

### Step-by-Step Plastic Cable Connecting Instructions

The following step-by-step guide describes how to terminate plastic fiber optic cable. It is ideal for both field and factory installation. Connectors can be easily installed on cable ends with wire strippers, cutters and crimping tool.



Finishing the cable is accomplished with the FiberFin VL Polishing Kit, consisting of a Polishing Fixture, 600 grit abrasive paper and 3  $\mu\text{m}$  pink lapping film. The connector can be used immediately after polishing.

### Materials needed for plastic fiber termination are:

1. Plastic Optical Fiber Cable, Mitsubishi Eska® POF Cable GH-4001/GHCP-4001/GHV-4001.....etx  
Equivalent to Broadcomm/AVAGO Technologies ® HFBR-RUS500, HFBR-RUD500, HFBR- EUS500, or HFBR-EUD500)
2. FF-HTFO-UNV-2, Industrial Razor Blade or Wire Cutters
3. FF-HTSTRP-ID-LT 16 Gauge Latching Wire Strippers
4. FF-HTCRMP-1Crimping Tool
5. FF-LCP-HPPOL-K Polishing Kit
6. One of the following connectors:
  - a) HFBR-4501/4503 Gray Simplex/Simplex Latching Connector and HFBR-4525 Simplex Crimp Ring.
  - b) HFBR-4511/4513 Blue Simplex/Simplex Latching Connector and HFBR-4525 Simplex Crimp Ring.
  - c) HFBR-4506 Parchment (off-white) Duplex Connector and HFBR-4526 Duplex Crimp Ring
  - d) HFBR-4516 Gray Latching Duplex Connector and HFBR-4526 Duplex Crimp Ring
  - e) HFBR-4531/4533 Black/ blue Simplex friction/Simplex Latching Connectors

### Step 1

The zip cord structure of the duplex cable permits easy separation of the channels. The channels should be separated approximately 50mm (2.0 in.) back from the ends to permit connecting and polishing.

After cutting the cable to the desired length, strip off approximately 7mm (0.3 in.) of the outer jacket with the 16 gauge wire strippers. Excess webbing on the duplex cable may have to be trimmed to allow the simplex or simplex latching connector to slide over the cable.

When using the duplex connector and duplex cable, the separated duplex cable must be stripped to equal lengths on each cable. This allows easy and proper easting of the cable into the duplex connector.



**Step 2**

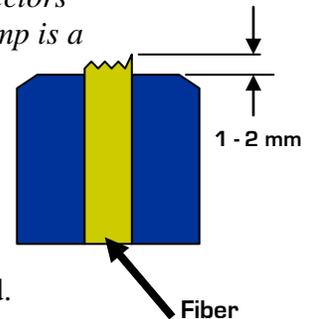
Place the crimp ring and connector over the end of the cable; the fiber should protrude about 3mm (0.12 in.) through the end of the connector. Carefully position the ring so that it is entirely on the connector with the rim of the crimp ring flush with the connector, leaving a small space between the crimp ring and the flange. Then crimp the ring in place with the crimping tool. One crimp tool is used for all POF connector crimping requirements.

For industrial applications or ones that require the best of retention to the cable attachment can be achieved with the use of 2 part epoxy part #FF-GMEPXY-1656. The adhesive is placed into the connector prior to insertion of the fiber and the fiber is crimped normally. The connector can be polished after the epoxy has cured (Normally 24 hours for full cure) and is then ready for use. The perfect amount of epoxy should cause an “Epoxy Cone” see the picture below:



**Note:** By convention, place the gray connector on the transmitter cable end and the blue connector in the receiver cable end to maintain color coding (different color connectors are mechanically identical).

Simplex connector crimp rings cannot be used with duplex connectors and duplex connector crimp rings cannot be used with the simplex connectors because of size differences. The simplex crimp is a dull luster appearance; the duplex ring is glossy and has a thinner wall.



**Step 3**

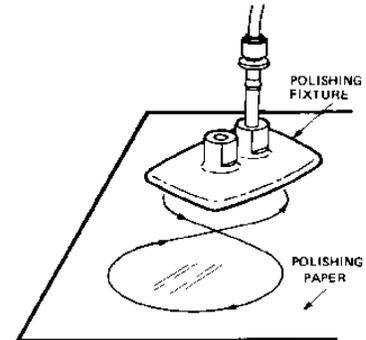
Any excess fiber protruding from the connector end may be cut off; however, the trimmed fiber should extend at least 1.5 mm (0.06 in.) from the connector end.

The proper look after clipped with the “Epoxy Cone”:



Insert the connector fully into the polishing fixture with the trimmed fiber protruding from the bottom of the fixture. This plastic polishing fixture can be used to polish two simplex connectors or simplex latching connectors simultaneously, or one duplex connector.

**Note:** *The four dots on the bottom of the polishing fixture are wear indicators. Replace the fixture when any dot is no longer visible. Typically the polishing fixture can be used 10 times; 10 duplex connectors or 20 simplex connectors, two at a time.*



Place the 600 grit abrasive paper on a flat smooth surface, pressing down on the connector; polish the fiber and the connector using a figure eight pattern of strokes until the connector is flush with the bottom of the polishing fixture. Wipe the connector and fixture with a clean cloth or tissue.

#### Step 4

Place the flush connector and polishing fixture on the dull side of the 3  $\mu\text{m}$  pink lapping film and continue to polish the fiber and connector for approximately 25 strokes. The fiber end should be flat, smooth and clean.



This cable is now ready for use!

**Note:** *Use of pink lapping film fine polishing step results in approximately 2 dB improvement in coupling performance of either a transmitter receiver link or a bulkhead/splice over a 600 grit polish alone. This fine polishing step may be omitted where an extra 2 dB of optical power is not essential, as with short link lengths. Proper polishing of the tip of the fiber/ connector face results in a tip diameter between 2.5 mm (0.098 in.) minimum and 3.2 mm (0.126 in.) maximum.*



**For service call:** FiberFin technical department 630-553-6924 Ext 114 8-5pm CST

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