

CORNING

Furcation of a Central Tube Ribbon, Gel-Free, Non-Armored, 864-Fiber Cable into an OSE-UD

P/N 004-278-AEN
Issue 1

related literature | Search www.corning.com/opcomm. Click on “Resources.”

1. Initial Decisions

1.1 Measure Access Length

Route a piece of braided mesh tubing $\frac{1}{4}$ -in ID inside the Optical Splice Enclosure (OSE) following the path the fiber will take from the entry point to the splice tray location and measure the length as shown in Figure 1. Then add 4 ft to that measured length. This will be the cable access length. Write down the access length = _____.

2. Material Preparation

2.1 Kit Contents

2.1.1 HFC-FURC-KIT-A

The kit contents are shown in Figure 2.



Figure 2

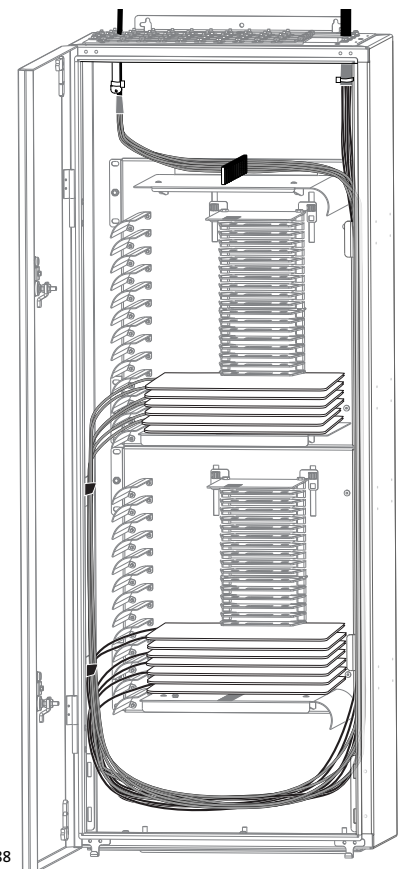


Figure 1

1. Vinyl tubing 1-in ID X 6-in L (1)
2. Heat-shrink tube 56/16 X 170 mm (2)
3. Epoxy Uraseal 95 Gram Kit (1)
4. Ribbon transport tubing (25 ft)
5. 3M 4460-D ground clamp (1)
6. Adhesive aluminum foil 100 mm X 250 mm (1)
7. 60 grit sandpaper (1)
8. Braided mesh tubing $\frac{1}{4}$ -in ID (40 X 10 ft)
9. Syringe 30 CC (1)
10. Syringe tip St161 (1)
11. Heat-shrink tube 347 X 160-mm (1)

2.2 Other Materials (not included in furcation kit)

- Viscous silicone with syringe applicator
- Electrical tape
- Masking tape
- Friction tape
- Book of electrical numbers
- 90 percent or higher isopropyl alcohol
- Cable solvent or cleaner
- Shop towels
- 4-in cable ties
- Cable retention strap

2.3 Tools

- Cable access tool: hook-blade, universal access tool (UAT3-000), large coaxial cutter
- Ribbon splitting tool (RST-000)
- Scissors/snips
- Permanent marker black/silver
- Heat gun
- Extension cord

2.4 Cut Materials

Step 1: Cut 12 piece(s) of ribbon transport tubing 5 in long as shown in [Figure 3](#). Hold the ribbon transport tubing as flat as possible while cutting as it is subject to preferential bending.



Figure 3

Step 2: Cut braided mesh tubing $\frac{1}{4}$ -in ID to access length measured in [Section 1](#). Cut 12 pieces.

3. Cable Access

Step 1: Refer to Corning Optical Communication's Standard Recommended Procedures (SRPs) 004-072 for cable access and stripping instructions.

Step 2: Install cable and Cable Entry Kit into OSE per SRP 003-1032-AEN (Ultra-Density Optical Splice Enclosure) and SRP 003-1036-AEN (Cable Entry Kit—OSE-UD).

Step 3: Mark the cable with the permanent marker at the access length measured in [Section 1](#). Access the cable per the instructions in SRP 004-072.

4. Ribbon Splitting and Grouping

4.1 Ribbon Splitting

Step 1: If the cable only has 12-fiber ribbons proceed to the next section.

Step 2: Split ribbons into 12-fiber ribbons. Refer to SRP 004-098 for directions on using the ribbon splitting tool (RST-000).

Step 3: Use the ribbon splitting tool (RST-000) to split the 24-fiber or 36-fiber ribbons into 12-fiber ribbons for the first 6 in.

Step 4: Place your finger in between the two 12-fiber ribbons you want to split with one ribbon on top and one ribbon on the bottom of your finger. Then drag your finger between the ribbons towards the access point of the cable furthering the split between the ribbons. Alternate the ribbons on your finger about each foot or if you see the ribbon matrix peeling up, see [Figure 4](#).



Figure 4

4.2 Ribbon Grouping

Step 1: As you group the ribbons it is recommended to keep the groups in the order that they come out of the cable.

- Notice how the ribbons form a stack and try to maintain this stack. This will be helpful during the furcation process later on.

Step 2: Group the ribbons into 12 bundle(s) of 6 ribbon(s) each.

Step 3: Group in ascending order starting with ribbon 1 then 2 until you get to 6 for the first bundle. Bundle them together with masking tape as seen in [Figure 5](#).

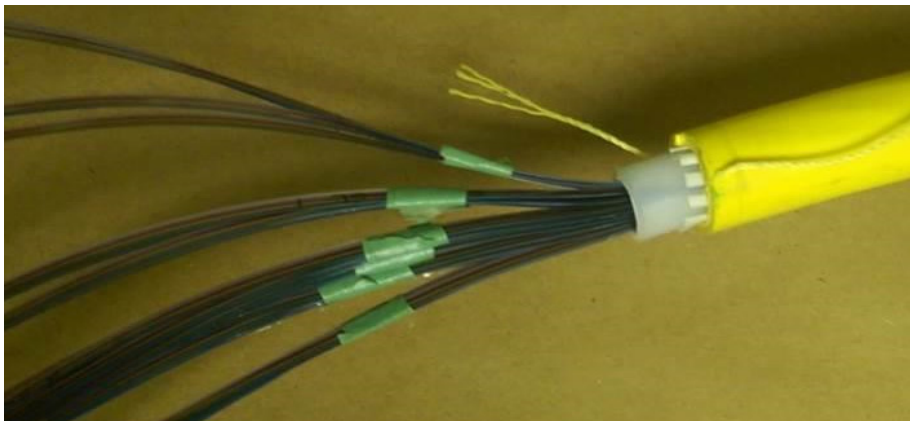


Figure 5

Step 4: Continue grouping in groups of 6 until you have grouped all 72 ribbon(s). Secure the end of each bundle with masking tape to preserve the ribbon order.

Step 5: Slide heat-shrink tubing 34/7 x 160 mm past cable jacket for use later in the process.

5. Furcation

5.1 Prepare Ribbon Bundles

Step 1: If the cable is outside plant cable, use the 60 grit sandpaper to scratch up 1 in of the end of the cable jacket.

Step 2: Feed the ribbon bundles through the vinyl tubing 1-in ID x 6-in L and slide the vinyl tubing 1-in ID x 6-in L down so it overlaps with the cable jacket $\frac{1}{2}$ in.

Step 3: If the the vinyl tubing 1-in ID x 6-in L inside diameter is larger than the outside diameter of the cable, use electrical tape to build up the outside diameter of the cable jacket so the vinyl tubing 1-in ID x 6-in L fits on the cable jacket.

Step 4: Use electrical tape to secure the end of the vinyl tubing 1-in ID x 6-in L to the cable jacket.

5.2 Furcation Bundling

Step 1: Insert each bundle into a piece of the 5-in long ribbon transport tubing and slide down the ribbon bundle leaving approximately 5 in between the end of the 5-in long ribbon transport tubing and the vinyl tubing 1-in ID x 6-in L.

Step 2: Insert each bundle into a piece of the braided mesh tubing $\frac{1}{4}$ -in ID cut-to-access-length and slide down the ribbon bundle overlapping the 5-in long ribbon transport tubing leaving only $\frac{1}{4}$ in of 5-in long ribbon transport tubing exposed closest to the vinyl tubing 1-in ID x 6-in L. See [Figure 6](#).

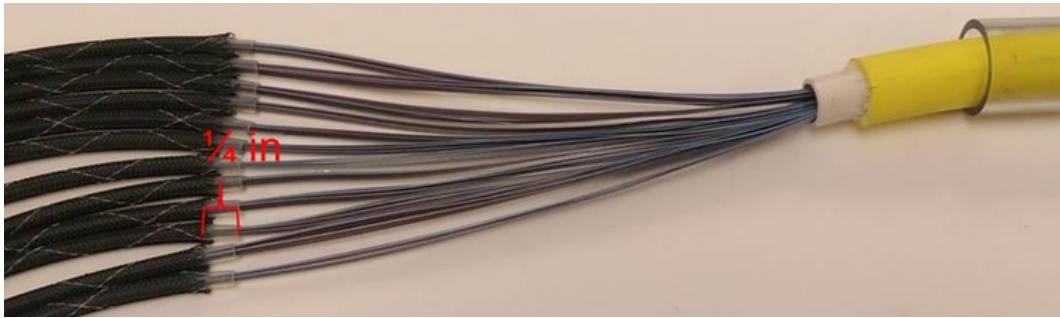


Figure 6

5.3 Furcation Plug

Step 1: Pick the four innermost bundles in the stack coming out of the central tube and group together. Using a roll of friction tape begin taping the group together in a 2 x 2 bundle stack with $1\frac{1}{2}$ wraps of tape making sure to contact the braided mesh tubing $\frac{1}{4}$ -in ID and ribbon transport tubing as shown in [Figure 7](#)



Figure 7

Step 2: Lay the next two closest ribbon bundles along the bottom side and the top side of the wrapped bundle respectively. Continuing with the piece of tape from the previous step, wrap around the entire bundle of all three groups making one solid bundle as shown in [Figure 8](#).



Figure 8

Step 3: Continue stacking the bundles to create a round shape and wrapping the friction tape until all the ribbon bundles are one solid bundle as shown in [Figure 9](#).

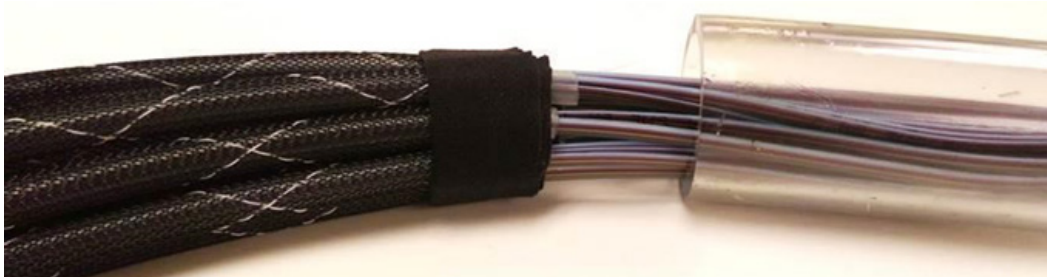


Figure 9

- If outside diameter of bundle is smaller than inside diameter of vinyl tubing 1-in ID x 6-in L then continue wrapping friction tape until they are about the same size.

Step 4: While keeping tension on the end of the ribbons, slide the furcation bundle into the vinyl tubing 1-in ID x 6-in L until the ends of the transport tubing seats approximately 1 ¼ in into the vinyl tubing 1-in ID x 6-in L as shown in [Figure 10](#).

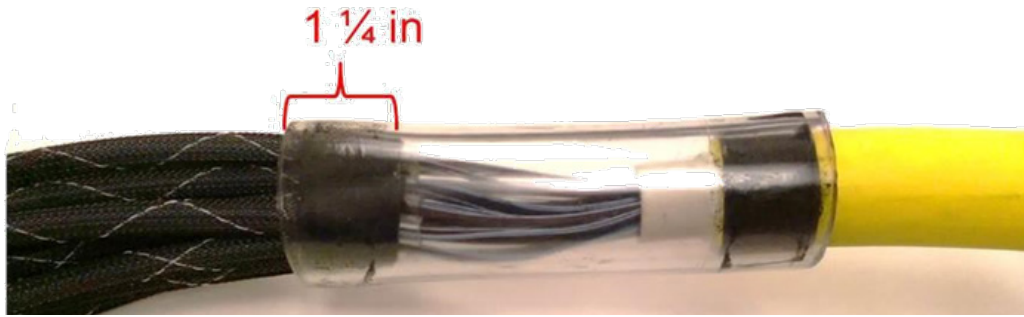


Figure 10



CAUTION: Keep tension to prevent ribbons from buckling inside clear tube.

Step 5: With the furcation bundle in place, apply slight tension to the individual ribbons to remove any slack inside the clear tubing that could induce attenuation. Confirm there are no twists in any ribbons and that the ribbons are able to fan-out from the central tube in a relaxed manner, so as to not induce attenuation.

Step 6: Using the silicone with a syringe, apply beads between ribbon bundles at the end of the vinyl tubing 1-in ID x 6-in L ([Figure 11](#)) to help seat all braided mesh tubing ¼-in ID and ribbon transport tubing as a single unit while adhering to the inside of the vinyl tubing 1-in ID x 6-in L. Allow time for the silicone to cure before continuing to the next step.



Figure 11

5.4 Labeling

Use book of electrical numbers to label ribbon bundle(s) 1-12.

6. Cable Completion

6.1 Splice Trays

Step 1: Secure ribbon groups into OSE splice trays following the instructions per SRP 001-285 (OSE Splice Trays).

Step 2: Make sure the method used to secure the ribbons is covered by the mesh and then secured with electrical tape. Use 4-in cable ties to secure the ribbon groups into the splice trays.

Step 3: Take into account if splicing blue-blue or blue-aqua when positioning ribbons. Route ribbons in tray and label the tray for later reference.

6.2 Shrink the Tubing

Step 1: Starting from the base of the cable, use a heat gun to shrink the heat-shrink tube 56/16 x 170 mm over the vinyl tubing 1-in ID x 6-in L as shown in [Figure 12](#). Starting from one end and working all the way around the cable and moving to the other end of the heat-shrink tube. Use the adhesive aluminum foil 100 mm x 250 mm as a shield around the mesh to keep the heat from melting the mesh.



Figure 12

Step 2: Route the ribbon legs into the OSE per SRP 003-450 (Optical Splice Enclosure) ([Figure 13](#)), and place splice tray in the splice tray holder location. Secure ribbon legs with cable retention strap.



Figure 13

For questions and comments about the procedures or contents of this document please call Corning Optical Communications Customer Service line at 1-800-743-2671 and ask for Technical Support.

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