



SpecPro™

Bare Fiber/Connector Polisher

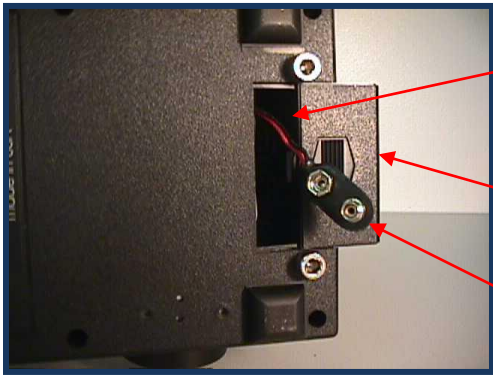


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SPECPRO™ SET-UP AND MAINTENANCE

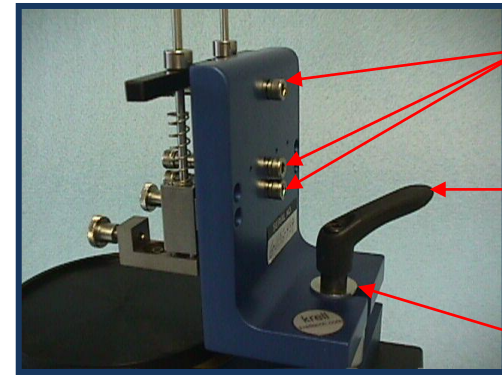


Battery Compartment
Battery Cover
Battery Clip

Step 1: Power SpecPro™ with either its AC adapter or a 9 volt battery. **WARNING: USE ONLY THE AC ADAPTER SUPPLIED BY KRELL.**

FOR SAFE OPERATION

- Use only Krell AC adapter
- Keep hands away from all moving parts
- Do not use excessive water during operation
- Do not operate with loose clothing, ties, jewelry, etc.

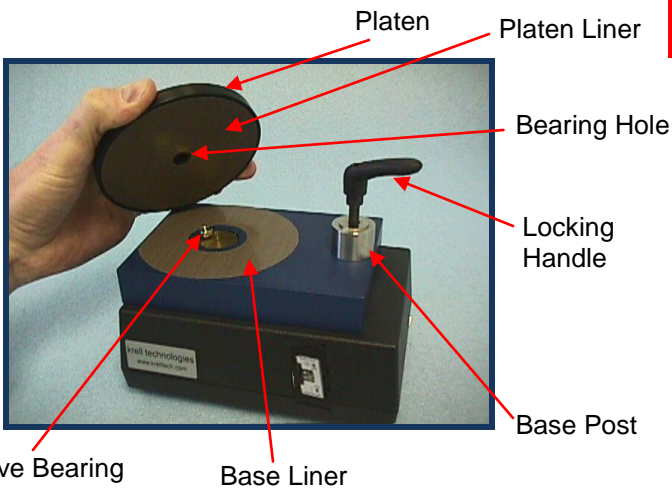


Pressure Pins*
Locking Handle
Washer

Step 3: Engage workholder with base post. Make sure the washer sits between locking handle and workholder. Align workholder square with polisher and lock.

*New generation SpecPros use pairs of pins to maintain pressure.

TO STOP POLISHER, DEPRESS THE POWER SWITCH

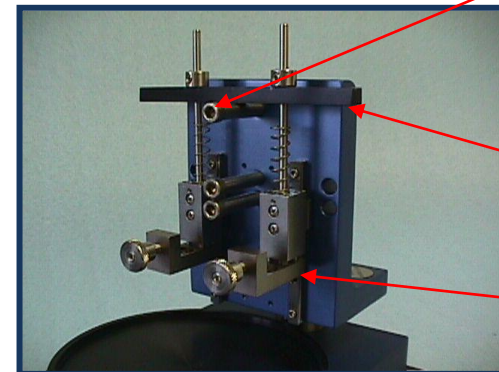


Platen
Platen Liner
Bearing Hole
Locking Handle
Base Post

Step 2: Place platen on base plate making sure it sits upon the drive bearing

MAINTENANCE

- Always disconnect AC adapter during maintenance
- Replace platen and base liners approximately every 200 hours of operation
- Keep all surfaces dry and clean between polishing sessions
- Clean connector positions with supplied brush



Upper Pin
Pressure Bar
Connector Positions

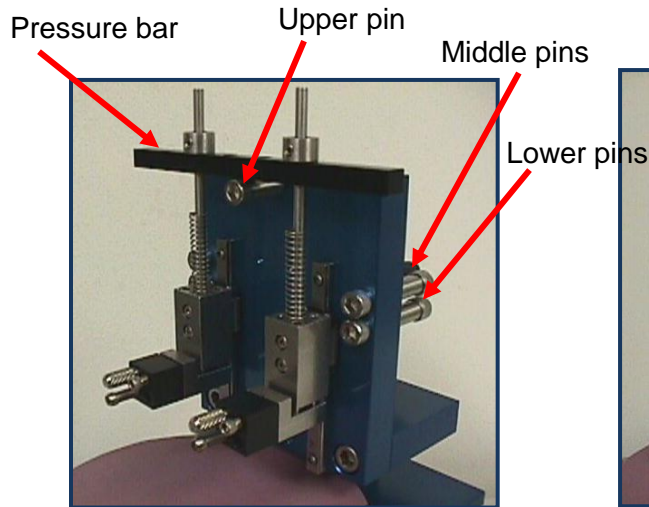
Step 4: Lift connector positions upward using the pressure bar. Slide upper pin beneath bar to hold.



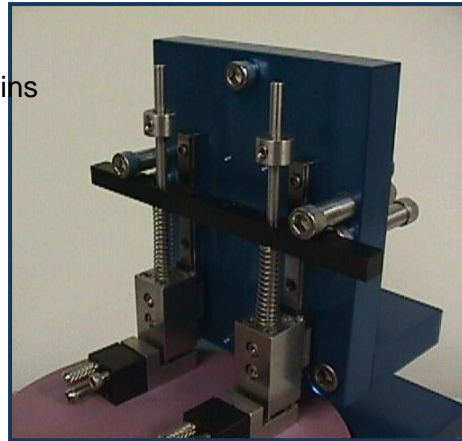
Dial Timer

Power and Emergency Stop Switch

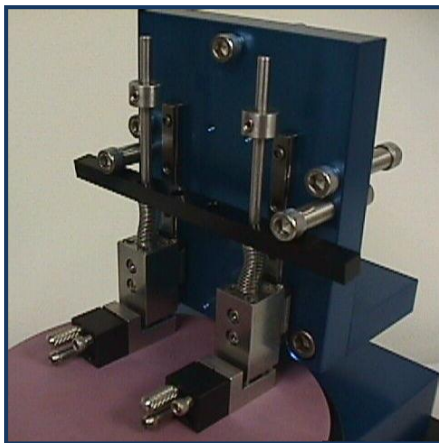
SPECPRO²™ POLISHER BASIC OPERATION



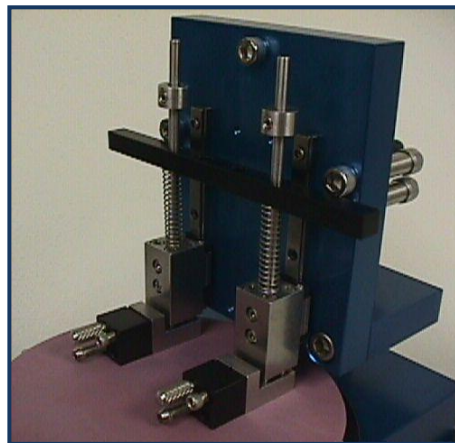
Rest the pressure bar atop the uppermost pin when changing polishing films, or performing video inspection.



Low Pressure Setting: While compressing springs, slide the middle pin set over pressure bar.

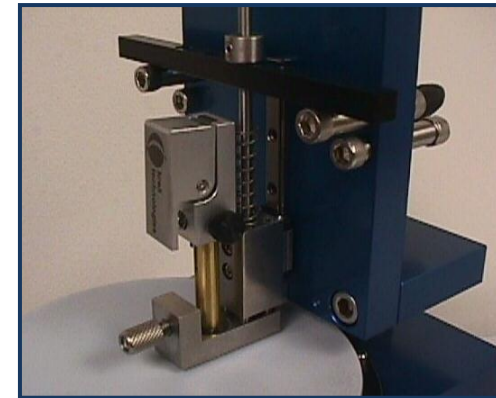


High Pressure Setting: While compressing springs, slide the lower pin set over pressure bar.

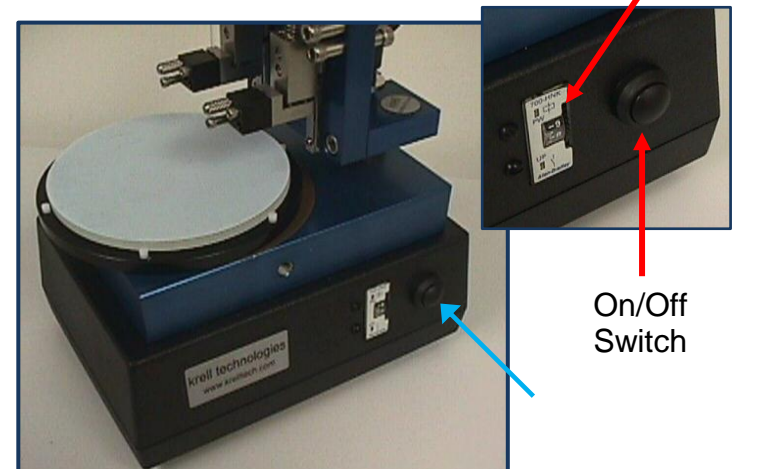


No ("none") Pressure: Retract all pins and gently lower connectors/fibers into contact with polishing film.

REFER TO WORKHOLDER LOADING AND POLISHING PROCEDURES



No Pressure (for small diameter bare fiber adapters with metal ferrules): Rest the pressure bar atop middle pins.



Operation: Press the power button. The Cycle Timer is in increments of 6 seconds. For a time of 30 sec, set the cycle timer at 5. **After a cycle, it is necessary to turn the Power Switch "off", prior to starting another cycle.**

CONNECTOR POLISHING PROCEDURES USING SPECPRO²TM

Set-up and Preparation

1. Air-polish

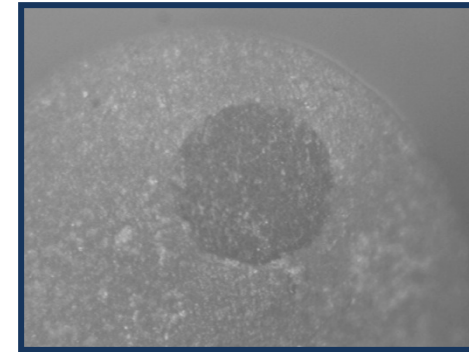
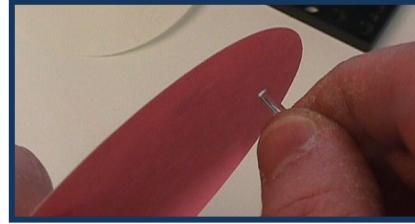
Holding a disk of 12um or 15um polishing film and the connector in each hand, lightly grind the fiber chard that is protruding from the epoxy bead. Hold the film at one end, using the opposing edge to grind.

2. Load connector

See loading instructions.

3. Insert film and pad

As outlined in the table below, place the proper film/rubber pad in platen.



NOTES:

Pressure Sensitive Adhesive (PSA) films:

Peel the backing liner, revealing the adhesive surface, and secure to pad. Avoid leaving PSA films on rubber pads for extended time.

Non-PSA films:

Spread a couple drops of water on the rubber pad and place the film, shiny side down.

Hybrid Pads: Place films on rubber side of hybrid.

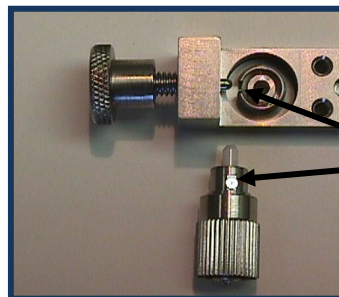
Connector Count: Populate un-used connector positions with "dummy"/scrap connectors.

After a proper air-polish, a thin film of epoxy should remain covering the fiber.
DO NOT OVER POLISH

Connector Type	Step	Process	Film Type	Pad	Pressure	Time Setting*	Water Spray
2.5mm UPC Ferrules SC / FC/ ST	1	Epoxy Removal	3um silica	Orange Hybrid	Low	5 (30 sec.)	No
	2	Fine Polish	1um diamond	Black Hybrid	None	5 (30 sec.)	Yes
	3	Final Polish	XW	Orange Hybrid	None	5 (30 sec.)	Yes
1.25mm UPC LC / MU 1 to 2mm Termini	1	Radiusing	1um diamond	Orange Hybrid	None	5 (30 sec.)	No
	2	Final Polish	XW	Orange Hybrid	None	5 (30 sec.)	Yes
2.5mm APC SC / FC / E2000	1	Radiusing	6um diamond H	Black Hybrid	Low	2x10 (120 sec.)	No
	2	Fine Polish	1um diamond	Orange Hybrid	None	10 (60 sec.)	Yes
	3	Final Polish	XW	Orange Hybrid	None	10 (60 sec.)	Yes

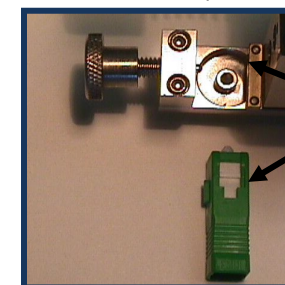
Loading notes for APC connectors:

for FC/APC



Align connector key with workholder keyway

for SC/APC

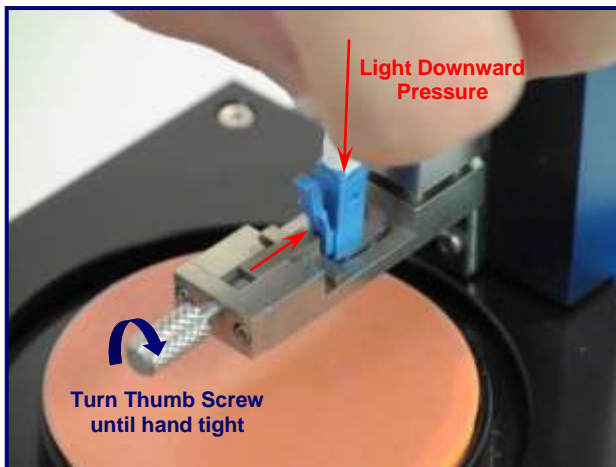
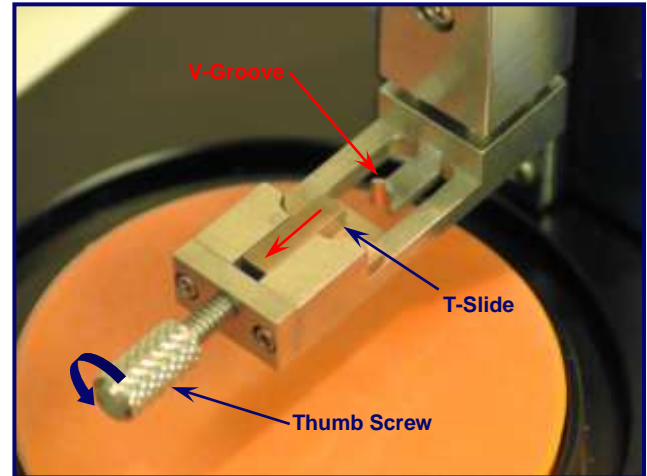


Align connector flat with brass bar

*SpecPro's dial timer is preset to 6 seconds/ interval.

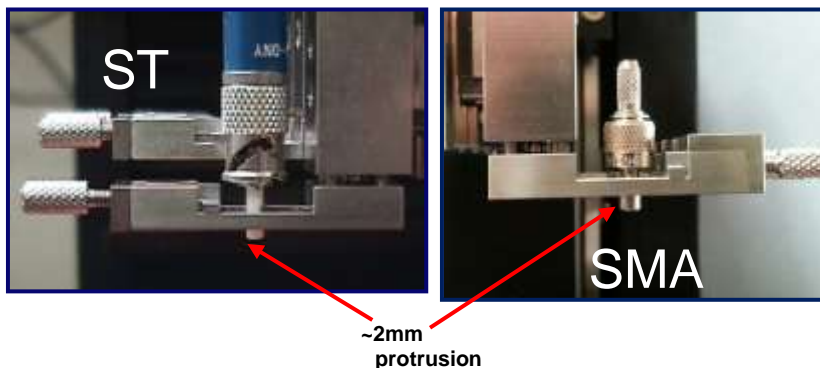
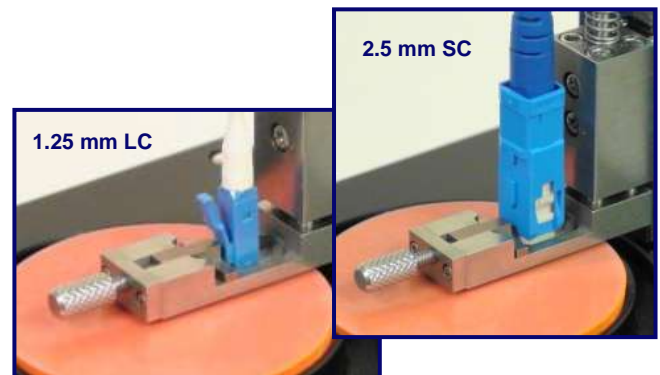
Rev. 6 10/13

Step 1: Loosen thumb screw and retract the T-Slide to allow adequate space between the T-Slide and V-Groove to insert the connector ferrule. The V-Groove can accommodate ferrule diameters between 1 mm and 3.2 mm (SMA). **NOTE:** For ST/UPC connectors see ST picture at the bottom of the page.



Step 2: Insert the connector (tab out if applicable) with the ferrule sitting in the V-Groove. Be sure to bottom out connector, either on the shoulder or the plastic surround, atop the V-Groove bar by placing light pressure atop the connector. Begin to tighten the thumb screw in order to clamp the ferrule in place while maintaining light downward pressure atop the connector.

Step 3: Clamp the connector in the V-Groove by only finger tightening the thumb screw. **Note, be sure the ferrule is sitting in the V-Groove slot squarely while clamping.** Run corresponding polishing procedure. Once polishing is complete, turn the set screw counter-clockwise to remove the connector. *If undesirable polishing offsets occur, the most likely reason is skewed clamping. Re-seat the part and re-polish.*

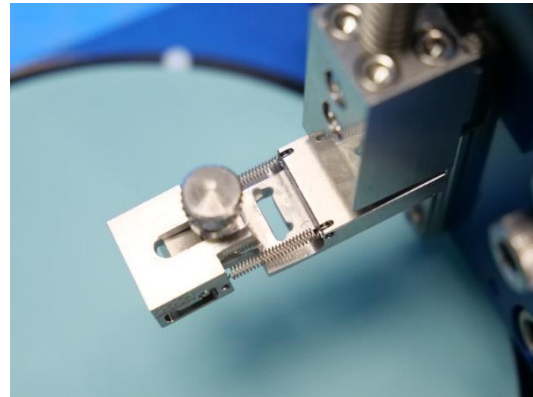
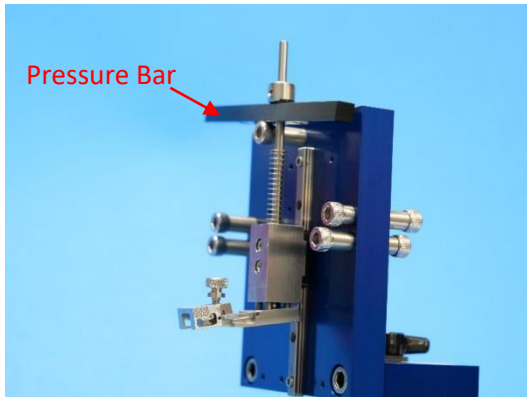


ST and SMA Loading: Insert the connector into the V-Groove until the ferrule tip protrudes beneath the bottom of the workholder by approximately 2mm. Follow directions in Step 3 above to clamp.

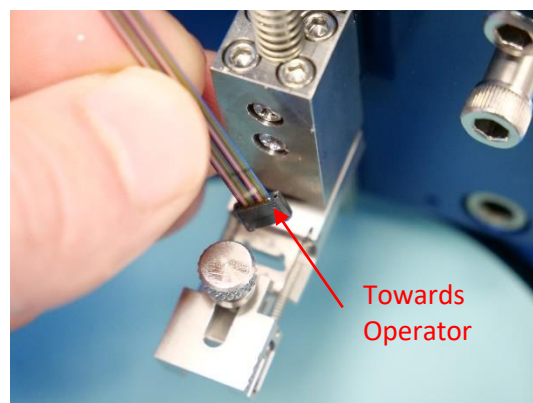
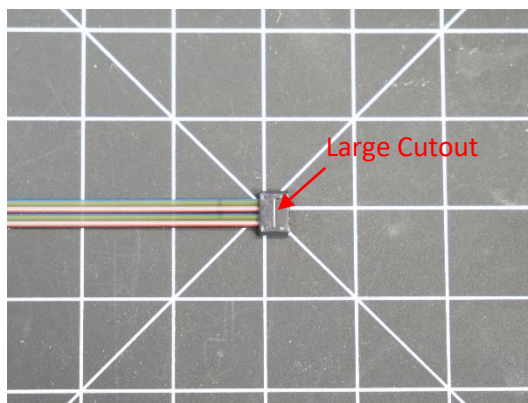
Mil-Termini Loading: Insert termini until approximately 1mm of its ferrule protrudes beneath the workholder.. Follow directions in Step 3 above to clamp.

TMT Ferrule Polishing:

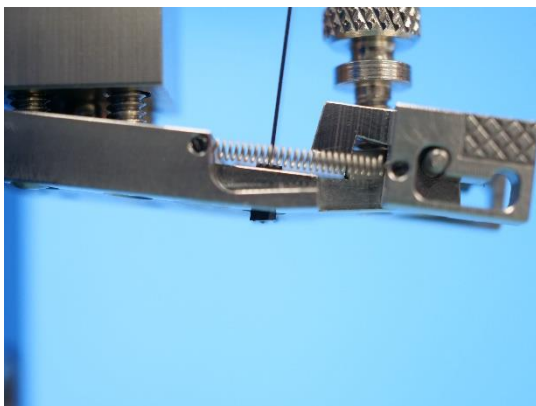
For new termination, MMC connector processing must be done in two steps. The first is the polishing of a newly terminated TMT ferrule. The ferrules are then assembled with the MMC housing and components.



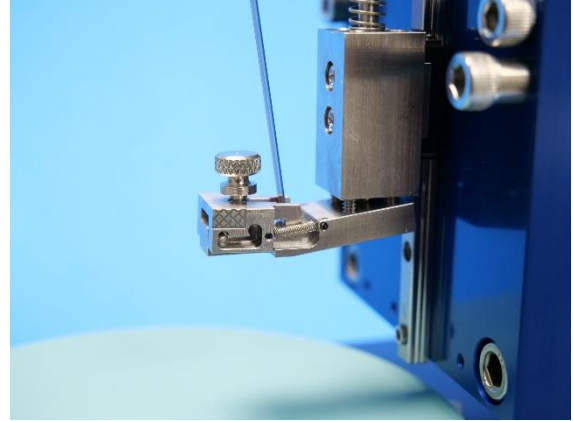
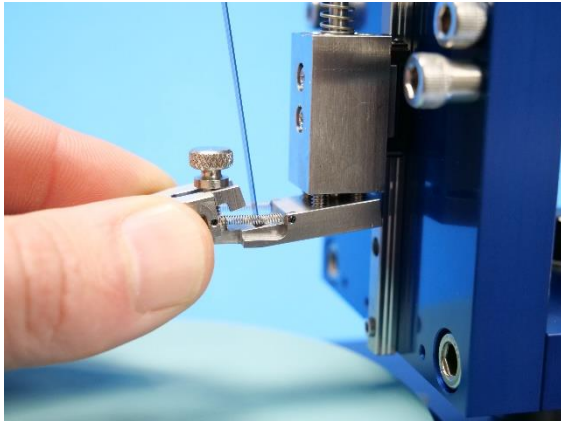
1. Lift positions using the pressure bar and rest atop the top pin. Ensure ferrule port is clear of any debris.



2. Note the orientation on the TMT ferrule. Ensure the large cutout faces away from the workholder and towards the operator.



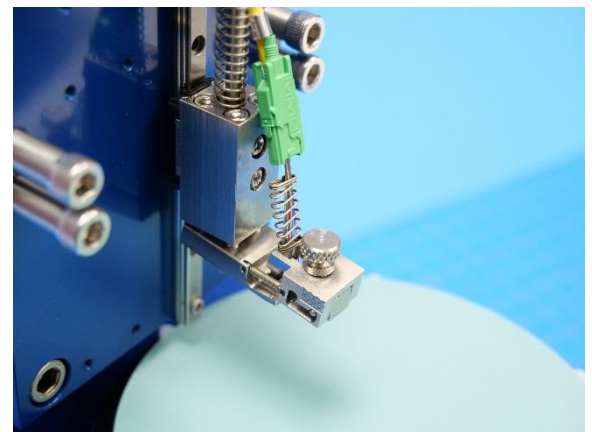
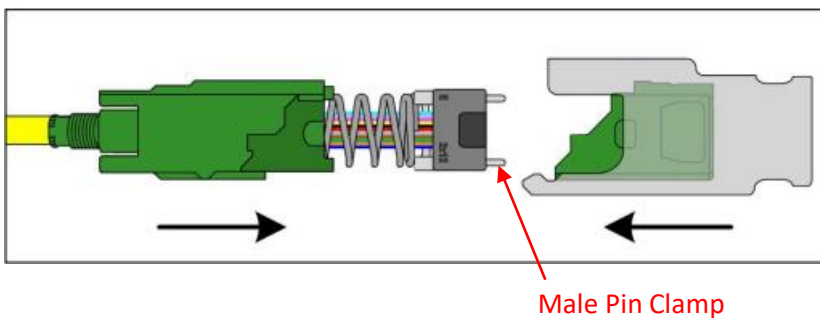
3. Check the ferrule for proper seating in the port. Protrusion will be about 0.38mm. Clamping will aid in proper seating, but it is recommended to check pre-clamp.



4. To secure ferrule, pull back on the clamp and slide into place over the shoulders of the ferrule. Tighten thumbscrew to secure in place.

MMC Connector Repair:

For re-polishing MMC connectors, or connector repair, the hardware must be disassembled. Carefully disconnect the housing assembly to expose spring and Female spacer/Male Pin Clamp.



5. For male connectors, as shown above, the pin clamp must be removed to polish fibers. For female connectors, the spacer may be left in place and the clamp shoulder will rest atop. Lift spring, then clamp as instructed previously.

TMT/MMC POLISHING PROCEDURES USING SPECPRO™

Set-up and Preparation

1. Cleaving

Cleave (or scribe) protruding fibers close to the top of the epoxy bead.

2. Air-polish

Holding a disk of 12um polishing film and the ferrule in each hand, lightly grind the fiber chards that are protruding from the epoxy bead. Hold the film at one end, using the opposing edge to grind.

Grind the chards until they are co-planar with the top of the epoxy bead. Erode the epoxy bead until a uniform and flat “plateau” is formed.

3. Load connector

See reverse side.

4. Insert film and pad

As outlined in the table below, place the proper film/rubber pad in platen.

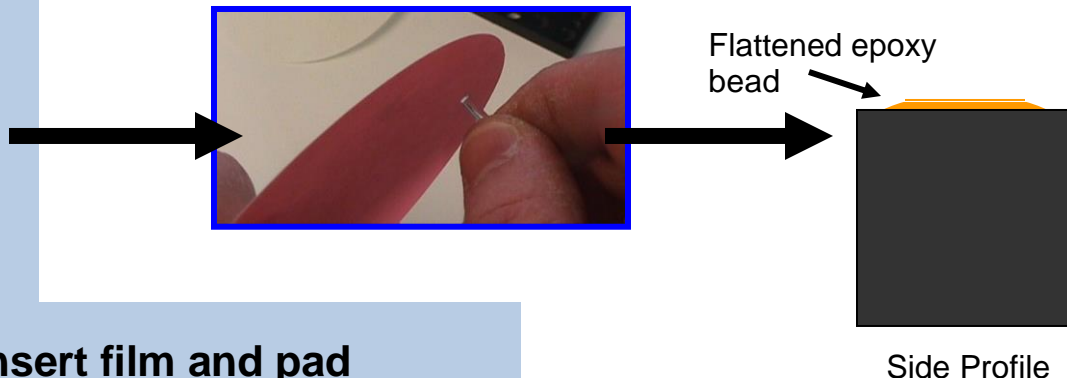
FILM NOTES:

Pressure Sensitive Adhesive (PSA) films:

Peel the backing liner, revealing the adhesive surface, and secure to pad.

Non-PSA films:

Spread a couple drops of water on the rubber pad and place the film, shiny side down.



Connector Type	Step	Process	Film Type	Pad	Pressure	Time	Water Spray
MMC	1*	Epoxy Removal	9um silica	Glass	High	60 sec.	No
	2	Coarse Polish	3um silica	Glass	High	60 sec.	Yes
	3	Fine Polish	1um alumina flock**	Glass	High	60 sec.	Saturate
	4	Final Polish	1um cerium flock**	Glass	High	60 sec.	Saturate
	5***	Core-Dip Removal	XW Final Polish	Glass	Low	30 sec.	Yes

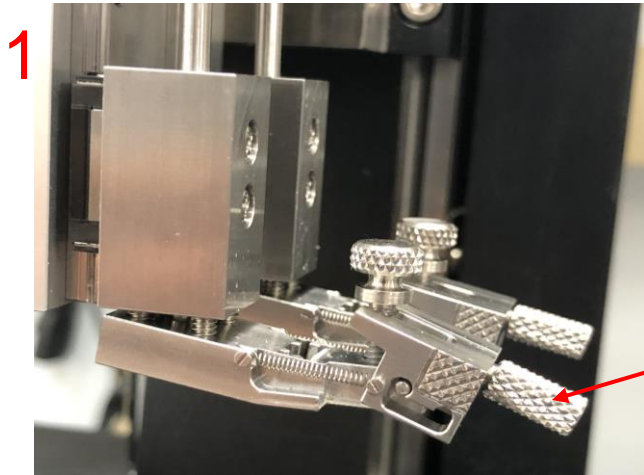
* Repeat this step until the entire epoxy bead has been removed. 12um alumina film can be used as an option.

** Center flock films on polishing platen.

*** Step 5 is only required for multimode fibers that exhibit “core-dipping”.

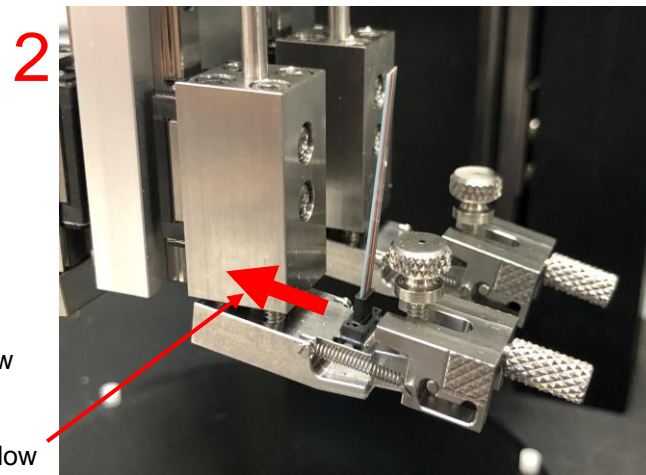
AFTER POLISHING, CLEAN WORKHOLDER FERRULE PORTS WITH A BRUSH TO PREVENT GRIT BUILD-UP

MPO / MTP / MT-RJ CONNECTOR LOADING INSTRUCTIONS



1

1: Before loading the MT, pull back the thumb screw and lock in to loading position.

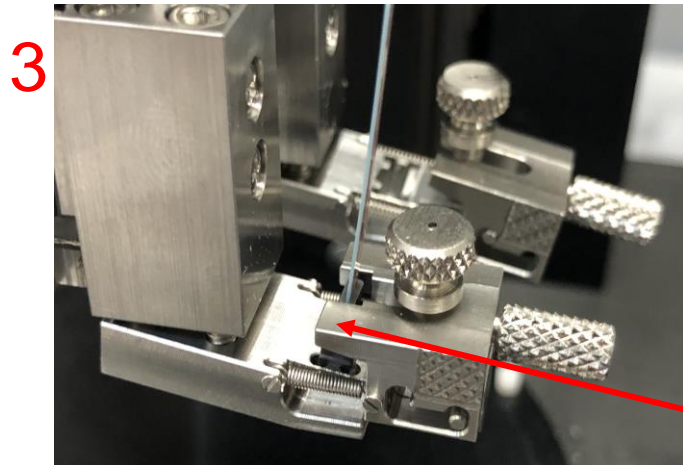


2

2: With the MT's epoxy window facing the rear of the workholder, fully insert the MT until its shoulders make square contact with the top of the workholder end-effector.

Thumb screw

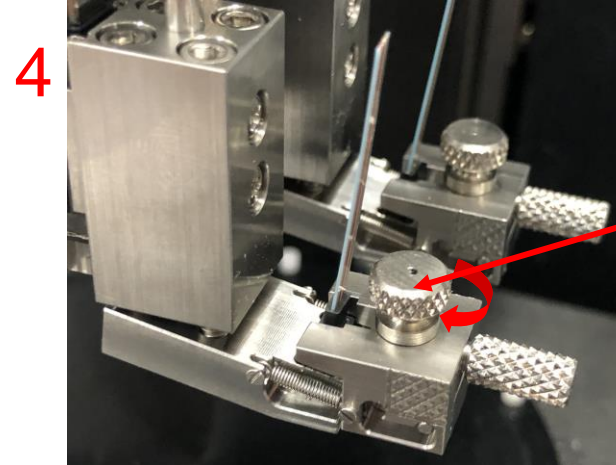
Epoxy window facing this way



3

3: Pull thumbscrew and release from locked position. Position clamp squarely against the top of the ferrule shoulders.

Clamp



4

4: Lightly tighten locking screw until contact to prevent ferrule slippage under polishing pressure.

Locking screw

Note: Over-tightening can damage ferrule.

MTP POLISHING PROCEDURES USING SPECPRO™

Set-up and Preparation

1. Cleaving

Cleave (or scribe) protruding fibers close to the top of the epoxy bead.

2. Air-polish

Holding a disk of 12um polishing film and the ferrule in each hand, lightly grind the fiber chards that are protruding from the epoxy bead. Hold the film at one end, using the opposing edge to grind. Grind the chards until they are co-planar with the top of the epoxy bead. Erode the epoxy bead until a uniform and flat “plateau” is formed.

3. Load connector

See reverse side.

4. Insert film and pad

As outlined in the table below, place the proper film/rubber pad in platen.

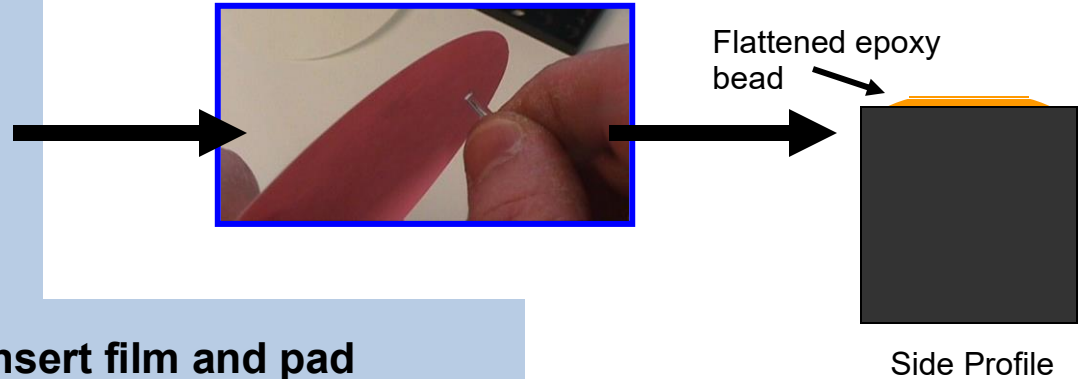
FILM NOTES:

Pressure Sensitive Adhesive (PSA) films:

Peel the backing liner, revealing the adhesive surface, and secure to pad.

Non-PSA films:

Spread a couple drops of water on the rubber pad and place the film, shiny side down.



Note: SpecPro's timer is preset to 30 seconds.

Connector Type	Step	Process	Film Type	Pad	Pressure	Time	Water Spray
MTP	1*	Epoxy Removal	9um silica	Glass	Low	60 sec.	No
	2	Coarse Polish	3um silica	Glass	Low	60 sec.	Yes
	3	Fine Polish	1um alumina flock**	Glass	Low	60 sec.	Saturate
	4	Final Polish	1um cerium flock**	Glass	Low	60 sec.	Saturate
	5***	Core-Dip Removal	XW Final Polish	Glass	Low	30 sec.	Yes

* Repeat this step until the entire epoxy bead has been removed. 12um alumina film can be used as an option.

** Center flock films on polishing platen.

*** Step 5 is only required for multimode fibers that exhibit “core-dipping”.

AFTER POLISHING, CLEAN WORKHOLDER MTP POCKETS WITH A BRUSH TO PREVENT GRIT BUILD-UP

SMA CONNECTOR POLISHING PROCEDURES USING SPECPRO™

Set-up and Preparation

1. Air-polish

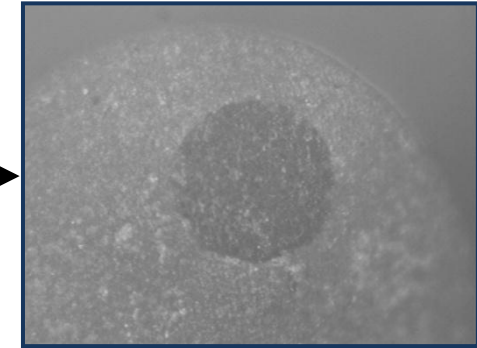
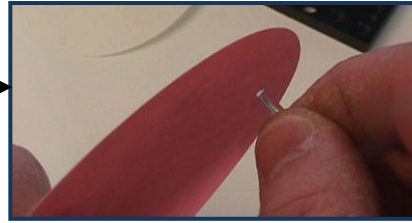
Holding a disk of 12um polishing film and the connector in each hand, lightly grind the fiber chard that is protruding from the epoxy bead. Hold the film at one end, using the opposing edge to grind.

2. Load connector

See below.

3. Insert film and pad

As outlined in the table below, place the proper film/rubber pad in platen.



FILM NOTES:

Pressure Sensitive Adhesive (PSA) films:

Peel the backing liner, revealing the adhesive surface, and secure to pad.

Non-PSA films

Spread a couple drops of water on the rubber pad and place the film, shiny side down.

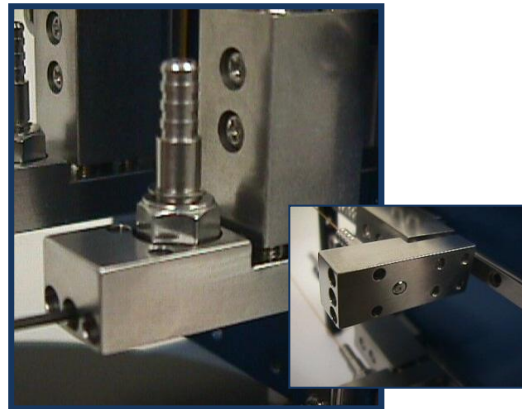
After a proper air-polish, a thin film of epoxy should remain covering the fiber.

**DO NOT OVER AIR-POLISH.
MAKE SURE FIBER CHARD IS COMPLETELY REMOVED.**

Connector Type	Step	Process	Film Type	Pad	Pressure	Time Setting**	Water Spray***
SMA	1	Epoxy Removal*	30um silica	Glass	Light	5 (30 sec.)	No
	2	Rough Polish	9um silica	Glass	Light	5 (30 sec.)	No
	3	Fine Polish	3um silica	Glass	Light	5 (30 sec.)	Yes
	4	Final Polish	0.3um alumina	Glass	Light	5 (30 sec.)	Yes

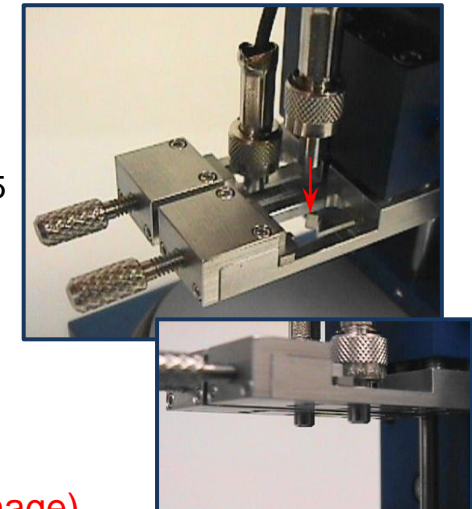
*Large epoxy beads may require additional cycle time. **See operation manual for time setting directions
***Just a light spray of water on polishing film is necessary.

SMA Insert: Bottom-out connector in fixture. Using tool, tighten set screw until contact is made with connector ferrule. **DO NOT OVER TIGHTEN.** Tighten enough to prevent ferrule slippage in fixture.



UVG Insert: Place connector into v-groove so that approximately half of the ferrule is protruding from the bottom of the insert (roughly 2.5 mm). Do not bottom out the connector in the insert.

DO NOT OVER TIGHTEN. Tighten enough to prevent ferrule slippage in fixture.



For connector repair, start with Step 4 (light damage) or Step 1 (extensive damage).

CONNECTOR REPAIR PROCEDURES USING REV™ / SPECPRO™

For connector repair: Start with Step 3 for light damage
 Start with Step 2 for moderate damage
 Start with Step 1 for heavy damage

FILM NOTES:

Pressure Sensitive Adhesive (PSA) films:

Peel the backing liner, revealing the adhesive surface, and secure to pad.

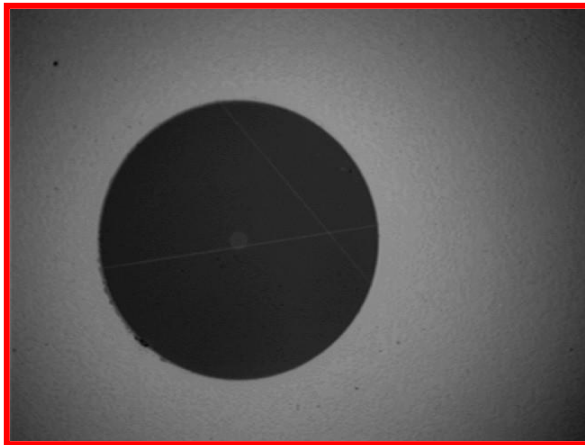
Non-PSA films

Spread a couple drops of water on the rubber pad and place the film, shiny side down.

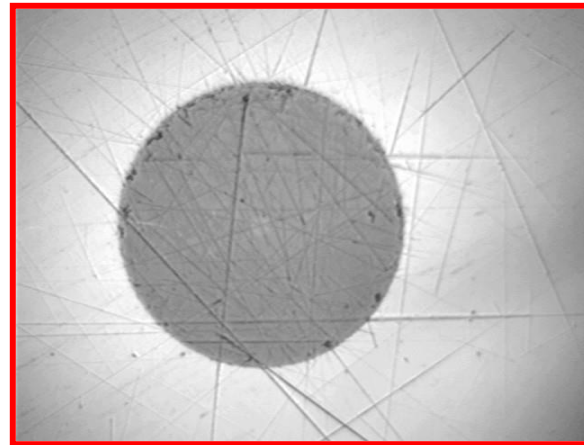
*The Rev cycle timer is factory pre-set to 15 seconds

**Just a light spray of water on polishing film is necessary.

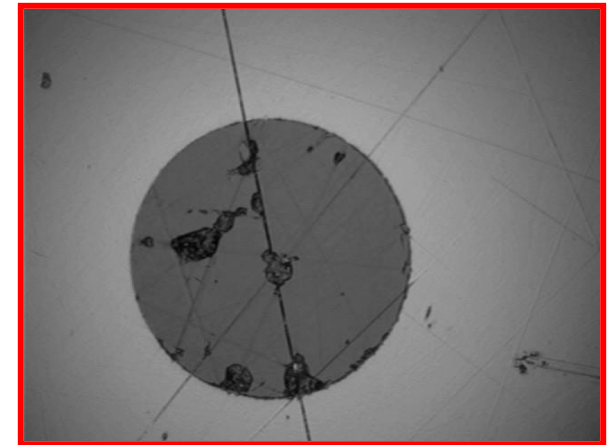
Connector Type	Step	Damage Level	Film Type	Pad	Pressure	Time**	Water Spray***
2.5mm UPC SC / FC/ ST	1	Heavy	6um diamond H	Orange Hybrid	Low	30 sec.	No
	2	Moderate	1um diamond	Black Hybrid	None	30 sec.	Yes
	3	Light	XW	Orange Hybrid	None	30 sec.	Yes
1.25mm UPC LC / MU	1	Heavy	6um diamond H	Orange Hybrid	Low	30 sec.	No
	2	Moderate	1um diamond	Orange Hybrid	None	30 sec.	Yes
	3	Light	XW	Orange Hybrid	None	30 sec.	Yes
FC/SC-APC	1	Heavy	6um diamond H	Black Hybrid	Low	30 sec.	No
	2	Moderate	1um diamond	Black Hybrid	None	30 sec.	Yes
	3	Light	XW	Orange Hybrid	None	30 sec.	Yes
SMA 905 /906	1	Heavy	6um diamond H	Glass	Low	30 sec.	No
	2	Moderate	1um diamond	Glass	Low	30 sec.	Yes
	3	Light	XW	Glass	Low	30 sec.	Yes



Light Damage



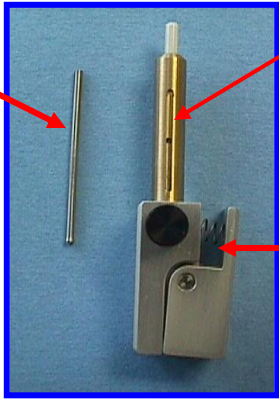
Moderate Damage



Heavy Damage

SPECPRO™ BARE FIBER POLISHING INSTRUCTIONS

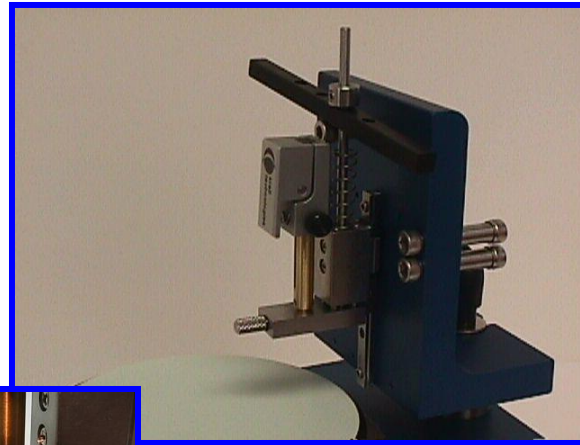
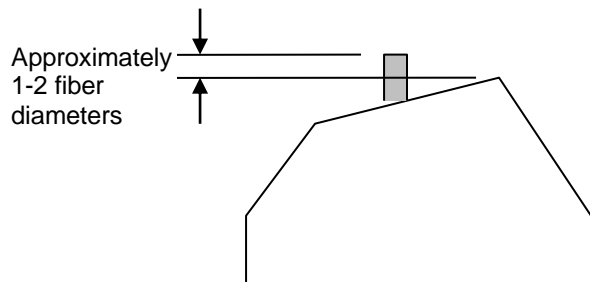
Insert feeder tube into brass adapter for either 250um or 900um buffers (not required for large core fibers)



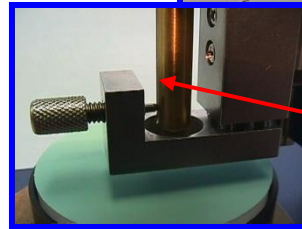
Angle registration mark

Depress spring and hold while inserting fiber. Release to secure.

Step 1: Strip and cleave a fiber (minimum of 10.5mm for ceramic ferrules, 1mm for metal). Insert into adapter so that fiber protrudes about 1-2 diameters from front end of ferrule.

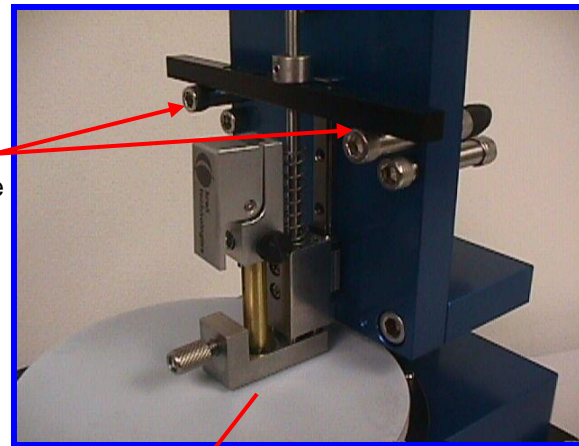


Step 2: Raise pressure bar hold in position by sliding the upper pin beneath. Bottom-out the fiber adapter in the workholder fixture. Orient with the registration mark facing forward. Lightly lock into position. Following the procedures on reverse side, place the film/pad combination in polishing platen for the first step.



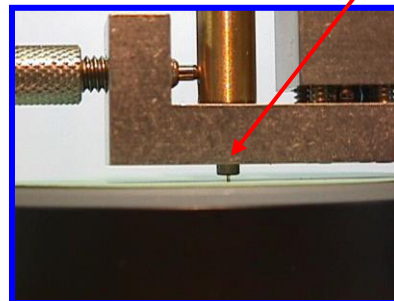
Lock with registration mark facing forward.

Step 3: For small diameter fibers, push the middle pins forward and gently rest the pressure bar atop. This places the fiber into contact with the polishing film, and minimizes ferrule contact. For large diameter fibers, pressure may be required. Depress start button to activate the polisher for designated cycle time.

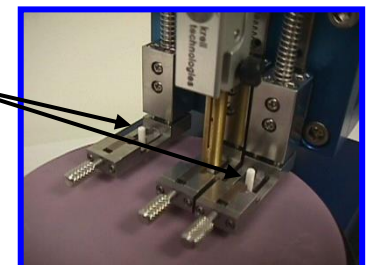


Rest pressure bar atop middle pin set

Step 4: At the end of the cycle, carefully raise the pressure bar to the upper position. Proceed to the second polishing step (if required), inspect with SpecVision Scope, or remove adapter.



Note: If workholder has multiple positions, place a "sacrificial" ferrule in each un-used position. This will prevent workholder contact with polishing film.



BARE FIBER POLISHING PROCEDURES USING SPECPRO™

- The following procedures are guidelines for processing bare fibers, and may be optimized for custom fibers and applications.
- For un-cleaved fibers, or angle-polished large diameter fibers, the first Step may need to be repeated multiple times.
- Either glass disks or rubber pads can be used as the film backing. Rubber pads will minimize the chance of fiber breakage and film de-lamination.
- If required, a light water spray during the last Steps will improve surface finish. This is not necessary for all application. However, if used, take care to clean fiber adapter and polisher surfaces.

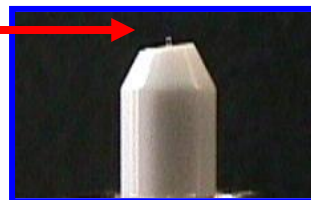
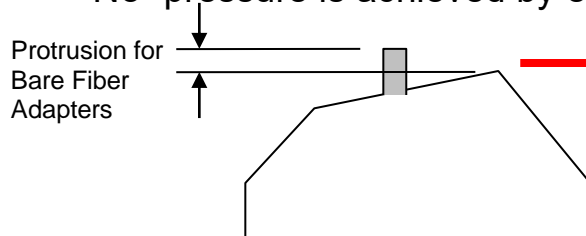
NOTE: By design, the workholder spring may not be compressed at certain pressure settings. Carefully lower the adapter/fiber into contact with the polishing surface.

Fiber Diameter (approximate fiber protrusion beneath workholder or adapter)	Step	Film Type	Pad	Water Spray	Pressure*	Time (sec.)
>=1mm dia. (~1-2mm protrusion)	1	30um silica	Glass	No	Low	60
	2	9um silica	Glass	Yes	Low	60
	3	0.3um alumina	Glass	Yes	High	60
600um (~ 1mm protrusion)	1	30um silica	Glass	No	No	30
	2	9um silica	Glass	Yes	No	30
	3	0.3um alumina	Glass	Yes	No	30
400um (~ 0.5-1mm protrusion)	1	9um silica	Glass	No	No	30
	2	0.3um alumina	Glass	Yes	No	30
250um (~0.25-0.5mm protrusion)	1	3um silica	Glass	No	No	30
	2	0.3um alumina	Glass	Yes	No	15-30
125um (~0.25mm protrusion)	1	3um silica	Glass	No	No	15-30
	2	0.3um alumina	Glass	Yes	No	15-30

Note 1: If workholder has multiple positions, place a “sacrificial” ferrule in each un-used position. This will prevent workholder contact with polishing film.

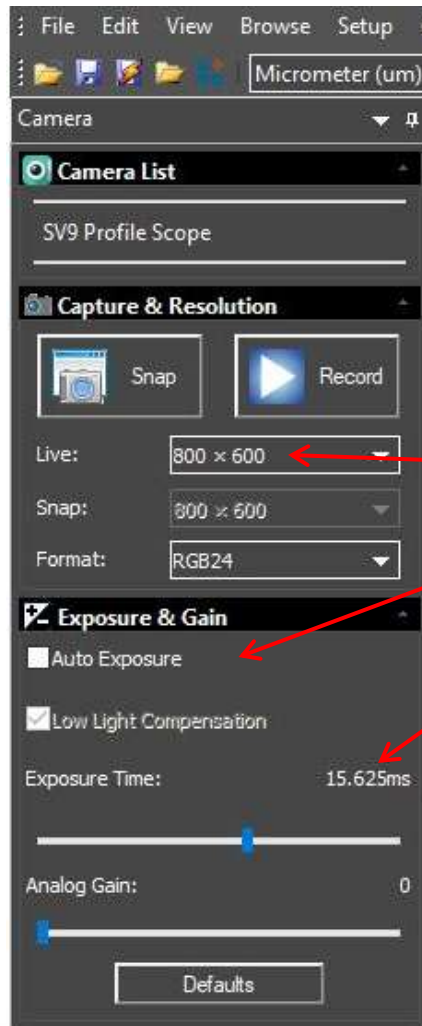
Note 2: To maintain protrusion from the ferrule tip, it may be necessary to slightly advance the fiber within the adapter between polishing steps.

* “No” pressure is achieved by either retracting all pins, or resting pressure bar atop middle pin set.



CleanTouch Stick: Lightly touch fiber tip and remove to clean.



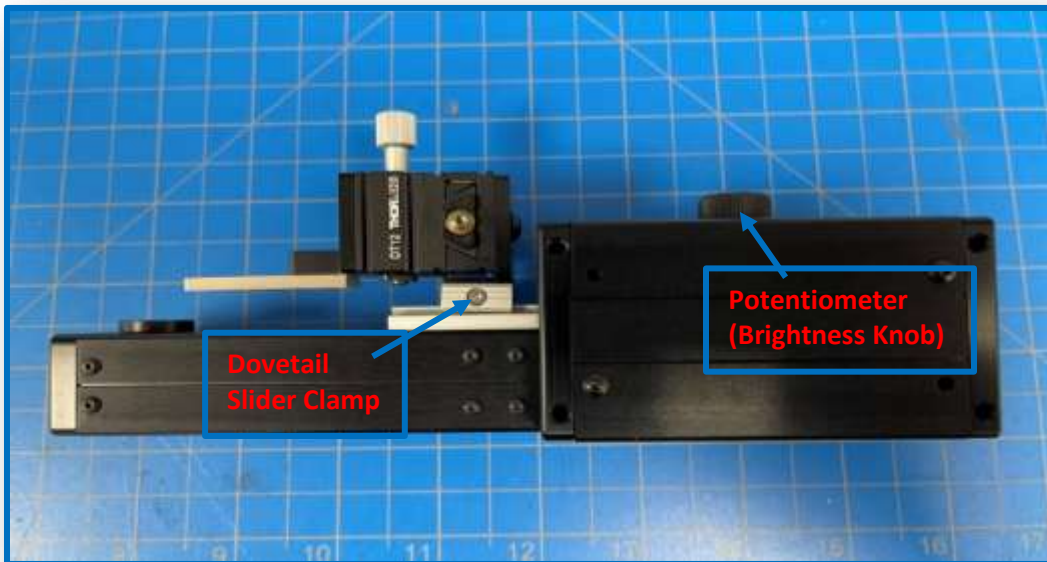


Suggested video settings:

Resolution "Live": 800 x 600

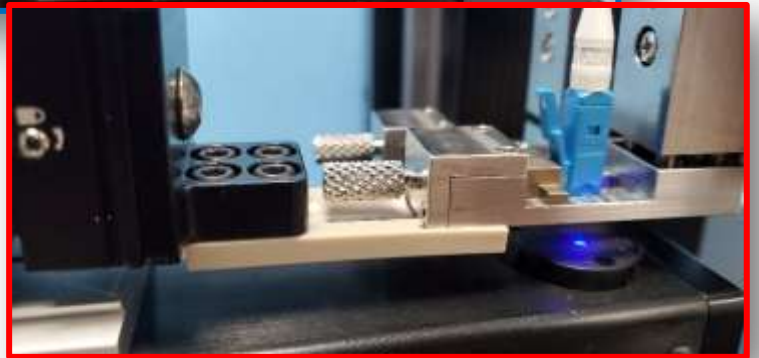
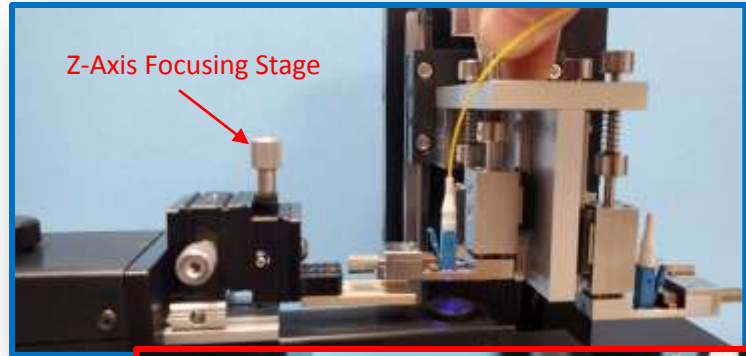
Auto Exposure: "OFF"

Set "Exposure Time" to ~15 or ~30ms

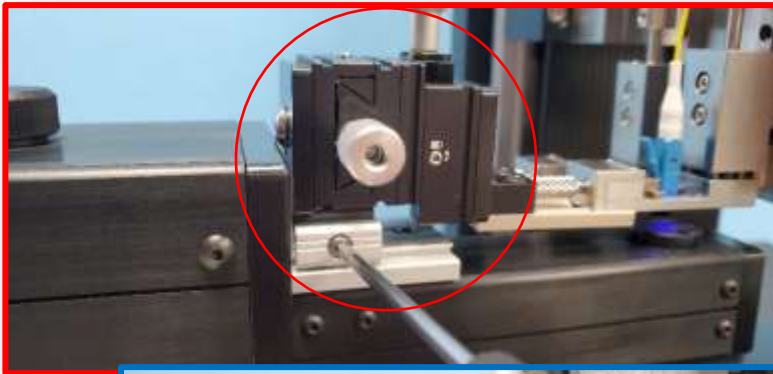


1. Lift Position to be viewed and slide SpecX Surface Scope into position.

Engage the front end of the insert to the stopping edge of the nest.



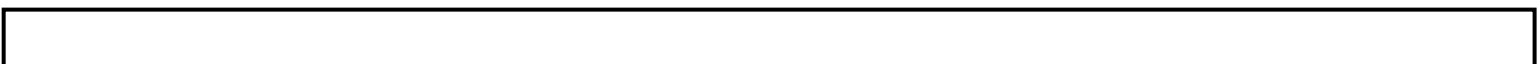
Positioning Rig



2. Depending on the workholder in place, the X-axis slide may need to be adjusted in order to view the polished connector.

Using a 1.5mm driver, loosen the dovetail slide locking screw and traverse the positioning rig until the l.e.d is centered on the connector ferrule or is in view on the microscope software.

Note: Ensure insert is properly engaged in the nest.



MT Engagement:



3. Lift position and engage the insert into the nest. If necessary, adjust the X-axis of the positioning rig in the same manner as stated in Step 2.

4. To view all fibers, adjust the Y-axis micro-positioning stage. The base of the SpecX will slide on the baseplate of the NOVA.

Note: Use hand to gently guide the base while panning across the fibers to prevent excess rotation

