



## Applications Engineering Notes

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Document Title	Operating Instructions for the US Conec Disposable Loose Fiber Ribbonizing Tool
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## **THE USE OF SAFETY GLASSES FOR EYE PROTECTION IS RECOMMENDED**

### **1.0 Introduction**

#### **1.1 Purpose**

To provide procedures for ribbonizing loose fibers using the US Conec disposable loose fiber ribbonizing tool.

#### **1.2 Scope**

Applies to ribbonizing loose 250µm coated fibers into 4, 8, 12, or 16 fiber count ribbon.

#### **1.3 Description**

The disposable ribbonizing tool utilizes a quick cure cyanoacrylate adhesive to provide a low-cost, robust ribbonization option. This solution is ideal for applications requiring excessive handling and multi-row termination applications.

**NOTE:** The photos in this document are representative and may not reflect the exact component color, cable construction, and tool model for your specific installation. Dimensions shown are not to scale.

Follow the steps in this module in sequential order (e.g. Step 2.0 → Step 2.1 → Step 2.2 → Step 3.0, etc.). Steps that end in “a” or “b” represent an either/or option. For example, Step 2.3a is for one ribbonization method and Step 2.3b is for another ribbonization method. Depending on your particular installation, you will follow either Step 2.3a or Step 2.3b. Once Step 2.3a or Step 2.3b is complete, proceed to the next step.

### 1.4 Tools and Materials

- Metric ruler (e.g. 100 millimeter ruler)
- Permanent marker
- Fiber optic side cutters
- 3cc syringe with a 0.84mm ID x 12.7mm, 18 gauge, flexible needle tip (e.g. Nordson EFD® PN: 7018143)
- US Conec disposable fiber ribbonizing tool (see Section 1.5)
- Loctite® 4861™ or 411™ Prism® Instant Adhesive  
**WARNING:** Refer to the manufacturer’s Safety Data Sheet (SDS) for proper handling and potential hazards

### 1.5 Ribbonizing Tool Part Numbers and Identifiers

Table 1.5

Description	PN
Disposable Ribbonizer, 16F, Green, 10+ uses	15360
Disposable Ribbonizer, 12F, White, 10+ uses	14316
Disposable Ribbonizer, 8F, Purple, 10+ uses	14682
Disposable Ribbonizer, 4F, Gray, 10+ uses	16764

**NOTE:** Refer to US Conec customer drawing number C14316. If there is a discrepancy between this table and the latest customer drawing, the customer drawing takes precedence.



Figure 1.5

## **1.6 Precautions**

- The use of safety glasses for eye protection is strongly recommended when handling chemicals and cutting fiber.
- Do not let cut pieces of fiber stick to your clothing or drop in the work area where they can cause injury later. Pick up cut or broken pieces of fiber and place them in a proper container.
- Maintain a tidy workspace.
- Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are terminating. Do not bend the cable more than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink.

## **2.0 Ribbonizing Tool Operating Instructions**

- 2.1** Prepare the optical fiber cable for ribbonization according to the manufacturer's instructions or for the connector termination type being used.
- 2.2** Place the instant adhesive into a 3cc syringe with an 18 gauge flexible needle tip installed.



Figure 2.2

**2.3a Fiber Ribbonization Method #1: Tabletop Mounting (Preferred)**

For Method #2: Handheld, follow Step 2.3b.

**2.3a.1** Select the appropriate disposable fiber ribbonizing tool for the fiber count being ribbonized (see Section 1.5). Tape the ribbonizing tool to a table edge or other secure horizontal surface with the adhesive pocket facing downward. The tape should be applied in such a way that the ribbonizing tool is free to open and close as fibers are inserted.

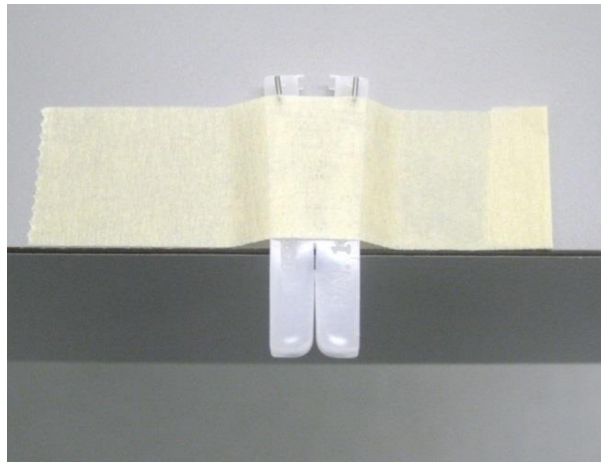


Figure 2.3a.1

**2.3a.2** Place the loose fibers into the slot of the tool in the order specified by the end user or follow the standard fiber color coding shown in Appendix A.

**2.3a.3** Grasp the fibers and cable, and gently slide the fibers up and down in the slot a few times to allow the fibers to settle into position as they exit the jacket.

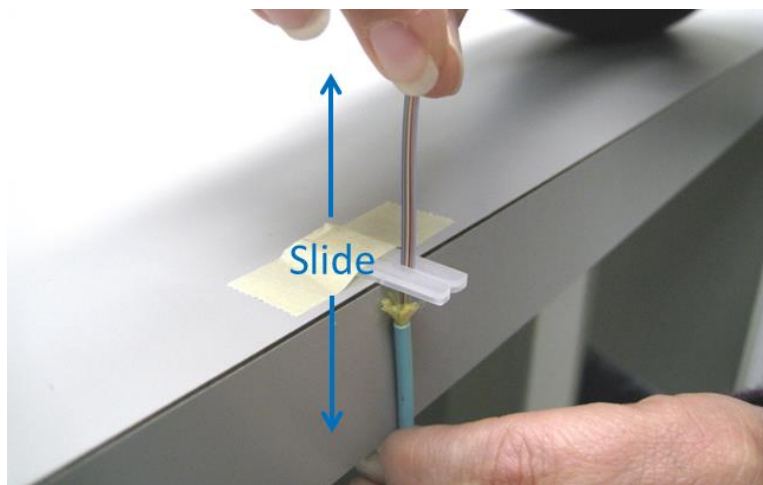


Figure 2.3a.3

**2.3a.4** Minimize the amount of spread as the fibers exit the tool. Excess fiber spread will adversely affect the fiber positions during ribbonization.

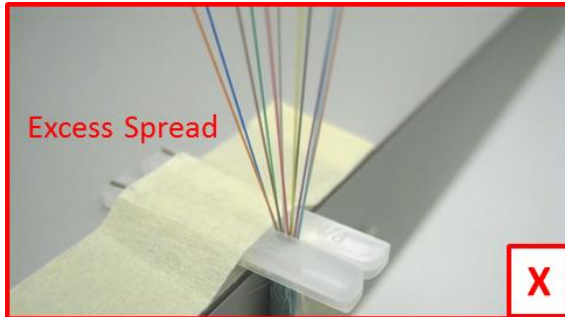


Figure 2.3a.4-1



Figure 2.3a.4-2

**2.3a.5** Position the cable directly below the fiber slot in the tool so that the fibers are straight from the point of exiting the cable through the tool. Secure the cable into position.

**NOTE:** The position of the cable in relation to the tool fiber slot will affect the angle and/or curvature of the finished ribbon in relation to the cable. Curved or angled ribbons make termination more difficult and may affect the performance of the completed connector. See figures below for representations of correct and incorrect cable and tool fiber slot positions.

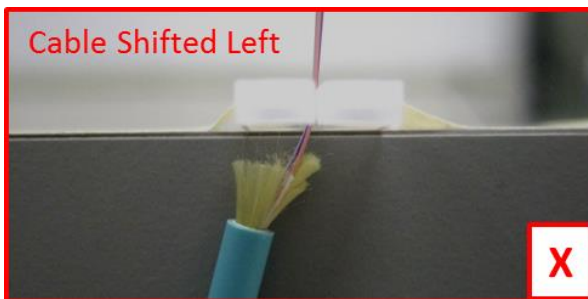


Figure 2.3a.5-1



Figure 2.3a.5-2

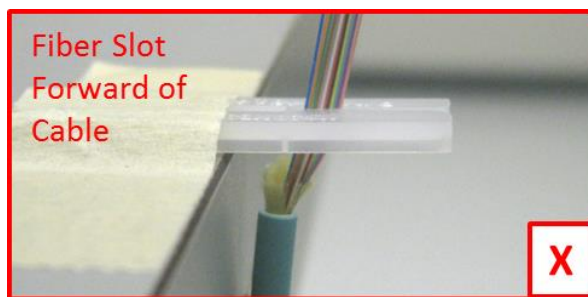


Figure 2.3a.5-3

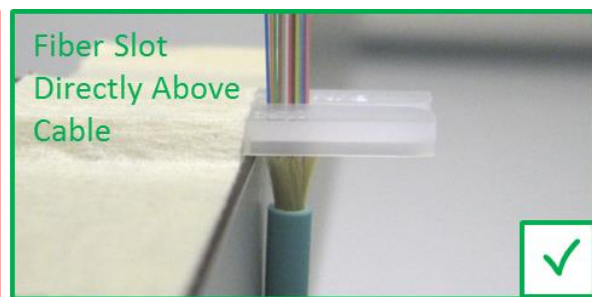


Figure 2.3a.5-4

**2.3a.6** Place the fibers into the slot of a second tool. The tool must be positioned with the adhesive pocket facing upward (away from the cable jacket). Gently push the second tool onto the top horizontal surface of the first (stationary) tool.

**IMPORTANT:** For MTP<sup>®</sup> and MXC<sup>®</sup> brand connectors, begin ribbonization of the fibers 15mm (+0/-2mm) from the end of the cable jacket. This will ensure enough transition length from the jacket to the ribbon for proper termination in a US Conec connector. For other connector brands, refer to the manufacturer's recommended ribbonization transition length.

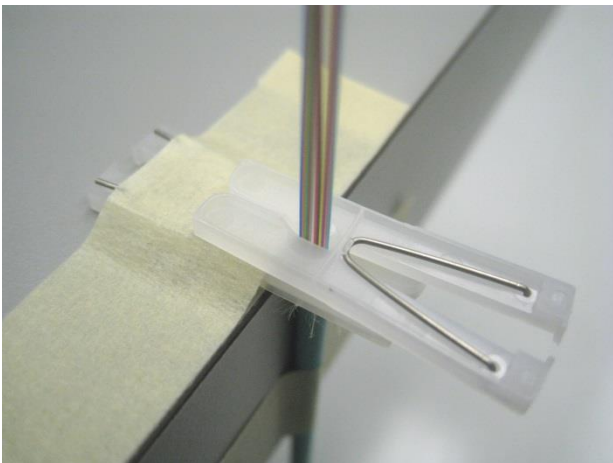


Figure 2.3a.6-1

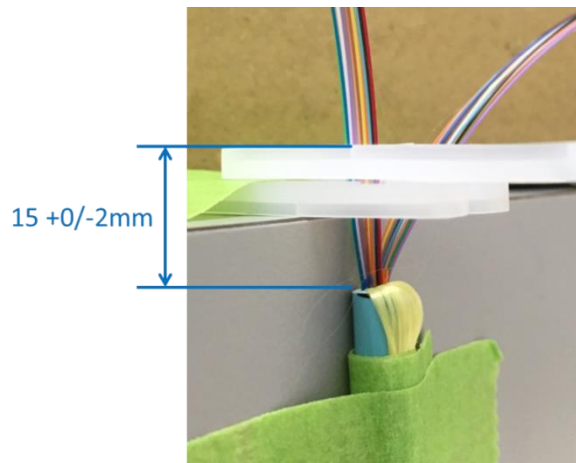


Figure 2.3a.6-2

**2.3a.7** Place the instant adhesive into the adhesive pocket, making sure to get adhesive onto BOTH sides of the fibers.

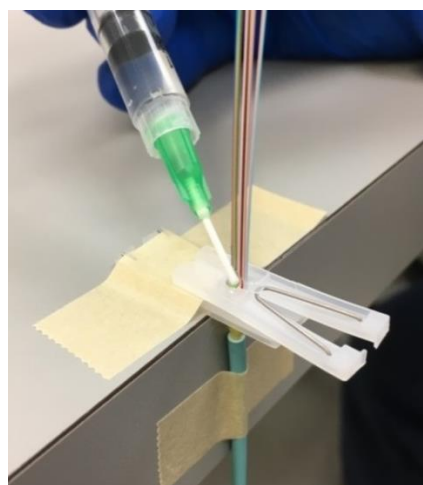


Figure 2.3a.7

**2.3a.8** Pull the second (top) tool straight up the fibers and away from the jacket in a smooth, uniform, and steady motion until it is free of the fibers. Leave the ribbon in the first (bottom) tool until the adhesive dries (approximately one minute).

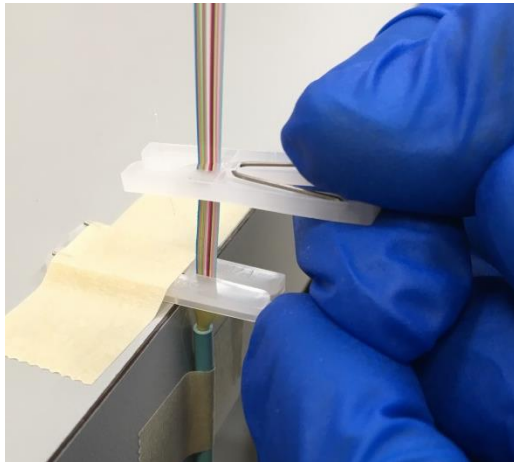


Figure 2.3a.8-1

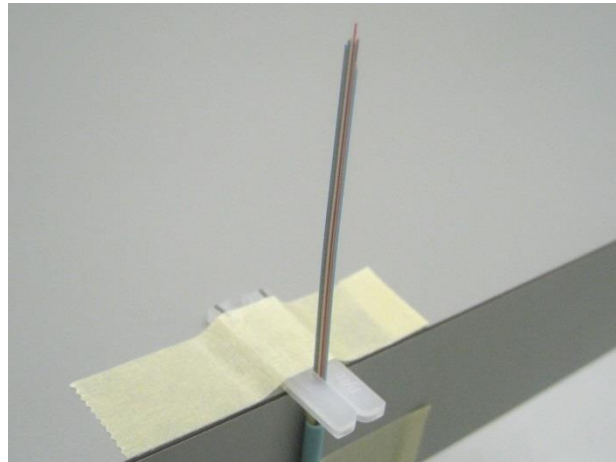


Figure 2.3a.8-2

**2.3b Fiber Ribbonization Method #2: Handheld**

For Method #1: Tabletop Mounting (Preferred), follow Step 2.3a.

**2.3b.1** Select the appropriate disposable fiber ribbonizing tool for the fiber count being ribbonized (see Section 1.5). Place the loose fibers into the slot of the tool in the order specified by the end user or follow the standard fiber color coding shown in Appendix A. Be sure the adhesive pocket of the tool is facing downward, towards the cable jacket.

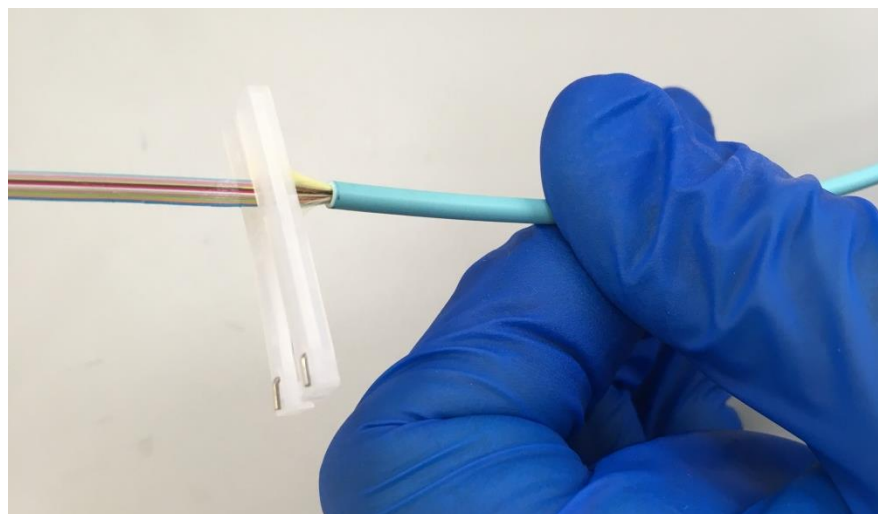


Figure 2.3b.1



**2.3b.2** Place the fibers into the slot of a second tool. The tool must be positioned with the adhesive pocket facing upward (away from the cable jacket). Gently push the second tool onto the top horizontal surface of the first tool.

**IMPORTANT:** For MTP<sup>®</sup> and MXC<sup>®</sup> brand connectors, begin ribbonization of the fibers 15mm (+0/-2mm) from the end of the cable jacket. This will ensure enough transition length from the jacket to the ribbon for proper termination in a US Conec connector. For other connector brands, refer to the manufacturer's recommended ribbonization transition length.

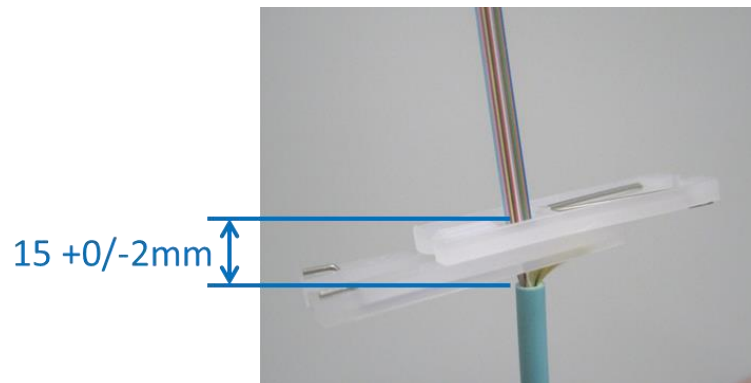


Figure 2.3b.2

**2.3b.3** Place the instant adhesive into the adhesive pocket, making sure to get adhesive onto BOTH sides of the fibers.

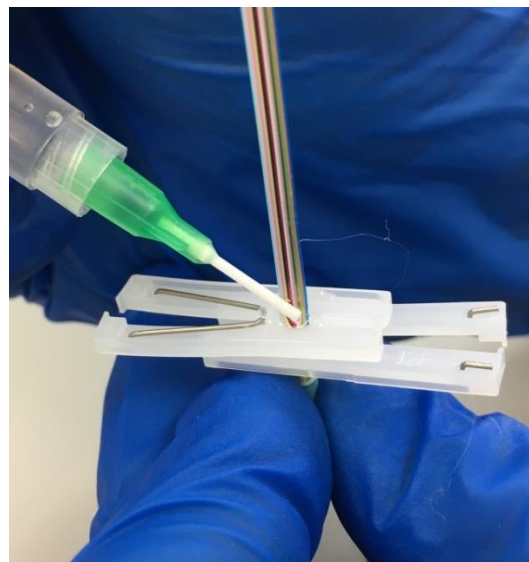


Figure 2.3b.3

- 2.3b.4** Hold the cable jacket and pull the second (top) tool straight up the fibers and away from the jacket in a smooth, uniform, and steady motion until it is free of the fibers. Leave the ribbon in the first (bottom) tool until the adhesive dries (approximately one minute).

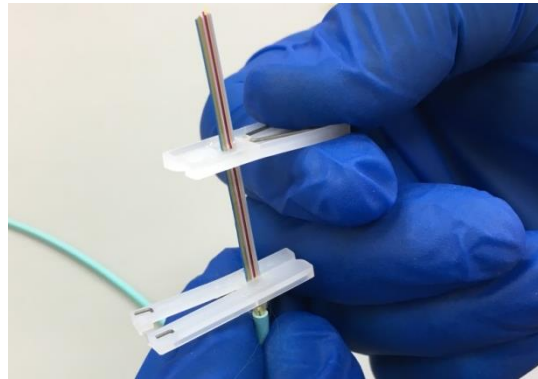


Figure 2.3b.4

#### **2.4 Multiple Uses of the Tool**

One tool may be used for several ribbonizing operations in sequence when multiple cables are being prepared at once. Prepare all the cables to be ribbonized with the first (bottom) tool installed on all cables (see Step 2.3a or 2.3b). Place the second (top) tool onto the first cable and ribbonize it. Upon completion of the first cable, immediately move to the next cable and ribbonize it using the same top tool, and so on. Refill the adhesive pocket when necessary. This operation may be repeated up to ten (10) times using the same tool. Once ribbonization of all cables is completed, proceed to the next step.

- 2.5** After the instant adhesive has thoroughly dried, remove the ribbon from the bottom tool. For multiple-leg cables, immediately label the leg (1, 2, 3, 4, or A, B, C, D, or BL, OR, GR, BR, etc.) with a permanent marker.

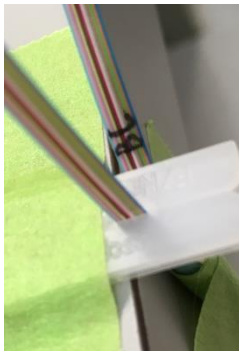


Figure 2.5-1

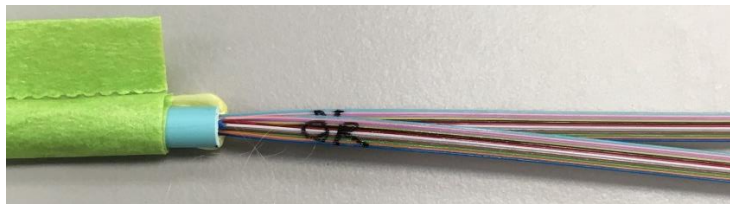


Figure 2.5-2

- 2.6** This completes the ribbonization process. Follow the connector manufacturer's recommended termination procedure to finish the connector installation.

**Appendix A**  
**Standard Ribbon Fiber Color Coding**

**A.1** Table A.1 is based on TIA-598-D.

Table A.1

<b>Fiber No.</b>	<b>Color</b>	<b>Fiber No.</b>	<b>Color</b>	<b>Fiber No.</b>	<b>Color</b>
1	Blue	7	Red	13	Olive <sup>1</sup>
2	Orange	8	Black	14	Magenta <sup>1</sup>
3	Green	9	Yellow	15	Tan <sup>1</sup>
4	Brown	10	Violet	16	Lime <sup>1</sup>
5	Slate	11	Rose		
6	White	12	Aqua		

<sup>1</sup>These colors have not been finalized and subject to change. The draft of Addendum 1 to TIA-598-D was under review at the time of this AEN's publication.

## **Appendix B**

### **Alternate Method to Ribbonize for a 4+4 MT Ferrule**

- B.1** For a 4+4 MT ferrule application, the gray 4-fiber disposable ribbonizer tool can be used to ribbonize the two 4-fiber groups. However, this appendix will describe an alternate method to create the two 4-fiber groups using the purple 8-fiber ribbonizer.
- B.2** Place the loose fibers into the slot of the purple 8-fiber ribbonizing tool in the order specified by the end user or follow the standard fiber color coding shown in Appendix A. Separate the fibers into two 4-fiber groups. Using fiber optic side cutters only, trim one of the fiber groups 2-3mm shorter than the other group. This will make it easier to identify and split the two groups apart after ribbonization.

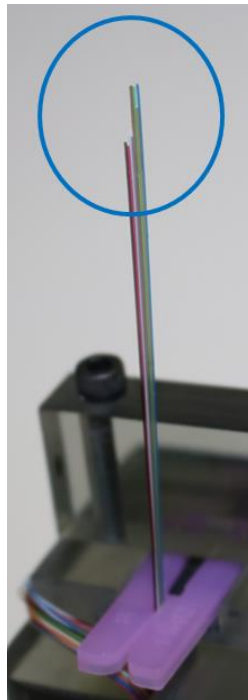


Figure B.2

- B.3** Ribbonize the two 4-fiber groups as a single 8-fiber ribbon.

- B.4** After the instant adhesive has thoroughly dried, carefully separate the two 4-fiber groups.



Figure B.4-1



Figure B.4-2

- B.5** Remove the two 4-fiber groups from the bottom tool.