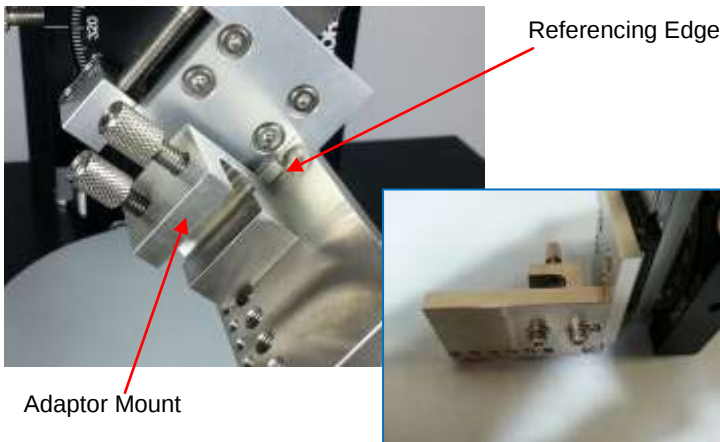


Bare Fiber Polishing with NOVA™

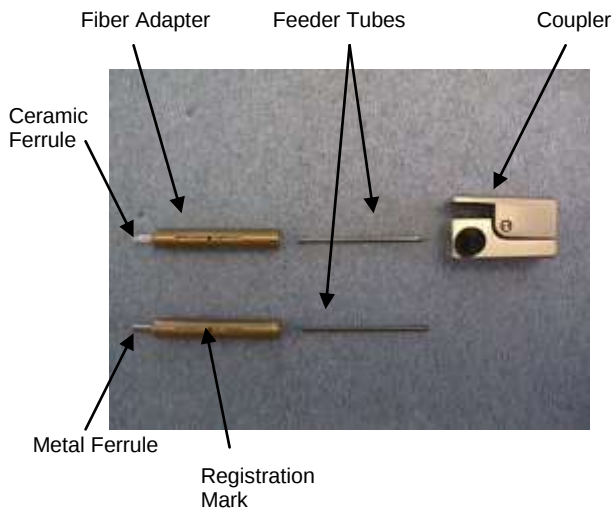


1 (optional). To modify a waveguide workholder for bare fiber polishing, engage the Adaptor Mount flush against the Referencing Edge. Secure from back side using the supplied screw and washer set.



1. Loosen the main Locking Knob and engage workholder with the washer positioned on top of the workholder.

Place the correct polishing film and pad/disk combination onto Platen for the first process step. Refer to the end of this manual section for suggested polishing procedures.

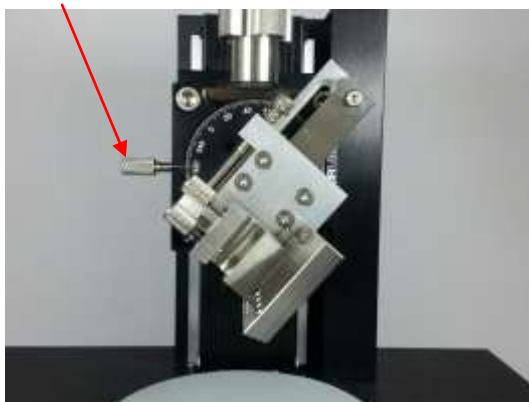


3. A bare fiber assembly consists of a Fiber Adapter and the Coupler. To assemble, loose the Coupler's thumbscrew and insert the Fiber Adapter. Orient so that the Registration Mark is offset from the thumbscrew by 90°, facing up with the Krell logo.

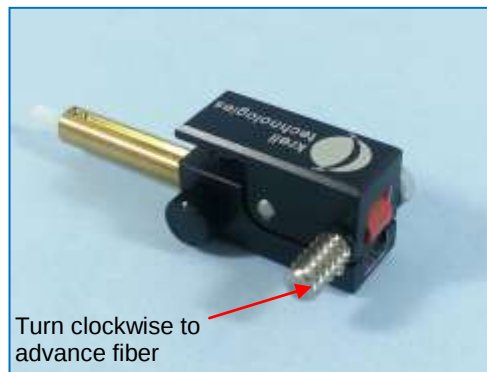
For smaller diameter fibers (approximately 80um to 250um), a Feeder Tube will assist guiding the fiber into the Ferrule tip. Insert the Feeder Tube into the Fiber Adapter before engaging the Coupler. Depending upon approximate buffer diameter, choose either the 250um (for small diameter fibers) or 900um Feeder Tube (for larger diameter fibers). Very larger diameter fibers (i.e. >1mm) do not require Feeder Tubes.

Depending upon the fiber diameter, a Fiber Adapter has either a ceramic or metal Ferrule tip. For ceramic Ferrules, >10.5mm of buffer must be removed for insertion into the Ferrule. For metal Ferrules, >0.5mm of buffer must be removed.

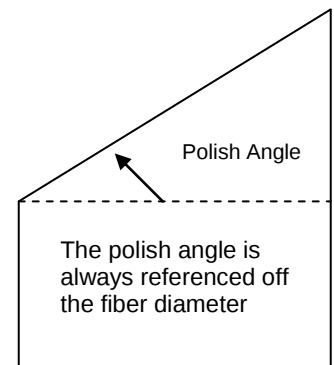
Stage lock



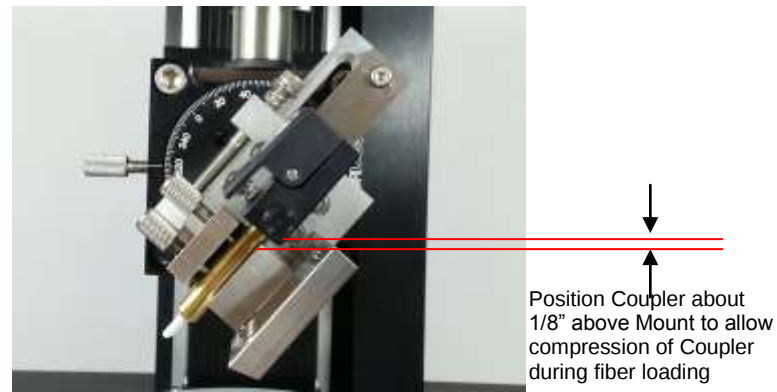
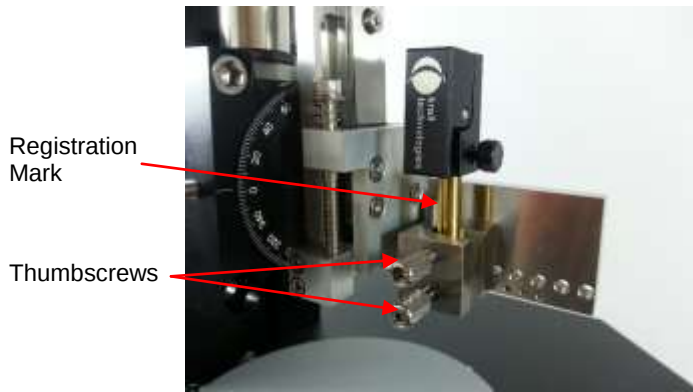
4. Set polish angle by loosening the rotary stage lock, adjust stage and re-lock.



Some Couplers feature an integrated fiber advancement mechanism. Rotating the thumbscrew clockwise increases fiber protrusion from the ferrule tip.



NOTE: Above is the polish angle convention.



5. Insert Fiber Adapter into Mount with the Registration Mark facing the two thumbscrews. Position and secure the Adapter in the Mount with approximately 1/8" of clearance between the Mount and spring-loading Coupler.

Adjust the Pressure Spring. Clockwise will increase the maintained fiber contact pressure against polishing film, Counter-clockwise will decrease pressure. NOTE: Pressure is usually only used with larger diameter fiber (i.e. >1mm).

Manual Control Dashboard

Manual Control

Workholder Control

Select units: ☒ Millimeters ☐ Inches ☐ Steps

Enter distance: (0.005 - 50.000 mm)

Current Workholder Position

5.000 mm

5.000 mm

Platen Control

Speed: ☐ 1 ☐ 2 ☐ 3 ☒ 4 ☐ 5 ☐ 6

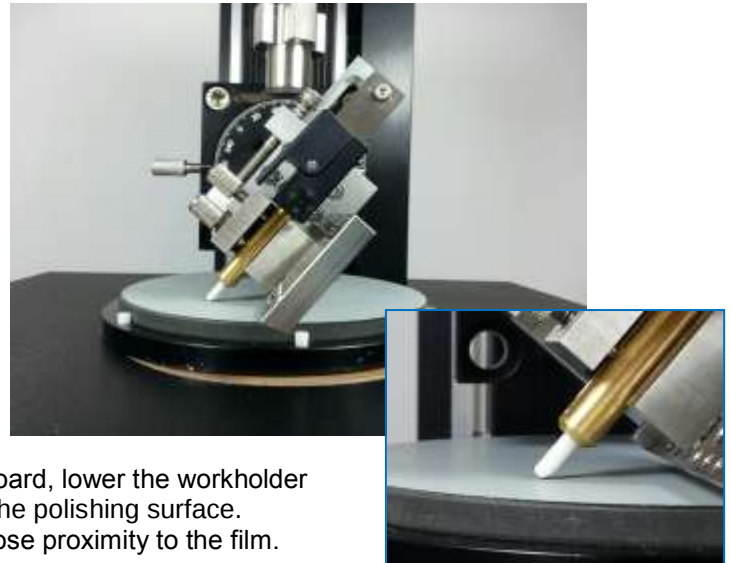
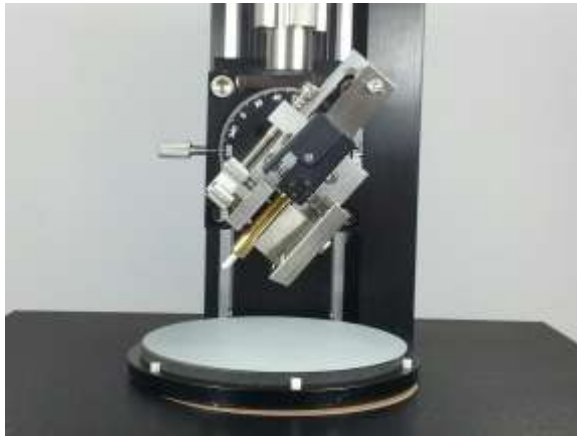
Timer

0:00:00

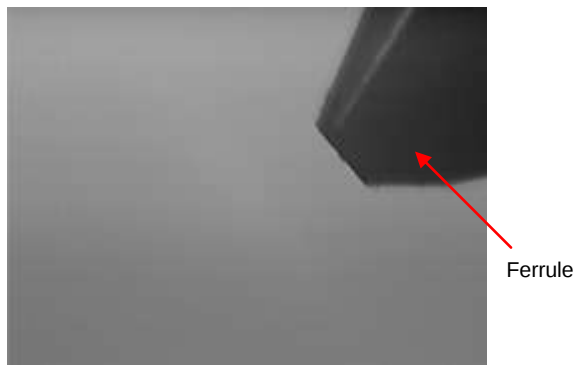
Lap 1: 00:00:00

Lap 2: 00:00:00

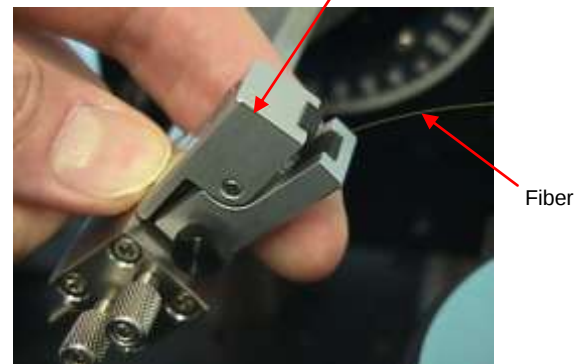
6. Enter the "Manual Control" mode to access the Dashboard. See associated manual section for operation.



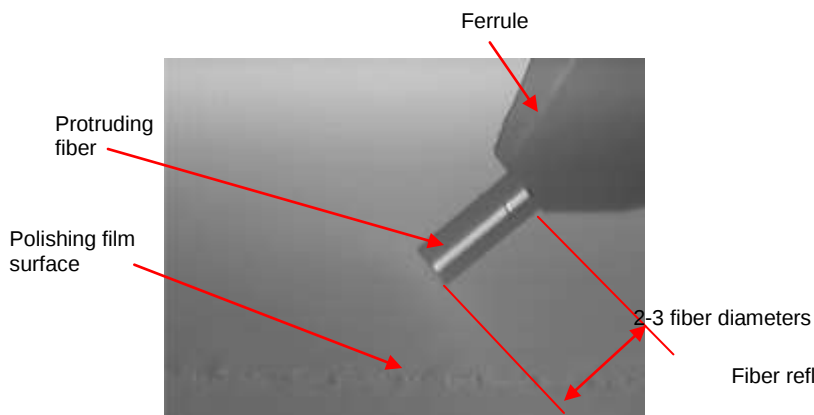
7. Using the “Workholder Controls” available in the Dashboard, lower the workholder such that the ferrule tip is located just above contact with the polishing surface.
NOTE: Use “coarse” ↓↑ movement controls to get into close proximity to the film. Then switch to finer incremental movement mode.



8. If NOVA is equipped with the optional Profile Videoscope, adjust its XYZ stages until the ferrule tip is located and centered on the monitor.

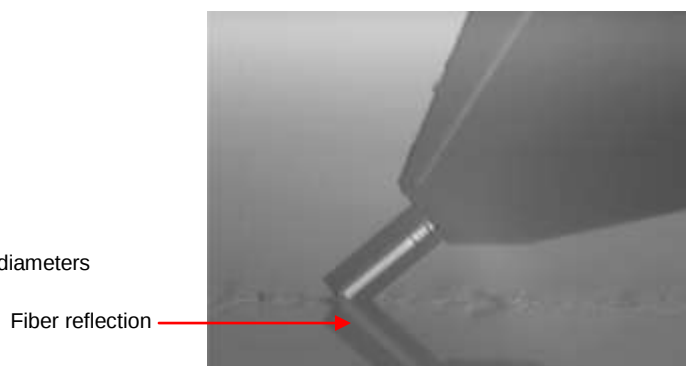


9. Depress the spring-loaded Coupler, and gently begin inserting the fiber.



10. Continue to insert the fiber through the BFA until it protrudes through the Ferrule tip. Position the fiber approximately 2-3 fiber diameters protrude from the Ferrule tip.

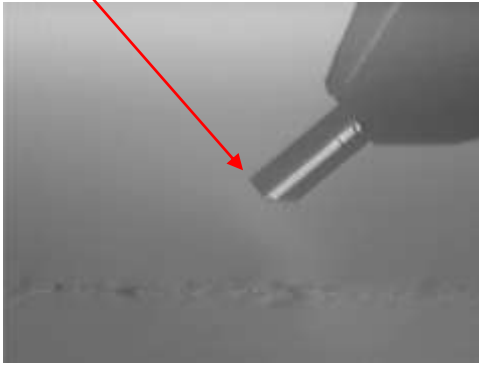
HINT: Utilize the “SAVE POSITION” feature. This will allow you to return to this position after fiber inspection tasks and polishing film/pad swap-outs.



11. Using the Dashboard controls, activate the platen and advance the workholder until fiber contact is made with the polishing film. Contact is visible confirmed when the fiber and its reflection off of the film are in “contact”.

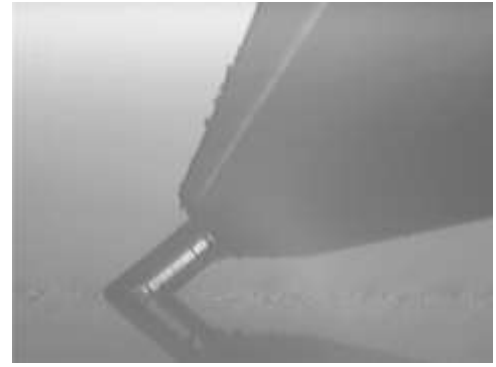
The angle cutting process can be viewed on the monitor.

Incomplete angle; Mid-process



12. At any point in time, the angle shaping progression can be monitored by retracting the fiber from the film.

HINT: If you used the “SAVE POSITION” feature in Step 10, you can quickly return to the pre-polish position by selecting “GO TO SAVED POSITION”.



13. The fully cut angle can be confirmed on the viewing monitor.

At this point:

- 1) the films/pad can be swapped for the next process step.
- 2) the fiber surface can be inspected (see NOVA Surface Inspection application note).

The following are suggested bare fiber polishing procedures using Trig™. These are presented for a processing “starting point” and can be optimized for specific fiber diameters, polish angles and fiber material. Most polishing films are placed on a glass disk for flat polishes, however rubber pads are supplied for very delicate fiber types. Using a light water spray on the polishing film during the final step will improve surface finish, but will obscure the vision system.

HINT: Beginning the process with a flat, cleaved fiber will accelerate the polishing procedure.

Fiber Diameter	Angle Range	Step 1	Step 2	Step 3	Step 4
80um to 250um	0 to 15 deg	0.3um alumina	N/A	N/A	N/A
	15 to 50 deg	3um silica	0.3um alumina	N/A	N/A
250um to 500um	0 to 15 deg	3um silica	0.3um alumina	N/A	N/A
	15 to 30 deg	9um silica	3um silica	0.3um alumina	N/A
	> 30 deg.	9um silica	3um silica	0.3um alumina	N/A
> 500um	0 to 15 deg	9um silica	3um silica	0.3um alumina	N/A
	15 to 30 deg	30um silica	9um silica	3um silica	0.3um alumina
	> 30 deg.	30um silica	9um silica	3um silica	0.3um alumina
Ball Lens	45 deg	3um silica	0.3um alumina or 0.5um diamond	N/A	N/A

NOTE: Whenever the tablet and base polisher are wirelessly “connected”, always keep the tablet within 10’ of the polisher for proper data communication. If programming the tablet remotely, always “disconnect”.