



Single Mode and High Quality Multimode Manual Polishing Instructions for Zirconia Ferrule Connectors

Fiber Optic Center™, Inc., the global supplier of ÅNGSTRÖMLAP®, the most widely used lapping film in the world, is also an industry leader in cost effective high performance ultra PC and angled single mode polishing processes for volume assembly production.

Achieving consistent results that meet the demanding technical specifications for single mode systems requires the optimization of many factors throughout the termination and testing process. These include:

- suitable fiber
- suitable epoxy
- proper mixing, application & curing of epoxy
- connector quality & tolerances
- pressure & time of polishing at each step
- lapping film quality & consistency
- lapping film grit sizes & materials
- polishing solutions
- adapter quality & tolerances
- calibration & quality of test instruments & reference cables
- test methods & conditions
- overall cleanliness
- specific cleaning procedures

Instructions

When used with a quality hand polishing puck and the materials listed below, the PC and APC polishing processes require less than five minutes per connector.

1. Clean hard rubber pads (70-80 durometer) with at least 99% pure isopropyl alcohol and lint free wipes. Acctec 404 or 604 lint free wipes, or TX806 or TX811 pre-saturated wipes are recommended to insure no contamination occurs during the cleaning process.
2. Use a minimal amount of de-ionized water to adhere lapping films to rubber pads. A piece of double sided tape can be used to help keep lapping film on the pads.
3. Between each polishing step, clean the connector end-faces, the surface of the polishing puck and the lapping film surface with the alcohol and lint-free wipes.
4. Refer to tables below for recommended UPC and APC polishing progressions. Please note progressions are for pre-angled and pre-domed connectors.

Technical Specifications

| | | |
|-----------------------------|---|---------------|
| SM UPC Back-Reflection | = | -50B or less |
| SM APC Back-Reflection | = | -65dB or less |
| Insertion Loss ¹ | = | 0.2db or less |
| Insertion Loss ² | = | 0.5dB or less |
| Typical ² | ≤ | 0.2dB |

¹ For 9/125um fiber

² For 62.5/125um fiber

Polishing Timetables

2.5mm Diamond Progression - Table 1.1

| Polishing Step | Material & Grit Size | Fig-8s ¹ | Fluid | Usage ² | Part Number |
|---------------------------|-----------------------------------|---------------------|------------------------------|--------------------|--------------|
| Epoxy Removal | Blue Silicon Carbide 9um | 20-30 | none | 20 | SC9T503N100 |
| Rough Polish | Orange Diamond 5um | 20-30 | de-ionized water | 100 | D5BF503N1 |
| Medium Polish | Purple Diamond 1um | 20-30 | de-ionized water | 100 | D1KT503N1 |
| Final Polish ³ | Light Blue Calcined Alumina 0.3um | 40-60 | Ultra Polish Solution, UPS-3 | 1 | CA03F502N100 |
| Cleaning ⁴ | Flocked Pile, None | 20-30 | de-ionized water | 100 | ABR60NC502N1 |

1.25mm Diamond Progression - Table 1.2

| Polishing Step | Material & Grit Size | Fig-8s ¹ | Fluid | Usage ² | Part Number |
|---------------------------|-----------------------------------|---------------------|------------------------------|--------------------|--------------|
| Epoxy Removal | Blue Silicon Carbide 9um | 20-30 | none | 20 | SC9T503N100 |
| Medium Polish | Purple Diamond 1um | 20-30 | de-ionized water | 100 | D1KT503N1 |
| Final Polish ³ | Light Blue Calcined Alumina 0.3um | 40-60 | Ultra Polish Solution, UPS-3 | 1 | CA03F502N100 |
| Cleaning ⁴ | Flocked Pile, None | 20-30 | de-ionized water | 100 | ABR60NC502N1 |

¹ Complete large figure eights from one end of the film to the other. Use the weight of the polishing puck with light pressure.

² Usage estimates are conservative, and may vary.

³ Please note other final polish films listed below.

⁴ Optional, but recommended, cleaning step.

Final Polish Film Options

As a leader in single mode polishing, **Fiber Optic Center,™ Inc.** always looks for process improvements. Most innovations occur at the final step. Some other final polish options that achieve superior results are as follows:

| Polishing Step | Material & Grit Size | Fig-8s ⁵ | Fluid | Usage ⁶ | Part Number |
|----------------|---------------------------|---------------------|------------------------------|--------------------|---------------|
| Final Polish | Sequoia Final Polish Film | 40-60 | de-ionized water | 20 | SEQPPF503N100 |
| Final Polish | Transparent FOS-01 | 40-60 | de-ionized water | 20 | FOS-01 |
| Final Polish | Aluminum Oxide 0.5um | 10-15 ⁷ | Ultra Polish Solution, UPS-3 | 20 | AO05F503N100 |

⁵ Complete large figure eights from one end of the film to the other. Use the weight of the polishing puck with light pressure.

⁶ Usage estimates are per connector, and may vary.

Ordering Information

For more information on this or other products and their availability, please contact **Fiber Optic Center,™ Inc.** at (800) 473-4237 or (508) 992-6464, fax at (508) 991-8876, or e-mail at sales@focenter.com.