



A Furukawa Company

## Sheath Removal for DuctSaver® FX and DuctSaver® DT Cables

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### 1. General

1.1 The following procedure describes sheath removal and mid-span access for OFS DuctSaver® FX and DuctSaver® DT optical fiber cables.

1.2 DuctSaver FX and DuctSaver DT cables are central tube micro-cables and are intended for use in cable jetting applications into micro-duct. DuctSaver FX cable contains either 6- or 12-fiber AccuRibbon® and is available with 6 to 96 fibers in a gel-filled core tube. DuctSaver DT cable contains 12-fiber AccuRibbon and is available with a maximum of 144 fibers in a gel-free design.

### 2. Precautions

2.1 DuctSaver FX and DuctSaver DT cables are designed specifically for blown cable applications and should only be used in low-tension applications. Care must be exercised during installation to ensure that the cable tension does not exceed the maximum rated cable load (MRCL).

2.2 Cable tensile load ratings are specified for both static and dynamic conditions. The dynamic condition represents a cable during installation that may be subjected to the MRCL. The static condition represents an installed cable that may be subjected to long-term residual load. Cable tensile load ratings for both static and dynamic conditions are given in Table 1.

2.3 Cable minimum bend diameters<sup>1</sup> are also defined for static and dynamic conditions and are expressed as a multiple of the cable outside diameter (OD). The static condition represents an installed cable that may be subjected to long-

<sup>1</sup> Some cable manufacturers specify minimum bend radius rather than minimum bend diameter. For comparative purposes, the minimum bend radii for DuctSaver FX cable are 15 x OD and 20 x OD, respectively, for static and dynamic conditions.

term residual load. The dynamic condition represents a cable during installation that may be subjected to the MRCL. For DuctSaver FX and DuctSaver DT cables, the minimum bend diameter under static conditions is 30 × OD and the minimum bend diameter under dynamic conditions is 40 × OD. Minimum recommended bend diameters for DuctSaver FX and DuctSaver DT cables are summarized in Table 1.

**2.4** Minimum bend diameters are also specified for cable storage coils. The minimum storage coil diameter for DuctSaver FX and DuctSaver DT cables is 24 inches.

<b>Table 1 - Maximum Cable Loads and Minimum Bend Diameters for DuctSaver FX and DuctSaver DT Cables</b>						
Fiber Count	Cable OD	Maximum Rated Cable Load	Maximum Long Term Load	Minimum Bend Diameters		
				Dynamic Condition	Static Condition	Storage Coils
6 – 48	0.23 in. (5.8 mm)	135 lb (600 N)	67 lb (300 N)	10 in. (24 cm)	7 in. (18 cm)	24 in. (60 cm)
12 – 72	0.30 in. (7.5 mm)	300 lb (1335 N)	90 lb (400 N)	12 in. (30 cm)	9 in. (23 cm)	24 in. (60 cm)
84 – 96	0.36 in. (9.1 mm)	300 lb (1335 N)	90 lb (400 N)	15 in. (37 cm)	11 in. (28 cm)	24 in. (60 cm)

**2.5** In blown fiber cable applications, a combination of cable thrust, or pushing force, and a distributed viscous drag force from high velocity air are used to install the cable. The pushing force is applied to the cable by a set of pinch rollers or caterpillar-type tracks. Caution must be exercised to ensure that (1) the pinch rollers or tracks do not slip on the cable jacket and (2) that the applied thrust does not buckle the cable. Equipment manufacturers provide instructions to determine the proper equipment settings for use with the cable. Observe the equipment manufacturer’s instructions and calibrate the cable blowing equipment prior to the start of installation. Also observe the equipment manufacturers recommendations for the proper use and application of cable lubricants. Please see OFS IP-055, *Microcable Installation*, for further information.

**2.6** Although intended for cable jetting applications, DuctSaver FX and DuctSaver DT cables can also be used in low-tension pulling applications. Unfortunately, breakaway swivels are too large in diameter to be used in microduct; therefore, the cable must be hand pulled in these applications. Alternatively, the cable can be installed with a cable winch provided that the winch has tension monitoring and maximum-tension cutoff capabilities. If the cables are pulled into larger size innerduct or conduit, hand pulling, breakaway pulling swivels, and/or calibrated cable winches are recommended for use during installation. Cable lubricants are also recommended for cable-pulling operations.

### 3. Required Tools

The following tools and materials are recommended for use in the sheath removal procedure.

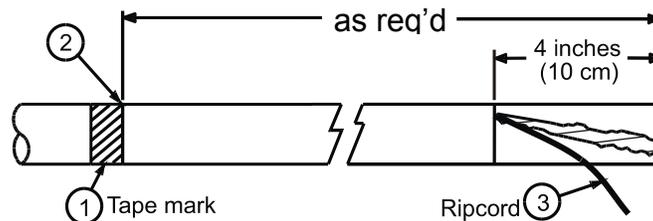
- Cable sheath knife
- Scissors
- Diagonal cutters
- Pliers
- Tape measure
- Electrical tape
- 1050A core tube entry tool (DuctSaver FX cable, 6 – 48 fibers, 6-fiber AccuRibbons)
- 1050B core tube entry tool (DuctSaver FX cable, 12 – 96 fibers, 12-fiber AccuRibbons)
- 1050C core tube entry tool (DuctSaver DT cable, 108-144 fibers)
- Lint free wipes
- Cable gel remover
- Gloves
- Safety glasses

Caution: Safety glasses and gloves should always be worn when opening and/or removing the cable sheath.

### 4. End Prep Sheath Removal

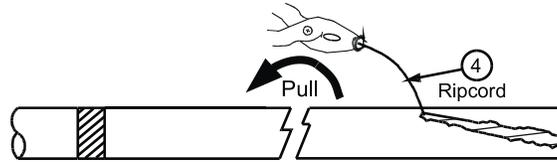
**4.1** Refer to the closure documentation to determine the required cut-back length for the cable jacket. Place a tape mark on the cable jacket at the required length. Ring cut the cable jacket at the tape mark.

**4.2** Shave off approximately 4 inches (10 cm) of the sheath at the end of the cable to locate the ripcords (Figure 1).



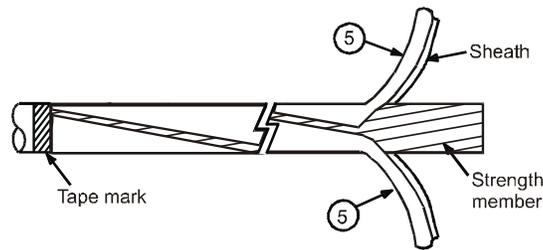
**Figure 1 – Locate the cable rip cords.**

**4.3** Wrap the rip cord around the tip of needle nose pliers and pull it through the sheath to the tape mark (Figure 2). Repeat for the second rip cord. The ripcords will spiral around the cable during removal.



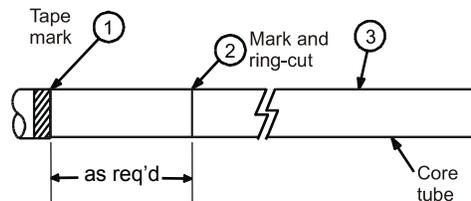
**Figure 2 – Pull ripcords through the cable sheath.**

**4.4** Separate the cable sheath and strength members from the core tube (Figure 3). Cut the strength members and the outer jacket at the tape mark and remove.



**Figure 3 - Remove the outer jacket and dielectric strength members.**

**4.5** Refer to the closure instructions to determine the length of core tube required in the closure. Mark the core tube at the appropriate location.

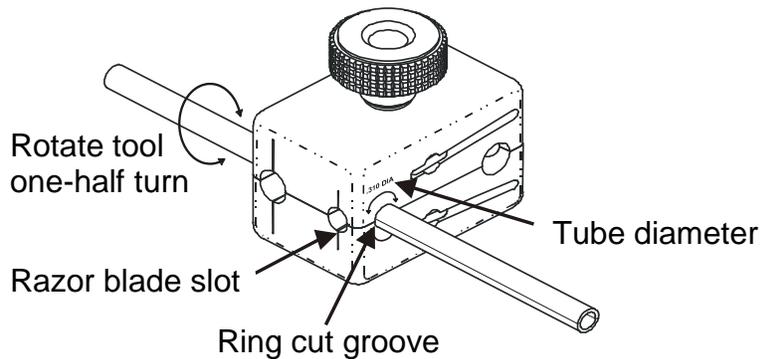


**Figure 4 – Mark core tube as required for removal.**

**4.5** Use the 1050-type tool to ring cut the core tube (Figure 5). If removing more than 5 feet of core tube, cut and remove the core tube in shorter sections. Flex the core tube at the ring cut to separate and remove from the cable. See OFS IP-054, 1050 Series Core Tube Entry Tools, for detailed information regarding the 1050-type tools.

**4.6** For DuctSaver DT cable, simply wipe the AccuRibbons using a lint free wipe moistened with isopropyl alcohol. For DuctSaver FX cables, the water blocking gel must be removed from the AccuRibbons using clean lint-free wipes and an

approved cable gel remover, e.g., HydraSol<sup>2</sup> or D-Gel<sup>3</sup>. Remove the majority of the cable gel using a dry wipe. The residual cable gel can then be removed using a clean wipe soaked with the cable gel remover. Handle the fiber ribbons with care. Do not soak the ribbons in cable gel solvents as this may dissolve the ribbon print or soften the matrix material. Please refer to OFS IP-041, AccuRibbon Cleaning Procedure, for further information.

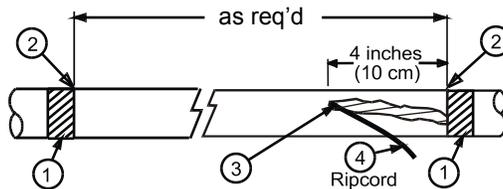


**Figure 5 – 1050-type core tube removal tool.**

## 5. Mid-Span Sheath Removal

**5.1** Refer to the closure documentation to determine the required length of cable jacket that must be removed for the mid-span splice. Mark the section of cable jacket that will be removed with vinyl tape. Ring cut the cable jacket at both tape marks.

**5.2** Shave off approximately 4 inches (10 cm) of the sheath at one of the tape marks and locate the ripcords (Figure 6). Cut the ripcords at the tape mark.

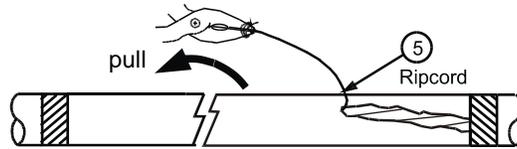


**Figure 6 – Expose and cut the ripcords.**

**5.3** Wrap the rip cord around the tip of needle nose pliers and pull each ripcord through the sheath to the opposite tape mark (Figure 7). The ripcords will spiral around the cable during removal.

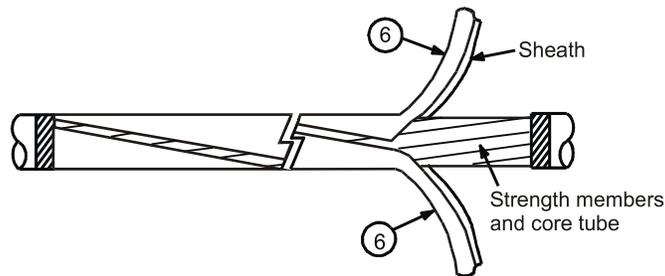
<sup>2</sup> HydraSol is a registered trademark of American Polywater Corporation, Stillwater, MN.

<sup>3</sup> D-Gel is a registered trademark of PT Technologies, Tucker, GA.



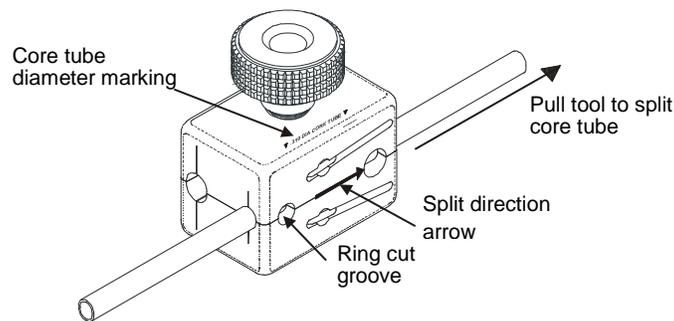
**Figure 7 – Pull ripcords through cable jacket.**

**5.4** Flex the cable at the ring cut to separate the outer jacket. Peel back the outer jacket to expose the strength members. Cut the strength members and remove the outer jacket and strength members from the core tube (Figure 8).



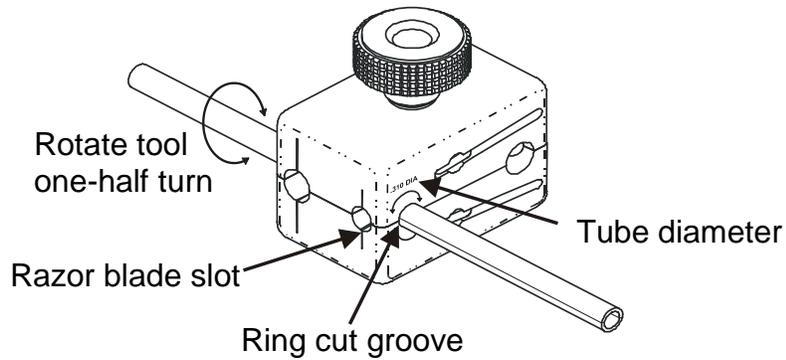
**Figure 8 - Remove the outer jacket and strength members.**

**5.5** Refer to the closure instructions to determine the length of core tube required in the closure. Mark both ends of the core tube at the appropriate location. Use the 1050-type tool to slit the core tube between the two marks (Figure 9). See OFS IP-054, 1050 Series Core Tube Entry Tools, for detailed information regarding the 1050-type tools.



**Figure 9 – Slit the core tube.**

**5.6** Ring cut the core tube (Figure 10) at the two marks and remove it from the ribbons.



**Figure 10 – Ring cut the core tube.**

**5.7** For DuctSaver DT cable, simply wipe the AccuRibbons using a lint free wipe moistened with isopropyl alcohol. For DuctSaver FX cables, the water blocking gel must be removed from the AccuRibbons using clean lint-free wipes and an approved cable gel remover. Handle the fiber ribbons with care. Do not soak the ribbons in cable gel solvents as this may dissolve the ribbon print or soften the matrix material. Please refer to OFS IP-041, AccuRibbon® Cleaning Procedure, for further information.

***For additional information please contact your sales representative. You can also visit our website at [www.ofsoptics.com](http://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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