastic plug into the 14mm grommets and insert the grommet into the port opening. Tighten the compression screw into the port until it will not turn any further. To ensure proper compression for sealing, the branch port grommets have metal plates on both sides with openings for the cable. The plates are integrated into the grommet.	 
4	Locate a branch cable grommet from the tool bag that is the appropriate size for the branch cable used. See Section 7 for grommet information. Route the two ends of the branch cable through the branch cable port compression screw, then through the holes in the grommet. Note: Two flat drop cables have been used for these instructions.	
5	Determine the length of branch cable needed for routing into the splice tray. Push this length into the FODCB through the branch cable port. Push the grommet into the port, then tighten the compression screw into the port until it will not turn any further. The multi-hole grommets do not need be fully populated to seal. When the compression screw is fully tightened, the grommet compresses and seals even when some grommet openings have not been populated with the cable.	

6	Unsheath the length of branch cable that is inside the FODCB. The FODCB base has smaller attachment plates and strength member brackets on the sides, similar to those shown in section 4.1. Use the set screws in the strength member brackets to secure the branch cable as described in that section. Note: for the smaller branch cables, two strength members can fit into a single strength member bracket.	
7	Route the branch cable under the horizontal support bracket.	
8	Route the branch fibers into the splice tray (both branch fibers enter the tray on the same side). Route fibers inside the tray. Secure the fibers as described in section 4.2.	
9	Perform splicing operations inside the tray.	
10	When all splicing operations are complete, replace the tray cover(s). Use the Velcro included with the FODCB to secure the splicing trays into the transport tray. Note: Route the Velcro between the splice trays and the transport tray, then close the Velcro on top of the splice trays.	

4.5 Closing the FODCB

Step #	Instruction	
1	Replace the O-ring in the groove on the FODCB base. Replace and tighten the clamp around the FODCB.	 

4.6 Mounting the FODCB

The FODCB can be mounted on a pole or on an aerial strand using an appropriate mounting kit (purchased separately, see Table 1).

4.6.1 Pole Mounting

The pole mounting kit (Figure 5) includes four mounting straps and a pair of offset mounting brackets.

1. Use two straps to secure the mounting brackets to the FODCB.
2. Use the remaining two straps to secure the FODCB to the pole.

The pole mounting assembly is shown in Figure 6.

If mounting to a wooden pole, the mounting brackets can also be mounted to the pole using bolts. Then use straps to secure the FODCB to the mounting brackets.

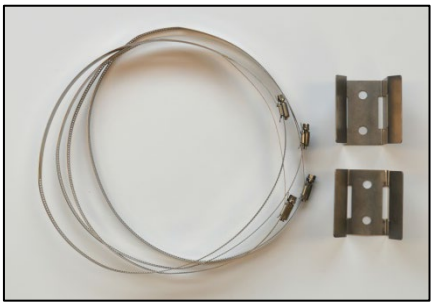


Figure 5 Pole Mount Kit

4.6.2 Aerial Strand Mounting

The aerial strand mounting kit (Figure 7) is compatible with a 1/4" to 3/8" aerial strand.

1. Attach the D-cable lashing clamp to the FODCB brackets
2. Attach the FODCB brackets around the dome by tightening the straps
3. Attach the D-clamps to the aerial strand.

The aerial strand mounting assembly is shown in Figure 8.

Figure 6 Pole Mounted FODCB

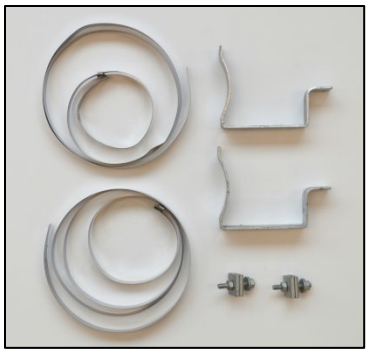


Figure 7 Aerial Strand Kit

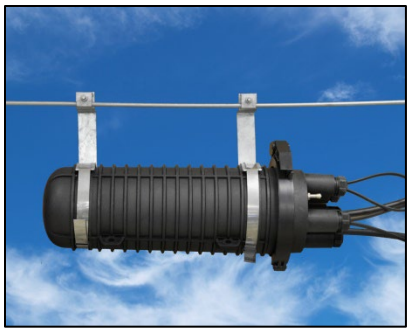


Figure 8 Aerial Mounted FODCB

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	23.6"H, dome: Ø8.9", clamp: Ø10.2"; approximately 11 lbs. (4.9 kg) as shipped
Feed Cable Ports	0.315 to 0.866 inch O.D. (8 to 22 mm)
Six branch port cable entries: Grommet options	Each port can accommodate 0.315" to 0.669" (8 to 17 mm) cable or multiple smaller cables per port. See grommet table for options.
Environmental	
Ambient Temperature Range	- 40°F to + 149°F (- 40°C to + 65°C)

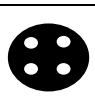
Table 1 FODCB Specifications

7. PART NUMBER INFORMATION

Model	Description
FODCB288BCDEF	Fiber Optic Dome Closure, B size, with dual entry feed port and 6 branch ports (6) 48-fiber splice trays included Grommet kit includes (6) 1-hole, 8-14 mm with plugs, (2) 4-hole, 5mm, (2) 4-hole, 7mm, (2) 9-hole, 3mm, (2) 2-hole, 8x4mm 48 splice sleeves
FODCB288BG	Fiber Optic Dome Closure, B size, with dual entry feed port and 6 branch ports (6) 48-fiber splice trays included Grommet kit includes (6) 1-hole, 8-14 mm with plugs, (2) 4-hole, 5mm, (2) 4-hole, 7mm, (2) 9-hole, 3mm, (2) 2-hole, 8x4mm 48 splice sleeves Grounding kit includes (4) bond clamps, (4) bond straps, washers
Optional Equipment	
97-FODCAMKT	Aerial mount kit
97-FODCPLKTB	Pole mount kit
97-FODCB48TRAY	Replacement splice tray for FODCB

Table 2 Part Numbers

The FODCB ships with a selection of grommets for the branch cable ports. The standard unit ships with six B, two C, two D, two E, and two F branch port grommets. If the cables to be used require different sizes or quantities, please contact Charles with your required configuration. The full list of available grommet options is shown below:

Branch Port Grommets		
Label	**Size**	**View**
A	1x 14-17 mm	
B	1x 8-14 mm	
C	4x 7 mm	
D	5x 5mm	
E	9x 3 mm	

Branch Port Grommets		
Label	**Size**	**View**
F	2x 8x4 mm	
H	2x 6-8mm