

1. General

This document provides recommended jacket and buffer tube removal procedures for MiniXtend™ HD loose tube cables.

Nominal outside diameter	Fibre count
6.3 mm (0.25-in)	144
7.5 mm (0.30-in)	192
8.0 mm (0.31-in)	216
9.7 mm (0.38-in)	288
Fibre colouring (24 fibres in 1.7 mm diameter buffer tube)	
1-12: blue, orange, green, brown, slate, white, red, black, yellow, violet, rose, aqua	
13-24 (all with one black ring mark): blue, orange, green, brown, slate, white, red, natural, yellow, violet, rose, aqua	
Buffer tube colour coding	
blue, orange, green, brown, slate, white, red, black, yellow, violet, rose, aqua	
Outer jacket material	
High-density polyethylene (HDPE)	

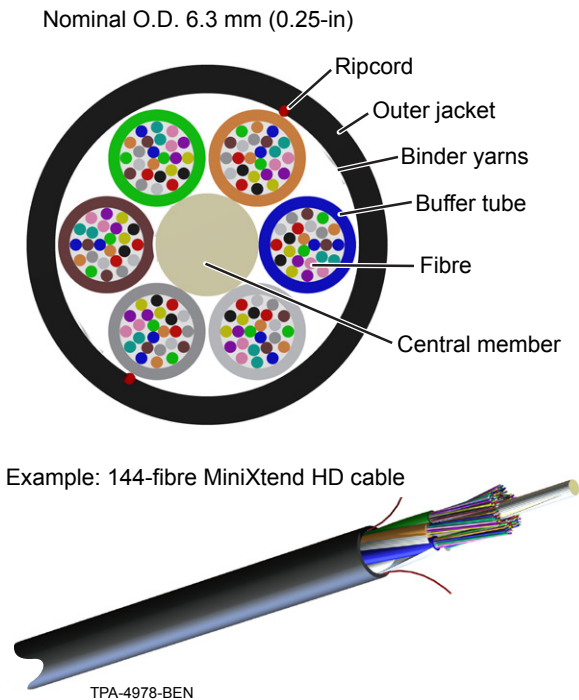


Figure 1

2. Precautions

2.1 Cable Handling Precautions

	<b>CAUTION:</b> Fibre optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend the cable more sharply 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. Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.
	<b>CAUTION:</b> This cable is intended to be jetted or blown into a microduct. If pulled ensure breakaway swivel is used that is attached with a basket grip to the central strength member (GRP). Adhere to the minimum bend radius of the cable; do not exceed the cable's specified maximum allowed installation tension.

## 2.2 Laser Handling Precautions



**WARNING: Never look directly into the end of a fibre that may be carrying laser light.**

Laser light can be invisible and can damage your eyes. Viewing it directly does not cause pain. The iris of the eye will not close involuntarily as when viewing a bright light. Consequently, serious damage to the retina of the eye is possible. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.

## 2.3 Safety Glasses



**CAUTION:** Corning recommends the use of safety glasses (spectacles) conforming to ANSI Z87 for eye protection from accidental injury when handling chemicals, cables, or working with fibre. Pieces of glass fibre are very sharp and have the potential to damage the eye.

## 2.4 Safety Gloves



**CAUTION:** The wearing of cut-resistant safety gloves to protect your hands from accidental injury when using sharp-bladed tools is strongly recommended. To minimize the chance of injury from sharp-bladed tools, always cut away from yourself and others. Dispose of used blades and armor scrap properly.

# 3. Tools and Materials

## 3.1 For Cable End Removal

The following tools and materials are required for the cable end removal sections of this procedure:

- Vinyl electrical tape (P/N 100278-01)
- Rule or tape measure (P/N 100305-01)
- Ideal® tool 45-165 (black plastic housing for 144-, 192-, and 216-fibre cable)
- Ideal tool 45-164 (large blue housing for 288-fibre cable)
- Small screwdrivers (Phillips and flat head)
- Small snips or electrician's scissors (P/N 100294-01)
- Fibre cleaning materials approved by your company
- Stripping tool for buffer tubes (Ripley/Miller 721 tool) (P/N 320600-01)

## 3.2 For Mid-span Access

In addition to the tools and materials listed in Section 3.1, the following tools are required for mid-span access:

- Sharpie® permanent marking pen (P/N 2102003-01)
- OFAT-003 tool (comes with 1.4 mm insert)
- 1.7 mm insert (P/N 81517) for OFAT-003 tool
- Seam ripper (P/N 100304-01)
- Can of compressed air

## 4. Cable End Access

### 4.1 Jacket Removal

- Step 1:** Measure approximately 3-in (7.62 cm) from the end of the cable.
- Step 2:** Use the Ideal® tool 45-165 (for 144-, 192-, or 216-fibre cable) or Ideal tool 45-164 (for 288-fibre cable) to make a ring cut by rotating the tool around the cable jacket at the 3-in point (ensure that the tool's side blade is properly adjusted so it does not damage buffer tubes) (Figure 2).

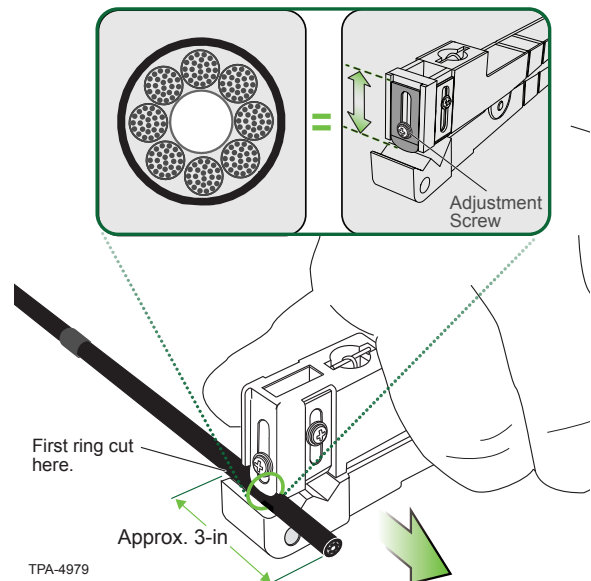
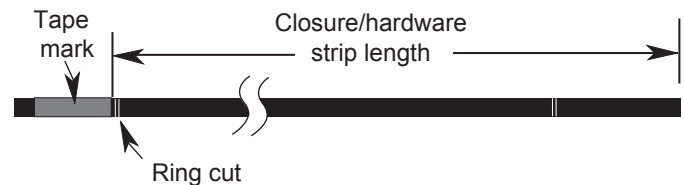


Figure 2

- Step 3:** Using the rounded blade on the end of the Ideal tool, make a longitudinal cut from the first ring cut to the end of the cable (Figure 2).



Not to scale

TPA-4937

Figure 3

- Step 4:** Based on the closure/hardware documentation being used, measure and use a wrap of vinyl tape to mark the required jacket removal length (Figure 3).
- Step 5:** Use the Ideal tool to make a second ring cut on the cable end side of the tape mark (Figure 3).
- Step 6:** With your fingers, remove the split pieces of outer jacket at the end of the cable to expose the ripcords and cable binder yarns (Figure 4).
- Step 7:** Using care, find the two ripcords. The ripcords run longitudinally down the cable and are located 180 degrees apart.

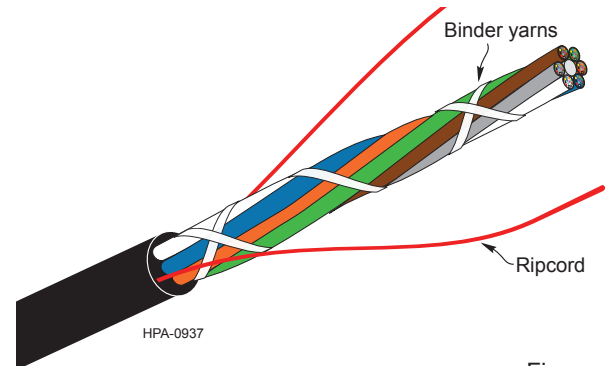


Figure 4



**CAUTION:** Do not pull the binder yarns. Pulling on the yarns, which are stranded around the cable core, may damage the buffer tubes and fibres.

- Step 8:** Wrap the end of one of the exposed ripcords around the shaft of a small screwdriver and pull it through the outer jacket until it passes through the second ring cut at the tape wrap (Figure 5).

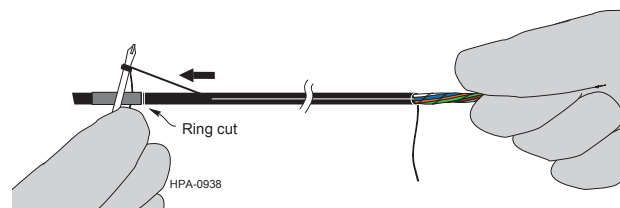


Figure 5

**Step 9:** Using caution when cutting close to the cable core, use scissors to trim off the ripcords flush at the tape wrap.



Figure 6

**Step 10:** Remove the outer jacket to expose the buffer tubes, binder yarns, and the central member (Figure 6).

**Step 11:** Unravel the yarns down to the tape wrap and snip off the yarns (use care when cutting close to the buffer tubes due to the small buffer tube size) (Figure 7).

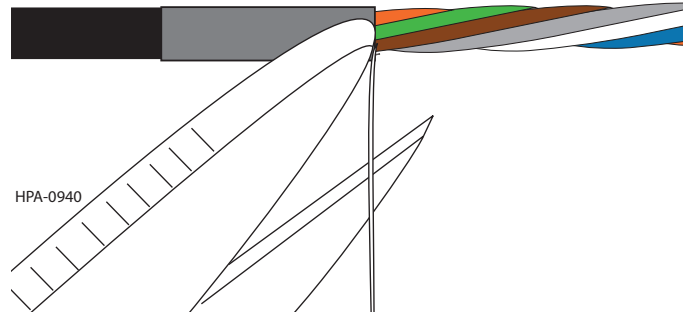


Figure 7

**Step 12:** Unwind and separate the buffer tubes from the central member. Cut the central member to the appropriate length for strain-relief in the hardware (Figure 8).

**Step 13:** For cable strain-relief hardware which clamps onto the jacket, place three layers of vinyl tape over the area where clamps make contact with the jacket (Figure 8).

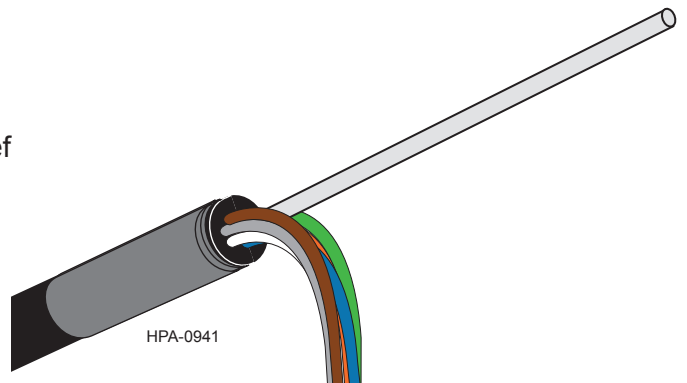


Figure 8

**Step 14:** Load the cable in the respective hardware/closure.

## 4.2 Buffer Tube Removal

**NOTE:** If you are unfamiliar with using the Ripley/Miller 721 tool to score buffer tubes, Corning recommends practicing Section 4.2 on a small length of scrap tubing to develop the correct technique.

**Step 1:** Insert the buffer tube into the 1.3 mm opening of the Ripley/Miller 721 tool (Figure 9) approximately 18 in (45 cm) from the end of the tube as shown in Figure 10.

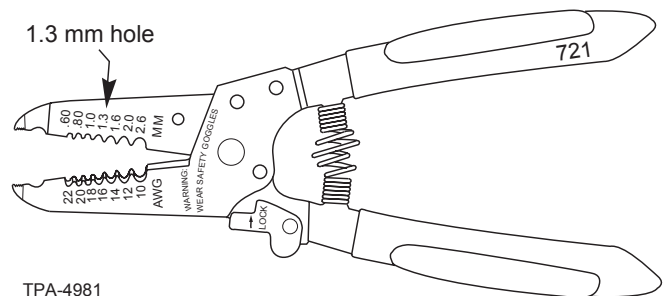


Figure 9

- Step 2:** Close the tool over the buffer tube and squeeze the tool shut to score the tube. Open and remove the tool from buffer tube.

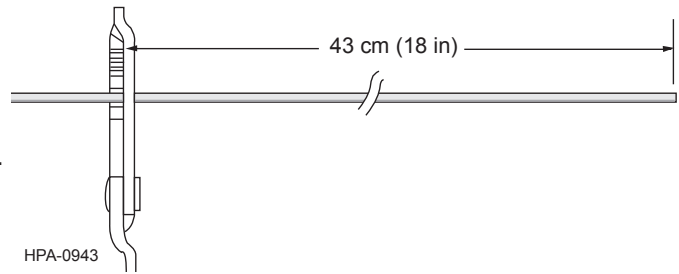


Figure 10



**CAUTION:** Do NOT use the tool to slide the tube from the fibres. This process can damage and break the fibres.

- Step 3:** Snap the buffer tube at the score mark by hand and carefully slide the severed section of buffer tube off the fibres (Figure 11).
- Step 4:** Repeat Steps 1 through 3 to expose the appropriate length of fibre for the splice tray.
- Step 5:** Clean the fibres with tissue and prepare them for splicing.

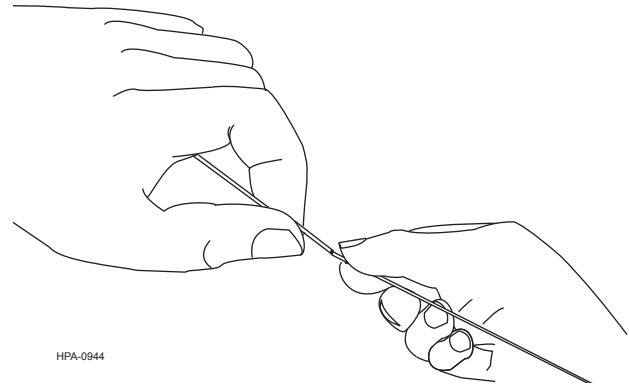


Figure 11

## 5. Mid-span Access

### 5.1 Mid-span Jacket Removal

- Step 1:** Identify the location to access the jacket for mid-span cable entry (typically 15-ft in length) and mark each end with a wrap of tape (Figure 12).

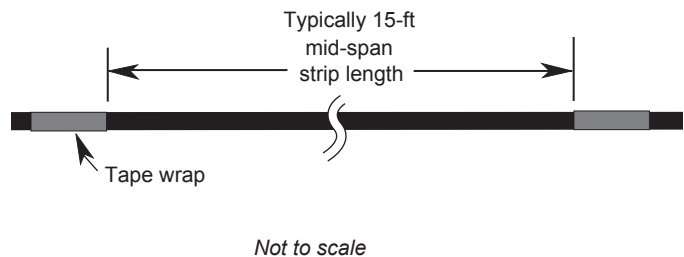


Figure 12

**IMPORTANT:** The Ideal® tool must be calibrated on a scrap piece of cable.

- Step 2:** Use the Ideal tool to make the first ring cut at one of the tape marks.
- Step 3:** Measure 6 in (15.25 cm) from the first ring cut (on the same side of the tape) and make a second ring cut at that point (Figure 13).

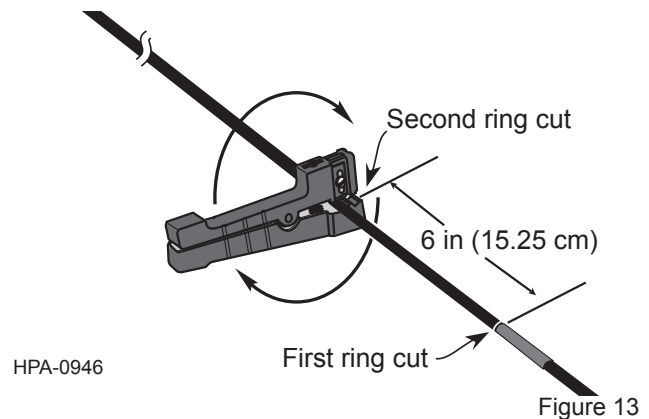


Figure 13

**Step 4:** Use the end of the Ideal® tool with a rounded blade installed and make a longitudinal cut between the first and second ring cuts made in Step 3 (Figure 14).

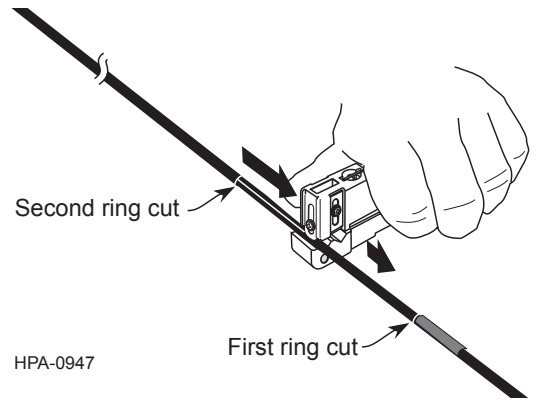


Figure 14

**Step 5:** With your fingers, remove the 6 in (15.25 cm) section of outer jacket to access the ripcords and yarns (Figure 15).

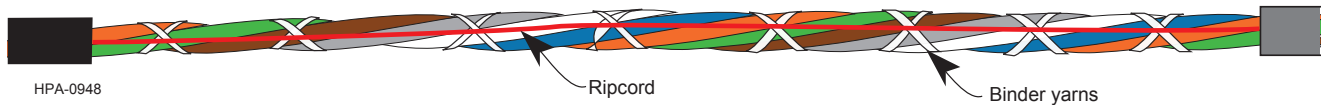


Figure 15

**Step 6:** Use the Ideal tool to make a third ring cut inboard of the tape wrap on the other end of the strip length.

**Step 7:** Using care, find the two red ripcords. The ripcords run longitudinally down the cable and are located 180 degrees apart. Using snips, cut the ripcords at the first ring cut to maximize the length of the ripcord for jacket removal.

**Step 8:** Wrap the end of one of the exposed ripcords around the shaft of a small screwdriver and pull it through the outer jacket until it passes through the third ring cut at the tape wrap (Figure 16).

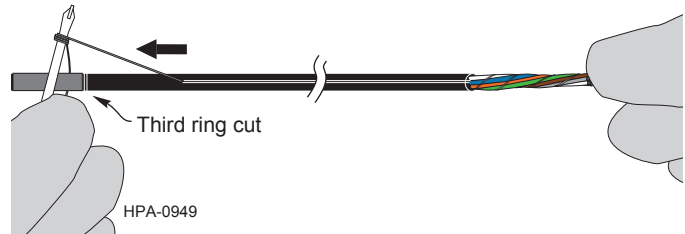


Figure 16

**Step 9:** Remove the outer jacket to expose the cable core.

**Step 10:** Using the seam ripper, cut the binder yarns every few inches (Figure 17). Remove the yarns from around the buffer tubes and carefully trim the yarns flush at the tape wraps.

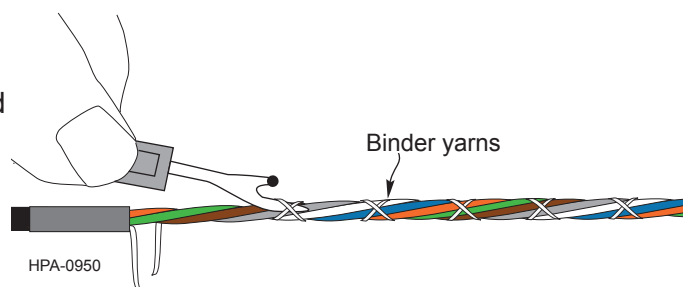


Figure 17

**Step 11:** Separate the buffer tubes from the central member. Cut the central member at each end of the mid-span (near the tape marks) to the appropriate length for strain-relief. If you will be installing cable strain-relief hardware that clamps into the jacket, place three layers of vinyl tape over the area where the clamps will make contact with the jacket. (Figure 18).

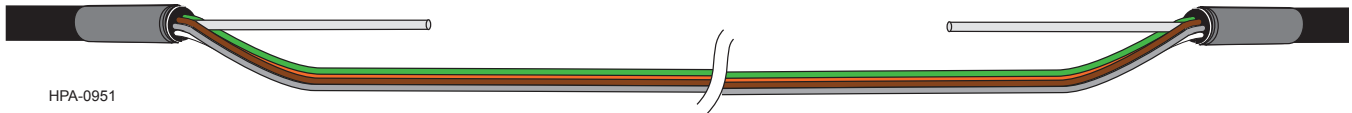


Figure 18

**Step 12:** Load the cable in the respective hardware/closure using care not to damage the buffer tubes.

## 5.2 Mid-span Buffer Tube Access

**Step 1:** To mid-span a buffer tube, separate and ensure there is adequate working room for the process.

**Step 2:** Use a permanent marking pen to mark the tube(s) with both start and end points to indicate the length of buffer tube to be opened (Figure 19). The length of opening is dependent on the installation, tray requirements, and the available fibre needed for splicing and routing.

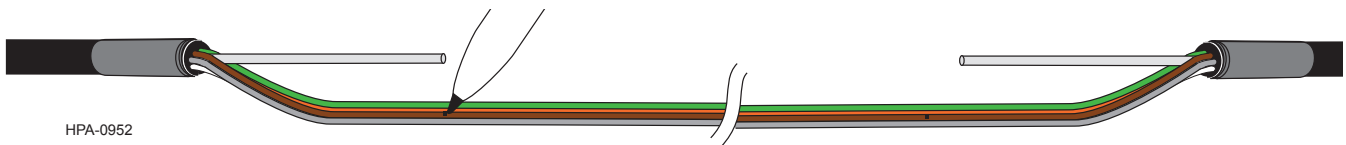


Figure 19

**Step 3:** To use the OFAT-003 tool from Corning to access a buffer tube:

- a. Unlatch the locking lever and open the tool. Note where the leading edge of the blade will make contact with a buffer tube placed in the metal holder (Figure 20).

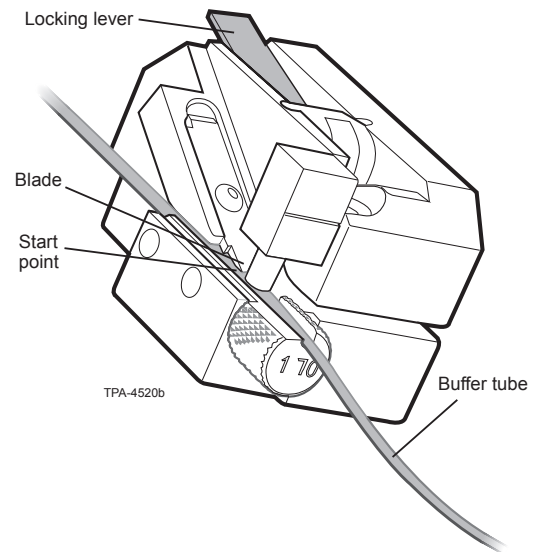


Figure 20

**NOTE:** Clean the OFAT-003 tool after each use.  
Use compressed air can commonly used for computers to blow out any residual materials.



- b. Place the required buffer tube in the holder's slot, lining up the buffer tube's starting point mark with the blade contact point (Figure 21).

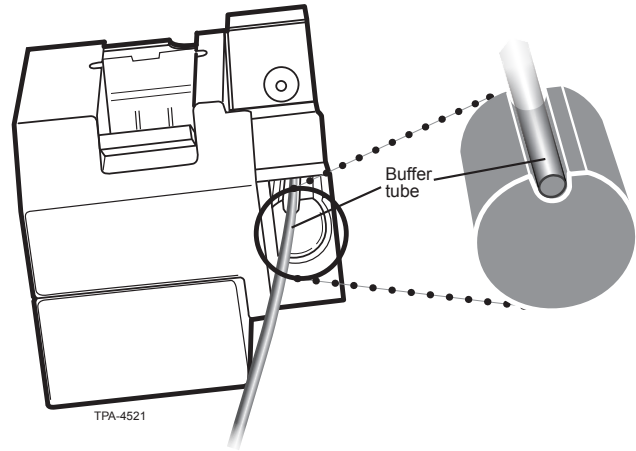


Figure 21

- c. Squeeze the tool manually with your hands and maintain pressure. Slide the tool backward slightly to ensure the buffer tube is correctly inside the groove. Rotate the locking lever to lock the tool.
- d. Pull the tool as shown in Figure 22 to shave off the top of the tube and gain access to the fibres (refer to the marks on the buffer tube as required).

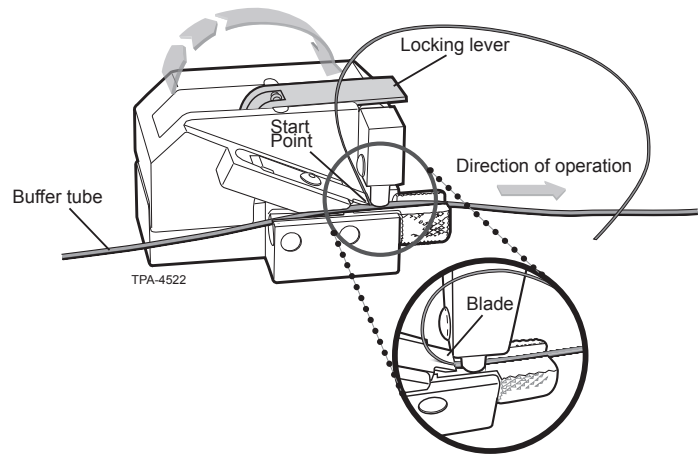


Figure 22

- Step 4:** Unlock the tool by rotating the locking lever. Remove the buffer tube from the holder slot. Carefully trim the buffer tube shavings from the now-accessed tube.
- Step 5:** Retrieve the required fibres for splicing (Figure 23).
- Step 6:** Clean the fibres (up to 24 fibres) and prepare them for splicing according to your splice plan.

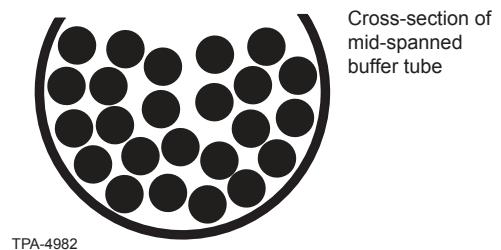


Figure 23