



A Furukawa Company

Your Optical Fiber Solutions Partner™

## Crimp & Cleave Termination Instructions

for 200  $\mu\text{m}$  Factory5 Cable with ST and SMA Connectors



### For Use With:

200  $\mu\text{m}$  ST and SMA Factory5  
Termination Kits

200  $\mu\text{m}$  HCS® Factory5 Fiber-Optic Cable

ST and SMA Factory5 Crimp & Cleave  
Connectors

# Important Safety and Warranty Information

---

## Please Read First

Please make sure to **READ** and understand termination instructions completely. Improper assembly will cause poor termination results and cause damage to termination kit components.

Make sure you **WEAR** eye protection during the cleaving process. The bare fiber is sharp and may splinter; handle very carefully. Make sure fiber is disposed of properly, in a hard-sided container.

OFS Specialty Photonics Division **WARRANTS** this termination kit to be free of defects for a period of 90 days from the date of purchase. Each kit is qualified at our factory prior to shipment. OFS Specialty Photonics Division will, at their discretion, repair or replace any tools found to be defective due to workmanship within the stated warranty period. (Excludes damage to the fiber stripper, cleave tool, and/or diamond blade due to misuse.)

OFS Specialty Photonics Division recommends that all replacements or repairs be made at our manufacturing facility, except where specifically outlined. Please **CONTACT** the sales representative in your region or call the factory for technical support:

Monday-Friday, 8:00 am-5:00 pm EST.

**888-438-9936** [Toll free in the US and Canada]

**860-678-0371** [International]

# Table of Contents

Content	Page	Content	Page
Factory5 ST and SMA Termination Kit Contents . . . . .	1	<b>Maintenance &amp; Trouble Shooting Guide</b>	
Related Products and Accessories . . . . .	2-3	Importance of Cleave Tool Cleaning and Maintenance . . . . .	24
Factory5 ST and SMA Connectors . . . . .	4	Cleave Tool Cleaning Kit . . . . .	24
		Diamond Blade Replacement Kit. . . . .	24
		Trouble Shooting Guide. . . . .	25
		Termination and Test Kits Available . . . . .	26
<b>Termination Instructions</b>		Trademark Information . . . . .	Back Cover
Step 1: Install strain relief boot . . . . .	5		
Step 2: Strip cable outer jacket . . . . .	6-7		
Step 3: Strip sub-unit outer jacket . . . . .	8-9		
Step 4: Strip fiber buffer . . . . .	10-11		
Step 5: Install cable anchor . . . . .	12		
Step 6: Install crimp sleeve . . . . .	13-14		
Step 7: Install ferrule . . . . .	15		
Step 8: Crimp ferrule . . . . .	16-18		
Step 9: Cleave fiber . . . . .	19-21		
Step 10: Position strain relief boot . . . . .	22-23		
Diamond Cleave Tool Diagram. . . . .	19		

# Factory5 ST and SMA Termination Kit Contents

## Contents

Part Numbers	Description
DT03732-39 . . . . .	200 $\mu$ m Factory5 SMA Termination Kit
DT03732-40 . . . . .	200 $\mu$ m Factory5 ST Termination Kit
P18225 . . . . .	200 $\mu$ m Factory5 ST/SMA Instruction Booklet
DT03732-05 . . . . .	SMA 200 $\mu$ m Diamond Cleave Tool (Green Spring)
DT03732-06 . . . . .	ST 200 $\mu$ m Diamond Cleave Tool (Green Spring)
AP01224 . . . . .	Cable Stripper
BT03865-03 . . . . .	Crimp Tool (Red Handles)



Termination kit contents continues onto the next page ▶

## ST and SMA Termination Kit Contents continued

---

CP01229-02 . . . . .	200 $\mu$ m Fiber Stripper (White Blade Insert) with Cleaning Brush and Prong Tool
AP01225 . . . . .	Scissors
K16248 . . . . .	Booklet: Importance of Cleave Tool Cleaning and Maintenance

 *Other Items Required (not included in kit): Safety Glasses, Marker*

## Related Products and Accessories Sold Separately

Part Numbers	Description
BT01827	SMA Positioner Plate (use to convert an ST kit to an SMA kit)
BT01900	ST Positioner Plate (use to convert an SMA kit to an ST kit)
P10188-03	Insertion Loss Test Kit for 200 $\mu\text{m}$ ST Connectors
P10188-05	Insertion Loss Test Kit for 200 $\mu\text{m}$ SMA Connectors
P10188-08	Insertion Loss Test Kit for 200 $\mu\text{m}$ ST, SMA, V-Pin, and F07 Connectors
P16247	Cleave Tool Cleaning Kit (Includes cleaning fluid and safe cleaning swabs)
AT03290	Diamond Blade Replacement Kit

### NOTE:

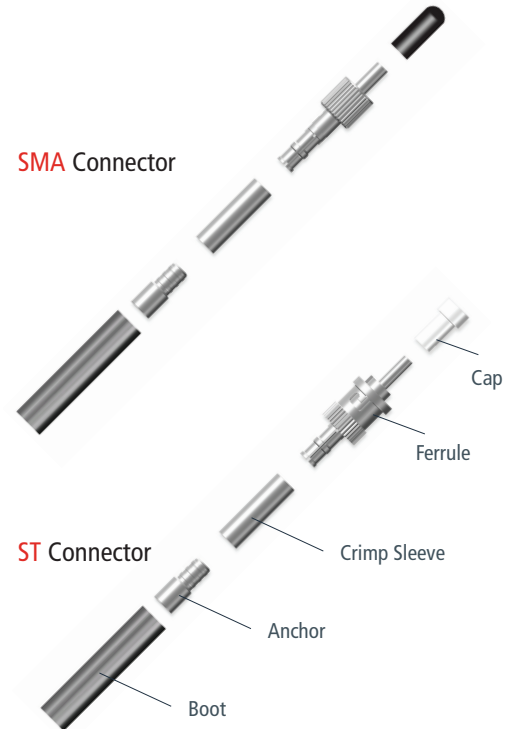
Only one component part replacement is required to convert an ST Termination Kit to its same size equivalent SMA Termination Kit and vice versa.

**Termination kit contents  
continues onto the next page** 

## Related Products and Accessories Sold Separately - continued

### Factory5 ST and SMA Connectors

Description	Part Numbers
SMA Connectors .....	P18241
ST Connectors .....	P18242



# Termination Instructions

---

## STEP 1

### Install Strain Relief Boot

---

- Slide STRAIN RELIEF BOOT onto cable and move up and out of the way for easy stripping.



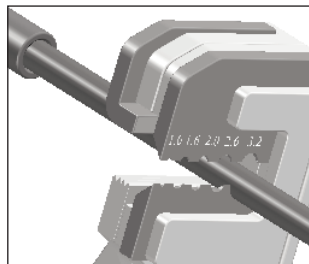


## Termination Instructions

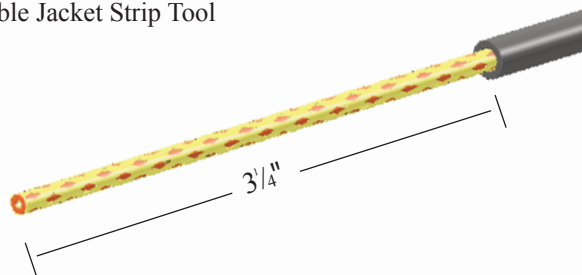
### STEP 2

#### Strip Cable Outer Jacket

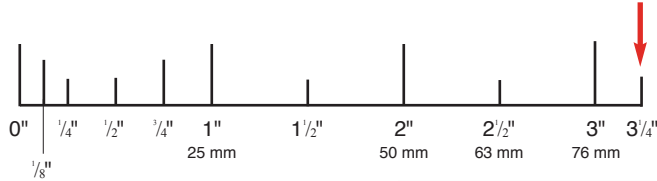
- Mark cable outer jacket  $3/4$  inches from the end with a marker.



- Select the 3.2 hole on the Cable Jacket Strip Tool to strip Cable Outer Jacket



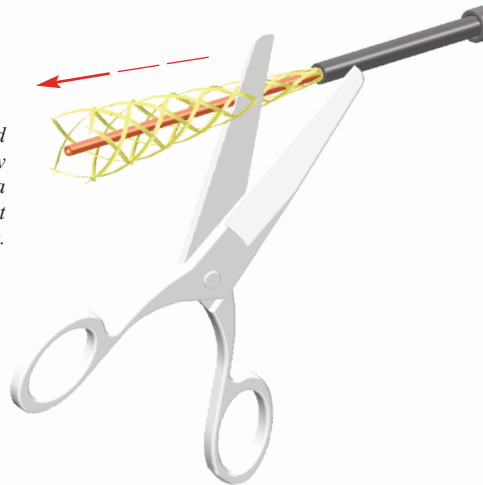
- Verify proper strip length against the strip template shown below.



- Carefully unravel the aramid braid with a pointed instrument.

*Slide scissors or other pointed object in this direction, carefully unravelling as many yarns at a time as is manageable without creating a knot.*

- When the yarns are unravelled, cut them as closely to the cable outer jacket as possible.



## Termination Instructions

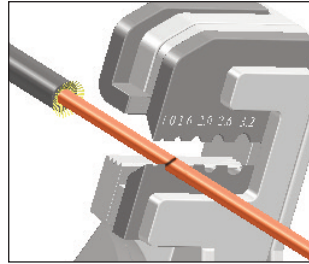
---

### STEP 3

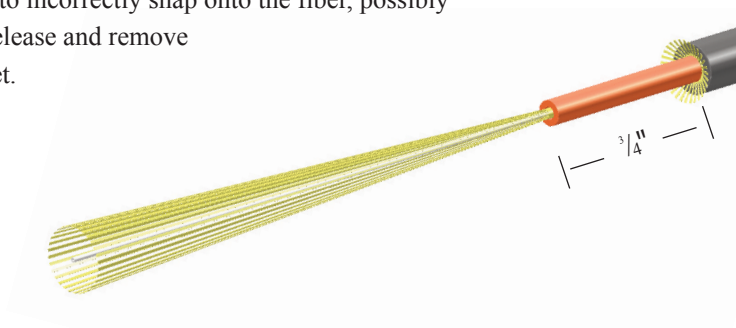
#### Strip Sub Unit Jacket

---

- Mark sub unit jacket 3/4 inches away from the cable outer jacket with a marker.



- Strip jacket using the 1.6 hole using the CABLE JACKET STRIP TOOL, apply a quick-but-partial squeezing action (fully compressing the handles will cause the tool to incorrectly snap onto the fiber, possibly breaking it), release and remove the outer jacket.



- Verify proper strip length against the strip template shown on page 7.

## Termination Instructions

### STEP 4

#### Strip Fiber Buffer

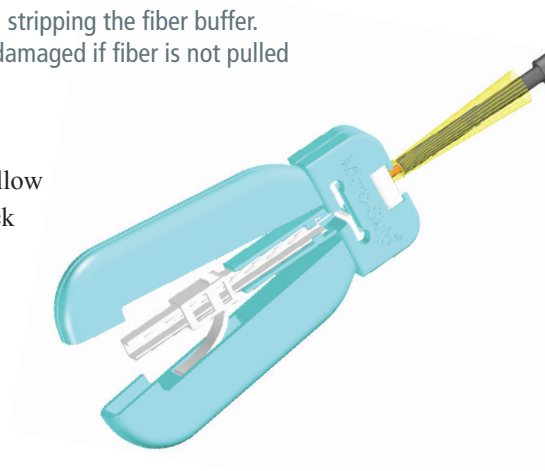
##### **!** Before you start:

Be careful while handling the FIBER STRIPPER. Handle as a precision device and do not strike on hard surfaces or drop.

Be sure to clean blades frequently using small bristle brush supplied.

**IMPORTANT:** Pull straight when stripping the fiber buffer. The HCS fiber cladding can be damaged if fiber is not pulled straight.

- Separate buffered fiber from yellow aramid yarn by pulling yarn back along the cable.



##### **NOTE:**

If unable to insert buffered fiber through guide tube, trim tip of the fiber using scissors.

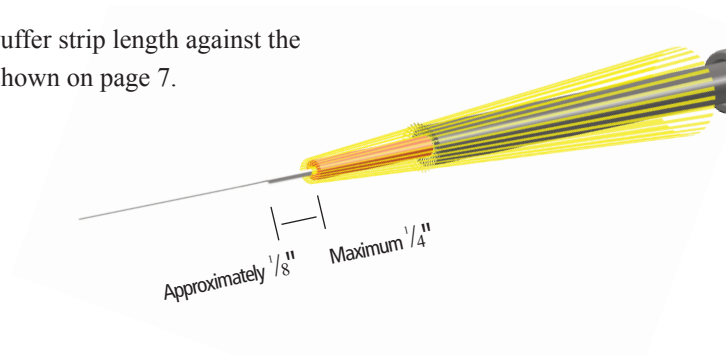
##### **NOTE:**

If a short length of cable is being terminated, wrap the cable around your hand to prevent fiber and aramid yarn from pulling out of cable.

##### **NOTE:**

Be careful not to touch the HCS fiber coating once the fiber has been stripped. The coating will retain finger oils which can transfer to and damage the gripper pads in the cleaver during Step 9 in the termination process.

- Insert the buffered fiber through the guide tube of the fiber stripper until the sub unit outer jacket bottoms out inside the tube.
- Holding cable securely, squeeze handles to cut buffer and **PULL STRAIGHT** to remove buffer.
- Inspect HCS cladding for damage from improper buffer stripping. (i.e. white dusty stripe)
- Verify proper buffer strip length against the strip template shown on page 7.



**NOTE:**

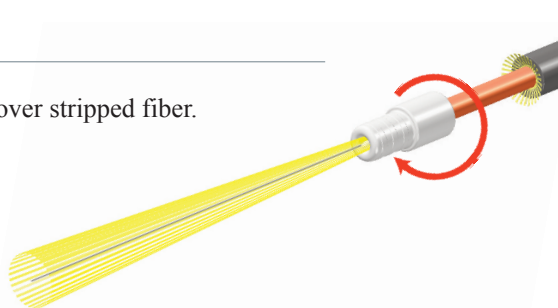
If damage is visible cut off the damaged fiber and repeat the procedure from Step 2: Strip Cable Outer Jacket.

## Termination Instructions

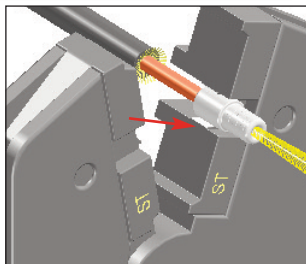
### STEP 5

#### Install Cable Anchor

- Pull aramid yarn strands back over stripped fiber.



- Holding aramid yarn and fiber at very top. Feed the fiber and the aramid yarn through the CABLE ANCHOR. Bottom out the anchor on the cable sub-unit outer jacket using a clockwise turning motion. (i.e. screw the anchor onto the cable outer jacket, if necessary)



- Position anchor in CRIMP TOOL, centering the rear end of the anchor in the crimp nest.
- Squeeze crimp tool handles together until it clicks, then releases.

#### NOTE:

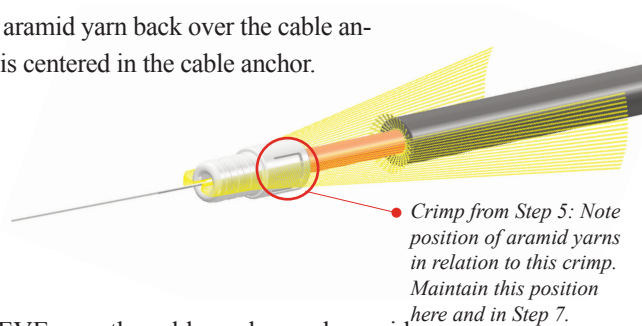
Be careful not to touch the HCS fiber coating once the fiber has been stripped. The coating will retain finger oils which can transfer to and damage the gripper pads in the cleaver during Step 9 in the termination process.

## STEP 6

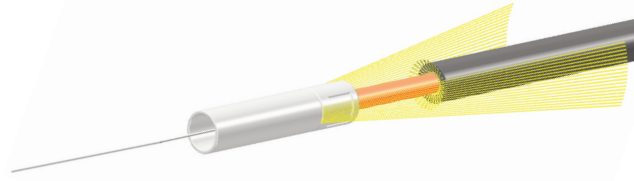
### Install Crimp Sleeve

---

- Divide the aramid yarn into approximately two equal halves.
- Fold both halves of the aramid yarn back over the cable anchor. Be sure the fiber is centered in the cable anchor.



- Slide the CRIMP SLEEVE over the cable anchor and aramid yarn until it bottoms out on the cable anchor.



Step 6 continues  
onto the next page ➡



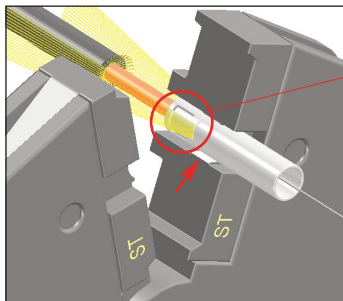
## Termination Instructions

### STEP 6

#### Install Crimp Sleeve continued

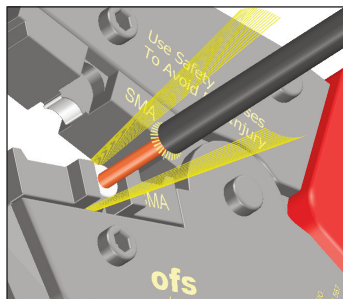
- Position the crimp sleeve in the CRIMP TOOL such that:

~ The back edge of the crimp sleeve is aligned with the edge of the crimp nest.



• *Crimp from Step 5: Note that the orientation of aramid yarns is maintained in relation to the jaws of the crimp tool.*

~ The aramid yarn halves are positioned over the jaws.



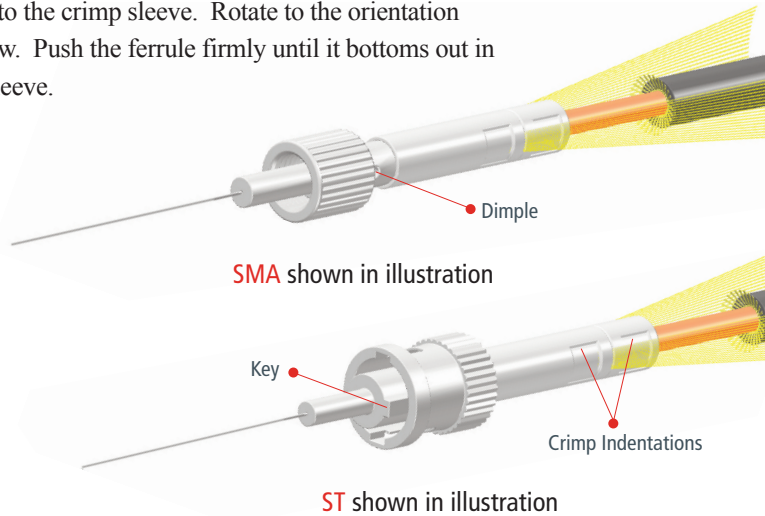
- Squeeze crimp tool handles together.

## STEP 7

### Install Ferrule

---

- Feed fiber through hole in rear of FERRULE.
- Slide the ferrule for either SMA or ST connector down the fiber and into the crimp sleeve. Rotate to the orientation shown below. Push the ferrule firmly until it bottoms out in the crimp sleeve.



## Termination Instructions

---

### STEP 8

#### Crimp Ferrule

---



##### **Before you start:**

Make sure the ferrule is fully seated in the crimp sleeve.

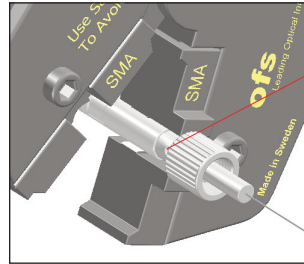
Check to make sure the crimp die set is stamped properly for the connector type, 'SMA' on one side and 'ST' on the other.

Proper positioning of the connector in the die set is critical for a proper crimp location. Failure to crimp in the prescribed location will result in poor connector retention strength.

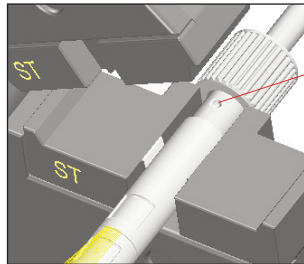
Crimp dies can be reversed at the factory for left-handed operators.

## SMA Connector

- Position the back of the SMA COUPLING NUT against the side of the crimp die set stamped 'SMA' as shown.
- Rotate the SMA connector so that its location dimple is oriented in the crimp die set as shown.
- Squeeze CRIMP TOOL handles together until the tool releases.



Location dimple



Location dimple

Step 8 continues  
onto the next page ➡

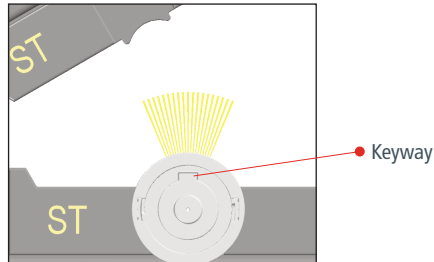
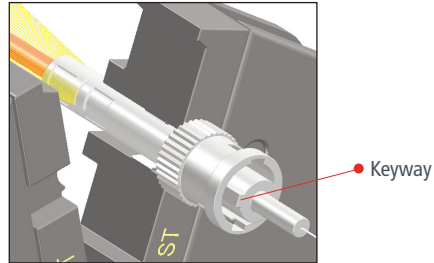
## Termination Instructions

### STEP 8

#### Crimp Ferrule continued

##### ST Connector

- Position the back of the ST COUPLING NUT against the side of the crimp die set stamped 'ST'.
- Rotate the ST connector so that its key is oriented in the crimp die set as shown.
- Squeeze CRIMP TOOL handles together until the tool releases.



## STEP 9

### Cleave Fiber

#### ! Before you start:

Make sure the appropriate cleave tool positioner plate is being used: **SMA** or **ST**

Make sure the appropriate colored tension spring is being used:  
**200  $\mu\text{m}$  = GREEN**

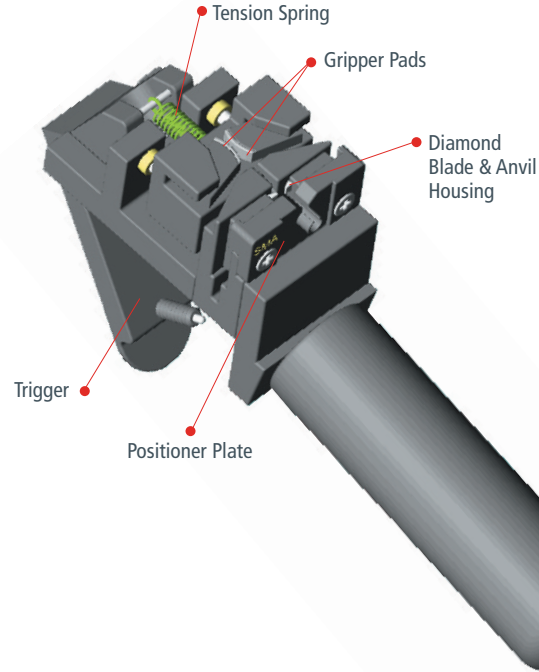
Refer to diagram of the Cleave Tool.

Careful while handling the Cleave Tool. Handle as a precision device and do not strike on hard surfaces or drop.

Keep the cleave tool clean and free from oils, including naturally occurring finger oils. Gripper pads, diamond blade and anvil should be cleaned after every 50 cleaves. Use the OFS Cleave Tool Cleaning Kit — Part #P16247 - available separately.

Do not use alcohol to clean the diamond blade or the gripper pads. Alcohol will chemically react with the gripper pads and ruin them.

Do not insert metal tools near the diamond blade, as it is fragile and may chip.



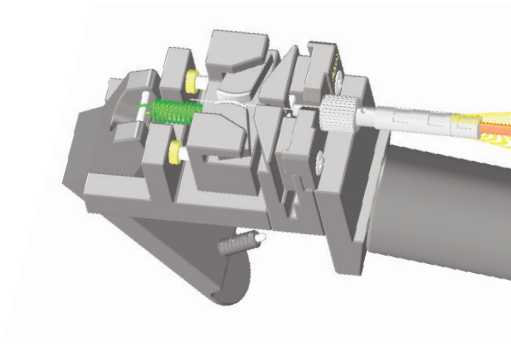
Step 9 continues onto the next page ▶

## Termination Instructions

### STEP 9

#### Cleave Fiber continued

- Holding the CLEAVING TOOL in a horizontal position, grip the handle while leaving your index finger free to actuate trigger.



- Place the ferrule into the hole of the positioner plate until it is fully inserted.
- Release the connector in the tool.

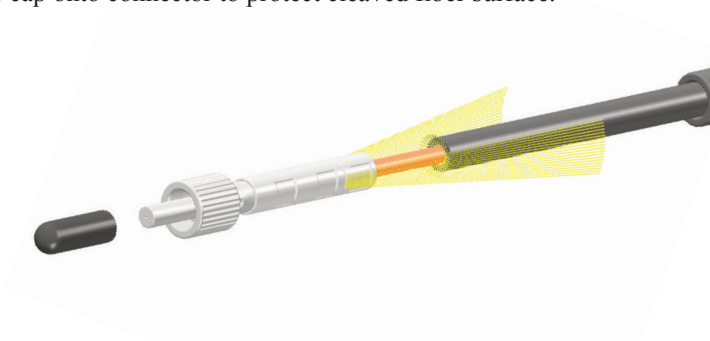
#### NOTE:

It is critical to fully insert the connector into the positioner plate. Failure to do so, may cause poor cleave quality and/or damage to the diamond blade.

#### NOTE:

Do not hold onto the connector during the cleave process. Doing so may cause poor cleave quality.

- Using index finger, slowly and gently depress trigger to perform the cleave process. The cleave process is complete when the fiber snaps away from the connector. Do not release trigger!
- Before releasing the trigger, remove the connector from the cleave tool and grasp the top of the scrap fiber while releasing the trigger. Gently remove the scrap fiber while keeping it away from the diamond blade.
- Dispose of scrap fiber safely in a hard-sided container.
- Install protective cap onto connector to protect cleaved fiber surface.





## Termination Instructions

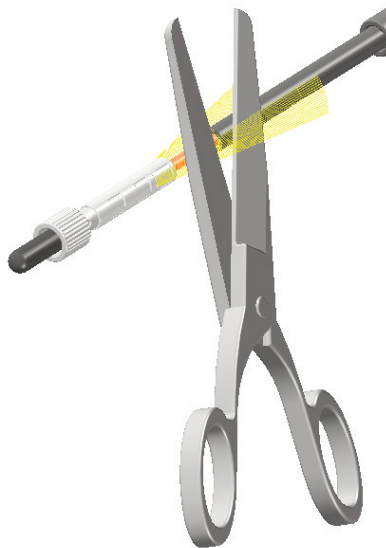
---

### STEP 10

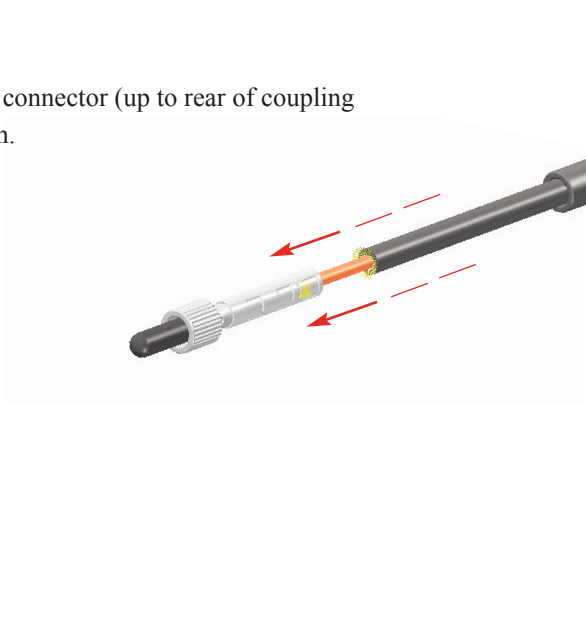
#### Position Strain Relief Boot

---

- Using scissors, trim exposed aramid yarn as close to crimp sleeve as possible.



- Slide strain relief boot onto connector (up to rear of coupling nut) to complete termination.



## Maintenance & Trouble Shooting Guide

---

### Importance of Cleave Tool Cleaning and Maintenance

The Cleave Tool supplied with OFS's Termination Kits contains movable parts, wear items, and a diamond blade that require regular maintenance, care, or replacement after useful life in order to perform satisfactorily. Damage and parts replacement expense can result if recommended procedures are not followed.

- ~ The diamond blade must be cleaned; the gripper pads must be cleaned, kept oil-free, and replaced after wear.
- ~ The cleave-tool trigger must be depressed slowly.

### Cleave Tool Cleaning Kit

For cleaning your cleave tool, please order the OFS Cleave Tool Cleaning Kit (part #P16247) which includes recommended cleaning fluid, swabs, and complete instructions.

### Diamond Blade Replacement Kit

For replacing the diamond blade/anvil assembly, please order the Diamond Blade Replacement Kit (Part #AT03290.) The kit includes a new diamond blade, anvil, replacement screws, and complete instructions for performing this simple procedure at your facility.

## Trouble Shooting Guide

Problem	Dim-light termination/ no light termination	Poor cleave quality / High insertion loss	Fiber does not cleave	Fiber protrudes or recesses after cleave
Possible Explanations	<p>Improper strip technique <i>Refer to Steps 2 - 4</i></p> <p>Improper crimp position <i>Refer to Steps 5 - 8</i></p>	<p>Improper crimp position <i>Refer to Steps 5 - 8</i></p> <p>Improper cleave techniques <i>Refer to Step 9</i></p> <p>Incorrect tooling for fiber size or connector type <i>Refer to Page 1</i></p> <p>Diamond blade needs to be cleaned or replaced <i>Refer to Page 23</i></p> <p>Gripper pads worn and need to be replaced <i>Call Tech Support to place a purchase order for service.</i></p>	<p>Fiber has not been first thoroughly stripped <i>Refer to Step 4</i></p> <p>Improper cleave techniques <i>Refer to Step 9</i></p> <p>Incorrect tooling for fiber size or connector type <i>Refer to Page 1</i></p> <p>Diamond blade needs to be cleaned or replaced <i>Refer to Page 23</i></p> <p>Gripper pads worn and need to be replaced <i>Call Tech Support to place a purchase order for service.</i></p>	<p>Improper crimp position <i>Refer to Steps 5 - 8</i></p> <p>Improper cleave techniques <i>Refer to Step 9</i></p> <p>Incorrect tooling for fiber size or connector type <i>Refer to Page 1</i></p> <p>Gripper pads worn and need to be replaced <i>Call Tech Support to place a purchase order for service.</i></p>

## Termination and Test Kits Available

---

OFS offers a specialized Termination Kit—and associated Insertion Loss Test Kit—for each type of Crimp & Cleave connector we support. These kits are available in various combinations of sizes and/or connector types. Customer Relations at our factory can help you select the correct kit for your purposes.

This document is for informational purposes only and is not intended to modify or supplement any OFS warranties or specifications relating to any of its products and services.

Copyright © 2013 OFS Fitel, LLC.  
All Rights Reserved.

0113



55 Darling Drive, Avon, CT 06001

**To learn more, please call or visit our website.**

Phone: **1 860 678 0371**

Toll Free: **1 888 438 9936**

Email: **Info@SpecialtyPhotonics.com**

Web: **www.SpecialtyPhotonics.com**

**P18225 Rev. D**

## **Trademark Information:**

Manufactured in the USA by OFS Specialty Photonics Division.

HCS is a registered trademark in the USA of OFS Fitel, LLC.