



A Furukawa Company

Sheath Removal for Mini LXE, Mini C2™, and Mini C2™ DT Optical Fiber Cables

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1. Scope

1.1 This practice describes sheath removal for OFS Mini LXE, Mini C2™, and Mini C2™ DT optical fiber cables. It is intended for personnel with prior experience in splicing fiber optic cables. A working familiarity with cable tools, fiber access, and splicing equipment are necessary as this guide does not cover all aspects of cable splicing.

1.2 Mini LXE, Mini C2, and Mini C2 DT cables are central core designs and include a corrugated armor layer and two metallic strength members. The cables are suitable for aerial (lashed), direct buried, and underground installation applications. Please refer to OFS IP-003 for the recommended aerial installation procedures for OFS central core cables.

2. Precautions

2.1 OFS optical fiber cables are designed to meet the rigors of aerial, direct buried, and underground duct environments. During installation, care should be taken to ensure that the minimum cable bend diameter and maximum rated cable load (MRCL) are not violated.

2.2 Cable minimum bend diameters are typically expressed as a multiple of the cable outside diameter (OD) for both static and dynamic conditions. The dynamic condition represents a cable during installation. The static condition represents an installed cable that is exposed only to low residual tension. In dynamic conditions, the minimum bend diameter of Mini LXE cable is 40 x OD. For Mini C2 and Mini C2 DT cables, the minimum bend diameter is 30 x OD. In static conditions, the minimum bend diameter for Mini LXE, Mini C2 and Mini C2 DT cables is 20 x OD.

2.3 For cable storage coils, the minimum recommended coil diameter for Mini LXE cable is 18 inches. For Mini C2 and Mini C2 DT cables, the minimum recommended coil diameter is 12 inches.

2.4 Cable tensile load ratings are specified for both short-term and long-term conditions. The short-term condition represents a cable during installation. The long-term condition represents an installed cable subjected to a permanent load for the life of the cable. For short-term conditions, the MRCL for Mini LXE cable is 400 pounds (1800 N). The MRCL for Mini C2 and Mini C2 DT cables is 600 lb.

2.5 For long term conditions, the maximum tensile load is 120 lb (540 N) for Mini LXE cable, and 180 lb (800 N) for Mini C2 and Mini C2 DT cables.

2.6 To assure that the MRCL is not exceeded during installation, breakaway pulling swivels and/or tension limited pulling winches are recommended. Cable lubricants are effective in reducing the coefficient of friction

between the cable and duct and reducing the required cable installation forces. Contact OFS or a cable lubricant manufacturer for guidance on the proper lubricant for your application.

2.7 OFS cables are recommended for use in the following temperature conditions.

- Operation -40 to 70° C (-40 to 158° F)
- Installation -30 to 60° C (-22 to 140° F)
- Storage/Shipping -40 to 75° C (-40 to 167° F)

3. Tools

3.1 The following tools are recommended for use during cable sheath removal. **Safety glasses should always be worn when working with optical fiber cable.**

- Cable sheath knife
- Buffer tube cutter
- Snips (scissors)
- Cable shears
- Diagonal cutters (side cutters)
- Pliers
- Tape measure
- Lint free wipes
- Isopropyl Alcohol
- Safety glasses

4. Sheath Removal

4.1 These instructions should be used only if a short length of buffer tube (~ 4 inches or less) is required in the closure. If a longer length of buffer tube is required, refer to Section 5 for additional instructions.

4.2 Consult the splice closure instructions for the required cable prep length. Measure and mark the cable jacket at the appropriate length. Place a second mark on the cable about 8 inches away from the first mark towards the cable end (Figure 1).



Figure 1 - Mark the cable.

4.3 Ring cut the cable at the marks and score the polyethylene jacket down to the armor. ***Be careful not to score through the armor*** (Figure 2).



Figure 2- Ring cut the cable jacket.

4.4 Expose the strength members between the marks by shaving the cable jacket over the strength members (Figure 3).



Figure 3 – Shave the cable jacket to expose the strength members.

4.5 Peel off both sections of the cable jacket and expose the armor between the two marks (Figure 4).

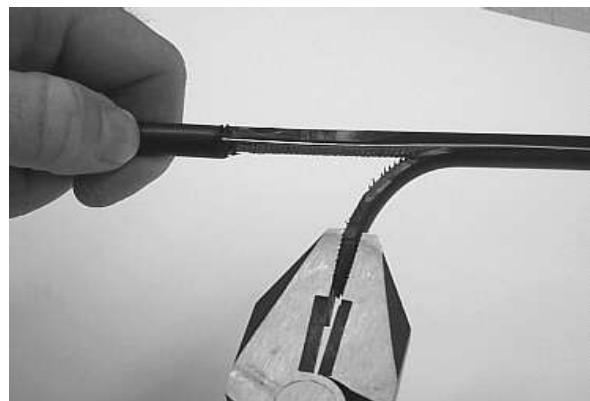


Figure 4 – Peel off the cable jacket.

4.6 Consult the splice closure instructions for the strength-member length required in the closure. Cut both strength members as required (Figure 5). Temporarily bend the strength members out of the way to avoid injury.

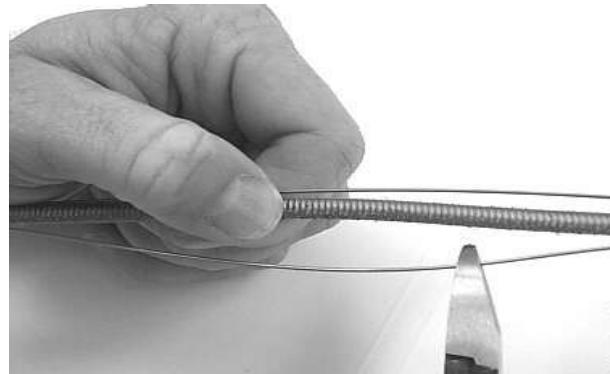


Figure 5 – Measure and cut the strength members.

4.7 Consult the splice closure instructions for the armor length required for bonding. Mark and snip the armor as required (Figure 6).

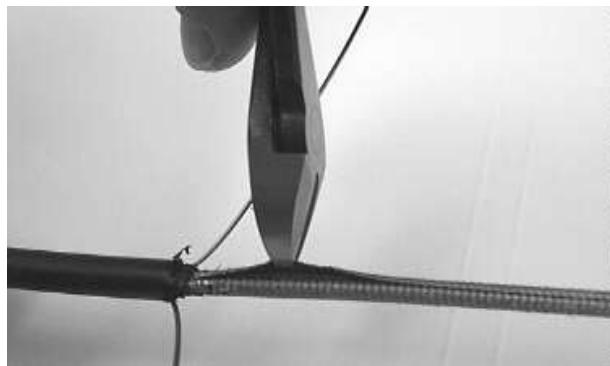


Figure 6 - Snip the armor.

4.8 Snip the armor again about 5" from the first location. Use a sheath knife to open the armor overlap between the two locations. Peel off the armor to expose the core tube (Figure 7).

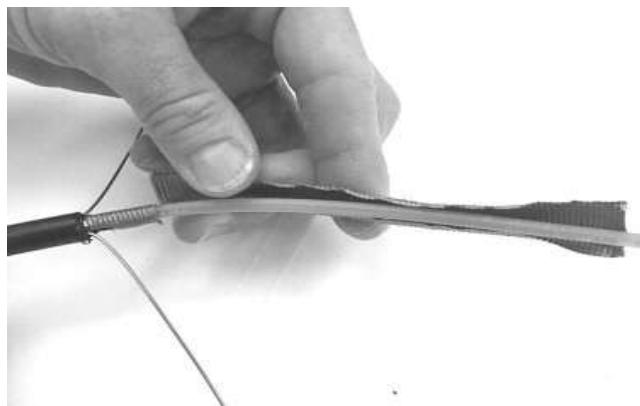


Figure 7 – Peel off the armor.

4.9 Consult the splice closure instructions for the buffer-tube length required in the closure. Measure and mark the buffer tube as required. Use a buffer tube cutting tool to score the buffer tube at the mark (Figure 8). Flex and separate the buffer tube at the score mark. Remove the cable jacket and buffer tube to expose the fiber bundle (Figure 9).

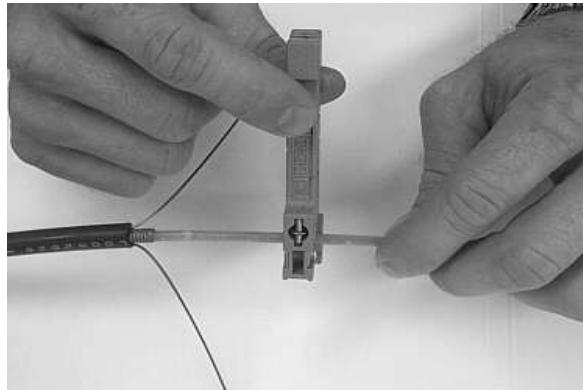


Figure 8 - Score the buffer tube.

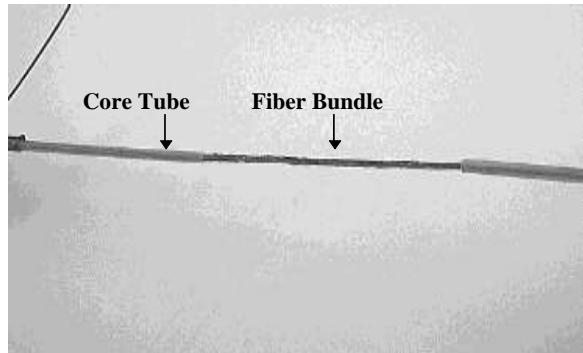


Figure 9 – Remove the buffer tube and cable jacket to expose the fiber bundle.

4.10 For cables containing two or more fiber bundles, each fiber bundle is identified by a color-coded binder thread. To separate the fiber bundles, hold the fibers taut while gently pulling on one of the binder threads. As the binder thread tightens around the bundle, the fibers will group together for easy identification (Figure 10). Continue this process until all the bundles have been identified. Note that Mini C2 DT cable will contain white water blocking threads as well as color coded binders. The water blocking threads can be removed prior to identifying the fiber bundles.

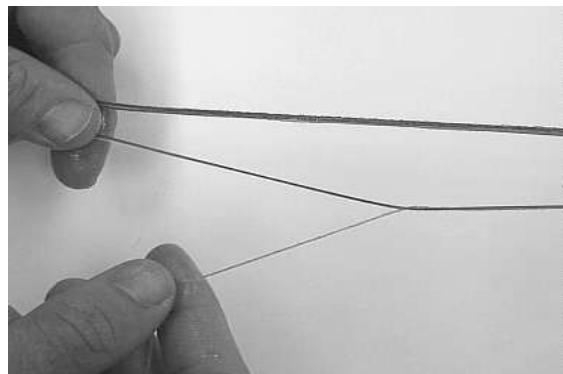


Figure 10 - Separate the fiber bundles.

4.11 Loosely tie each binder thread around the fiber bundle to maintain identification of the fiber groups.

4.12 Clean the exposed fibers with a lint free wipe and isopropyl alcohol (Figure 11). The cable is now ready for testing and/or splicing. Note that for Mini C2 DT cable it is not necessary to clean the fibers prior to routing in the splice tray.

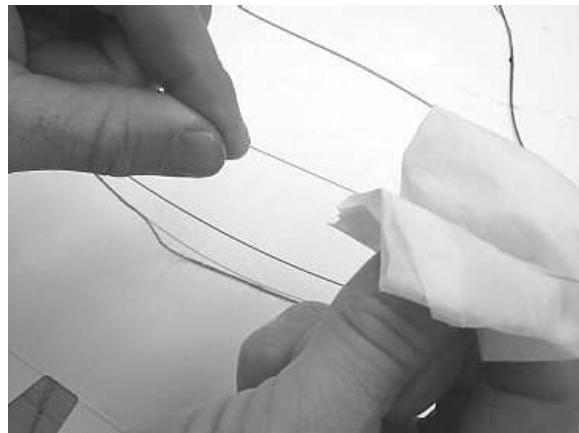


Figure 11 - Clean the fibers.

5. Alternate Sheath Removal for Additional Buffer Tube Length

5.1 This procedure should be used if a slack loop of buffer tube will be stored in the splice closure. In this procedure, the optical fibers are exposed as described above in Section 4, and the additional buffer tube length is exposed in a subsequent operation.

5.2 Consult the splice closure instructions for the required cable prep length. Measure and mark the cable jacket at the appropriate length. Place a second mark on the cable about 8 inches away from the first mark (towards the end of the cable).

5.3 Consult the splice closure instructions for the length of exposed fiber that is required in the closure. Place a third mark on the cable at the required length. Finally, place a fourth mark about 8 inches away from this mark towards the end of the cable (Figure 12)

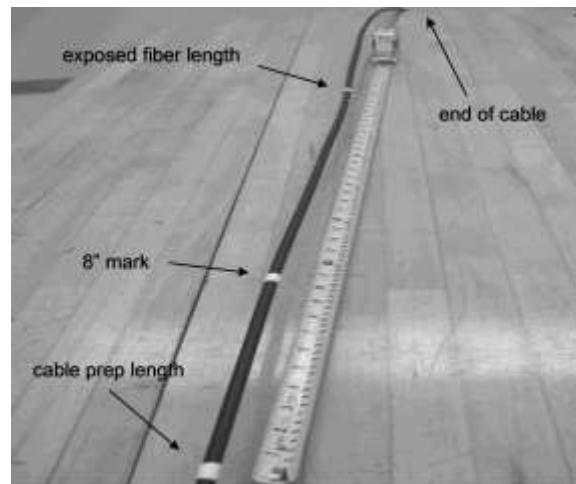


Figure 12- Mark the required cable prep lengths.

5.4 Follow steps **4.3** thru **4.9** from the previous section to expose the required length of optical fibers. This fiber length will be stored in the splice tray of the closure. (Figure 13).

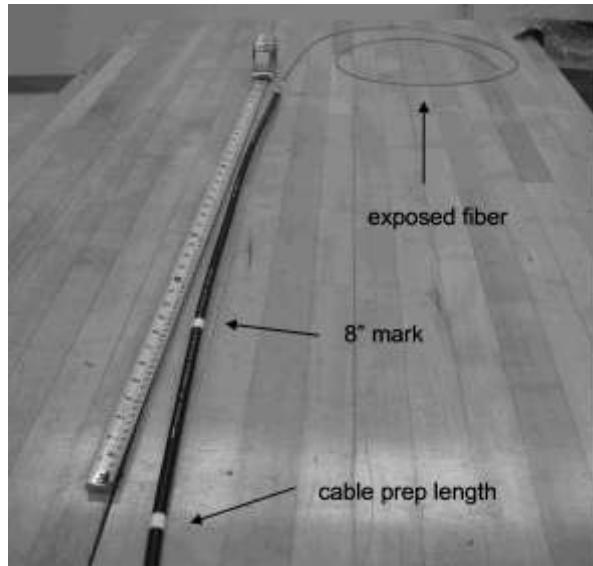


Figure 13 – Remove the outer jacket, armor, and buffer tube to expose the fibers.

5.5 After exposing the required fiber length, open a window in the cable jacket and armor tape to expose a short length of the buffer tube. The window is opened at the cable prep length marked in step **5.2** above. Repeat steps **4.3** thru **4.8** above to expose the buffer tube (Figure 14)

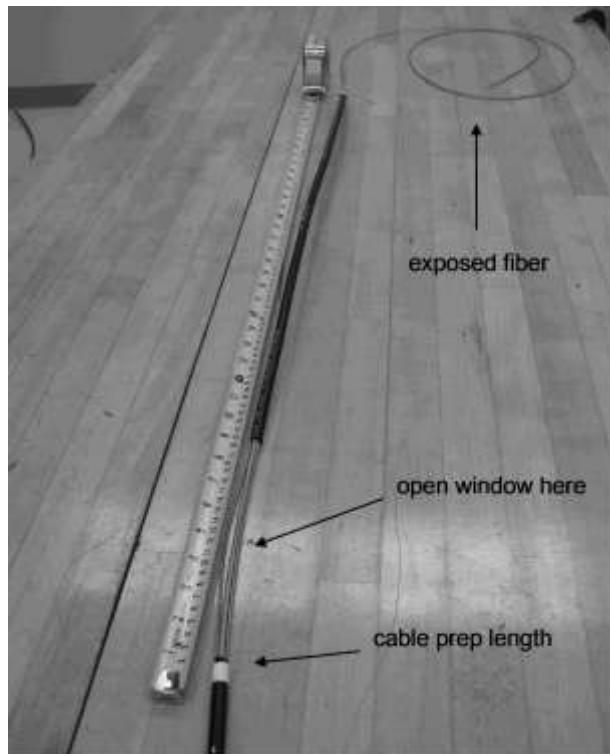


Figure 14 – Cut a window in jacket to expose the buffer tube.

5.6 After opening the window in the cable jacket, the jacket and armor can be pulled off the cable over the buffer tube. The buffer tube is then stored inside the closure (Figure 15).

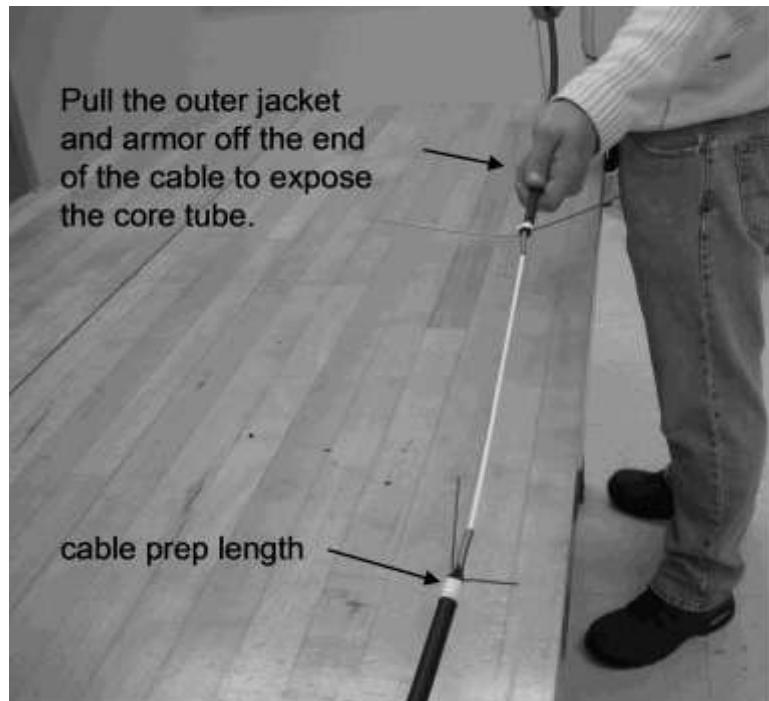


Figure 15 – Remove the outer jacket and armor to expose the core tube.

5.7 After the jacket and armor have been removed from the buffer tube, proceed with steps **4.10** through **4.12** to separate the fiber bundles and clean the fibers.

For additional information please contact your sales representative. You can also visit our website at www.ofsoptics.com or call 1-888-FIBER-HELP (1-888-342-3743) from inside the USA or 1-770-798-5555 from outside the USA.

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