A Furukawa Company

Mini LT Flat Drop Cable
Installation Guidelines and Sheath Removal

1. General

1.1 This practice covers the basic installation guidelines and sheath removal procedures for OFS Mini LT Flat Drop cable. Instructions are also included for optional toneable cables. These instructions are intended for personnel with prior experience in placement and installation of aerial cable. A working familiarity with aerial cable requirements, practices, and work operations is necessary as this guide does not cover all aspects of aerial construction work.

1.2 Mini LT Flat Drop cable is available with 1, 2, 4, 6, 12, or 24 fibers and is designed for use in fiber-to-the-premise applications. The fibers are housed in a 2- or 3-mm diameter gel-filled buffer tube. Tensile strength is provided by two dielectric rods located adjacent to the buffer tube. The outer jacket is extruded from polyethylene. Mini LT Flat Drop cable is an all-dielectric design that eliminates the need for bonding and grounding at building entrances and splice closures.

1.3 Mini LT cable is available with an optional 24 gauge copper wire that can be used for cable locating. The copper wire is easily separated from the optical cable to provide access for locating equipment.

1.4 Mini LT cable is optimized for self-supporting aerial installation. The cable may also be used in direct-buried and underground conduit installations.

2. Precautions

2.1 Mini LT Flat Drop cable is designed to meet the rigors of aerial, buried, and underground conduit installations. However, care must be exercised during installation to ensure that the maximum rated cable load (MRCL) is not exceeded and the minimum cable bend diameter is not violated.

2.2 The MRCL for Mini LT cable is 300 pounds (1335 N). This is the maximum tensile force that may be applied to the cable during short-term installation conditions, e.g., during an underground installation in conduit or innerduct. The 300-pound (1335 N) MRCL also applies during storm-load conditions for self-supporting aerial cables. For long-term conditions, the maximum cable tension is 90 pounds (400 N).

2.3 Cable minimum bend diameters are defined for both dynamic and static conditions. The dynamic condition applies to a cable during installation, e.g., when pulling the cable around a sheave or capstan. Under dynamic conditions, the minimum bend diameter for Mini LT Flat Drop cable is 12 inches (30 cm). The minimum bend diameter under static conditions (post installation) is 6 inches (15 cm). For slack cable storage, the minimum diameter of storage coils is 12 inches (30 cm).

3. Installation Guidelines

3.1 To assure that the MRCL is not exceeded during installation, breakaway pulling swivels and/or tension limited cable winches are required. Tension-limiting winches must be routinely calibrated per manufacturer's recommendations. Cable lubricants should be used during underground placing to reduce the coefficient of friction and resultant cable-installation forces. Refer to the manufacturer's documentation for recommended quantities and application methods.

3.2 Complex and lengthy calculations are required to determine the storm-load tension of aerial cables. Alternatively, Table A provides the maximum span lengths and corresponding installation tensions that are recommended for Mini LT Flat Drop cable. The results are based on NESC ice and wind loads and adherence to the guidelines will assure reliable cable performance under storm-load conditions. Table A provides installation guidelines for 1%, 1-1/2%, and 3% initial-sag conditions. Matched sag installation is allowed; however, do not exceed the span lengths or cable tensions listed in Table A. Contact OFS if different installation or loading conditions are required for your application.

Table A – Maximum Recommended Span Lengths for Mini LT and Toneable Mini LT Cables

For 1% initial sag

	Mini-LT Cable		Toneable Mini-LT Cable	
Storm Load Region	Maximum Recommended Span Length, ft	Installation Tension, lb	Maximum Recommended Span Length, ft	Installation Tension, lb
Heavy	140	42	125	52
Medium	260	78	225	93
Light	290	87	225	93

For 1-1/2% initial sag

	Mini-LT Cable		Toneable Mini-LT Cable	
Storm Load Region	Maximum Recommended Span Length, ft	Installation Tension, lb	Maximum Recommended Span Length, ft	Installation Tension, lb
Heavy	150	26	135	37
Medium	290	51	245	67
Light	330	58	250	69

For 3% initial sag

	Mini-LT Cable		Toneable Mini-LT Cable	
Storm Load Region	Maximum Recommended Span Length, ft	Installation Tension, lb	Maximum Recommended Span Length, ft	Installation Tension, lb
Heavy	175	18	160	22
Medium	350	35	305	42
Light	400	40	305	42

3.3 OFS recommends the following dead-end clamps for use in aerial self-supporting applications.

- Diamond/Sachs[1] Drop Wire Clamp (part #23-44441, aluminum, 1-2 pair, serrated shim), available from Thomas & Betts Corp.

- PLP FIBERLIGN[2] ADSS Drop Cable Dead-End, catalog #288811353. PLP recommends a reinforcement thimble (P/N 00065474) for use with small-diameter attachment hardware. Refer to PLP hardware documentation for additional information.

3.4 For tangent supports, OFS recommends PLP's FIBERLIGN Lite Support (FLS) Multi-Drop Cushion. The FLS multi-drop cushion is used to support the Mini-LT flat drop cable(s) at tangent poles where a dead-end clamp is not required. Up to six Mini LT flat drop cables can be supported in a single tangent support clamp. Refer to PLP hardware documentation for additional information.

4. Sheath Removal and Fiber Access

4.1 The following tools and materials are recommended for cable sheath removal.

- Cable sheath knife
- Jonard FOD-2000 Drop Cable Slitter or Uraseal FOD Speed Slitter[3] (optional jacket slitting tools)
- Splicer's scissors
- Buffer tube removal tool
- 24 gauge wire stripper (toneable cables only)
- Tape measure
- Marking pen or tape
- Gloves
- Safety glasses

Caution: Safety glasses should always be worn when working with optical fiber cables.

4.2 *For toneable cables only:* Determine the length of toning wire that must be separated from the drop cable and mark the cable at the appropriate length. Cut a 2 inch slit in the rib that attaches the toning wire to the cable (Figure 1). Separate the toning wire from the cable by grasping the toning wire and pulling it away from the cable. Use a 24 gauge wire stripper to remove the jacket from the toning wire.

Figure 1 – Cut the rib between the toning wire and cable.

[1] Diamond/Sachs is a registered trademark of Thomas & Betts Corp, Memphis, TN.
[2] FIBERLIGN is a registered trademark of Preformed Line Products, Cleveland, OH.
[3] FOD Speed Slitter is a trademark of Uraseal, Inc., Dover, NH

4.3 Mark the cable at the required jacket removal length (Figure 2). Refer to the closure documentation to determine the correct length of cable jacket that must be removed.

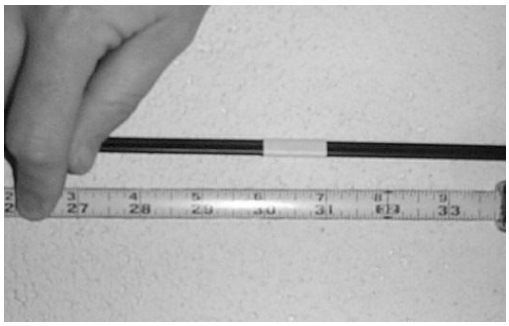

Figure 2 – Mark the jacket removal length.

4.4 Locate the position of the dielectric strength members. Use a cable sheath knife to shave the cable jacket on top of the strength members (Figure 3). Expose both strength members from the tape mark to the cable end.

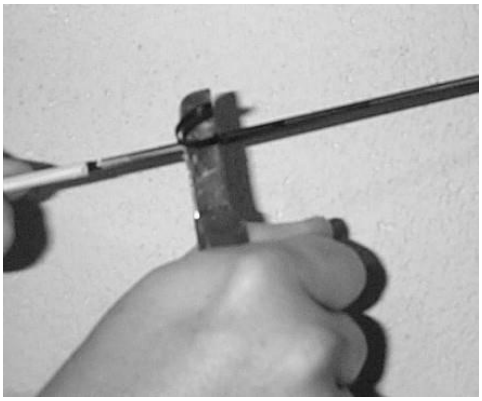

Figure 3 – Shave the cable jacket on top of the strength members.

4.5 Alternately, a Jonard FOD-2000 Drop Cable Slitter or Uraseal FOD Speed Slitter can be used to access the cable. Position the cable slitter and close it over the cable as shown in Figure 4. Pull the cable slitter along the cable to slit the cable jacket (Figure 5).

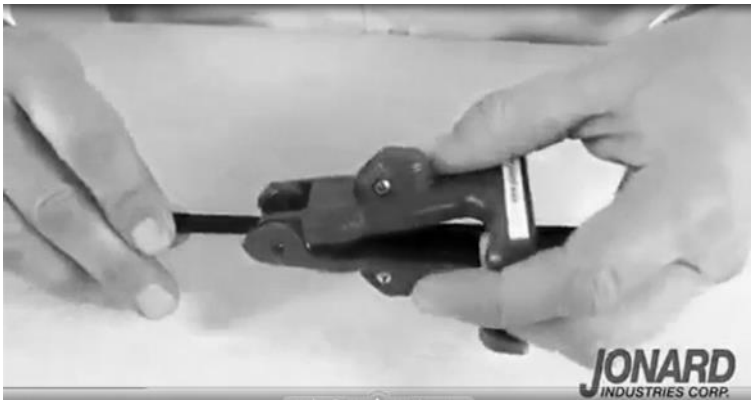

Figure 4 – Position the cable slitter over the cable and close the tool.
(Photo courtesy of Jonard Industries, Corp)

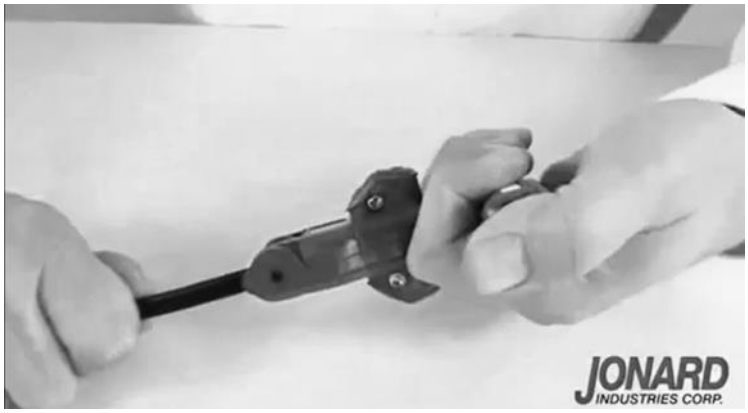

Figure 5 – Pull the cable slitter along the cable to slit the jacket.
(Photo courtesy of Jonard Industries, Corp)

4.6 From the cable end, peel both sections of the cable jacket (top and bottom) back to the tape mark (Figure 6). Cut the peeled sections to separate them from the cable.

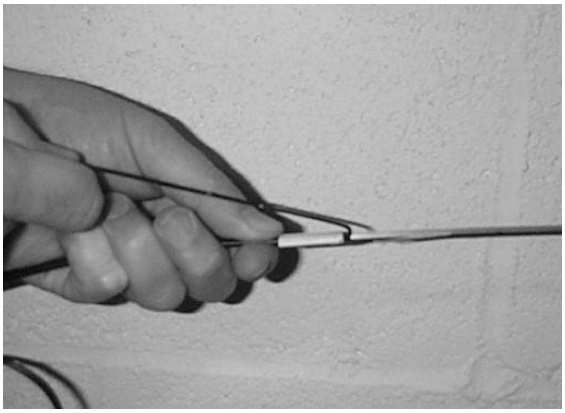

Figure 6 – Removing the outer cable jacket.

4.7 Cut the strength members at the required length (Figure 7). Refer to the closure documentation to determine the proper length that is required to secure the strength members in the closure.

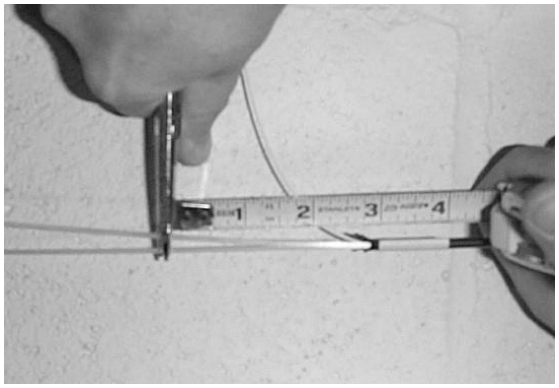

Figure 7 – Cut the strength members at the required length.

4.8 Refer to the closure documentation to determine the length of fiber that must be exposed for splicing. Mark the buffer tube at the proper length.

4.9 Use a 2.0 mm (1 – 12 fibers) or 3.0 mm (24 fibers) diameter buffer tube removal tool to score the buffer tube at the proper location (Figure 8).

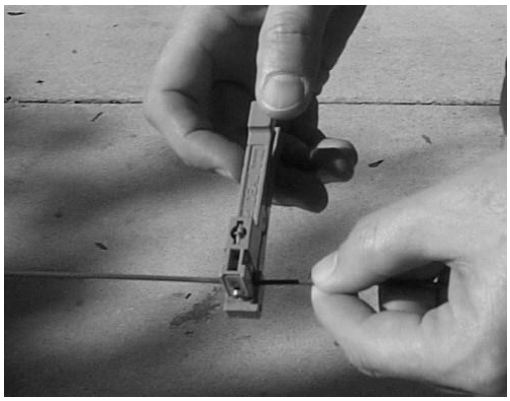

Figure 8 – Score the buffer tube at the proper length.

4.10 Flex and snap the buffer tube at the score line (Figure 9). Remove the buffer tube to expose the fibers.

Figure 9 – Flex and snap the buffer tube at the score line.

4.11 Clean the optical fibers using approved wipes and solvents. Proceed with closure assembly according to manufacturer's instructions.

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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