

LFCF - June 18, 2024

Item # LFCF was discontinued on June 18, 2024. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

- Polishing Pucks for 5 Different Connector or Ferrule Types
- Diamond, Aluminum Oxide, Silicon Carbide, and Calcined Alumina Lapping Film
- Glass Polishing Plate and Rubber Polishing Pad



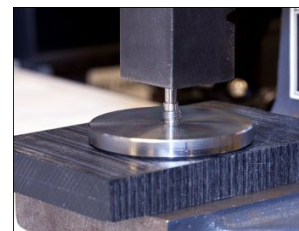
OVERVIEW

Thorlabs offers a family of products to assist customers who would like to connectorize their bare fiber, including fiber polishing film for use with ceramic or stainless steel ferrules, polishing pucks, polishing plates, and connectorization kits. We also offer instructions on how to polish a connector, including how to glue and cleave the fiber. A color manual can be purchased below, or it can be downloaded here for free. The components sold here are also available in kits, sold at the bottom of the page.

D50-SMA CALIBRATION

Calibrating the D50-SMA

Included with the D50-SMA is the D50-A calibration pin. To use this calibration pin, you will need an arbor press and a flat surface as a reference. Using the arbor press, press the calibration pin into the center hole of the puck. This will press the threaded part of the polishing puck into the flat disc until the end of the calibration pin is level with the bottom surface of the puck. This will ensure that the fiber is polished to the correct height in the SMA ferrule.



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Fiber Polishing/Lapping Film for Use with Ceramic Ferrules



Thorlabs offers lapping (polishing) sheets to polish a connector after the fiber has been epoxied into the ceramic ferrule. Polishing or Lapping Film is composed of tiny particles glued to a substrate. By moving the connector over the polishing film, excess material is removed and the fiber end is polished. Different grades of polishing film are used in successive polishing cycles. Each polishing cycle uses a finer grit paper.

Our diamond sheets have tiny diamond particles glued to a substrate of polyester with resin. We highly recommend a five step polishing process: the first four steps using diamond sheets in four different grit sizes of 30, 6, 3, and 1 µm, and the fifth using our final polishing sheets which have a grit size of 0.02 µm. To use, drop distilled water on to the sheet and polish in a figure-eight motion using an appropriate polishing puck (sold below).

Our Final Polishing Sheets (LFCF), which eliminate the need for slurry, are designed to be used as the last step in the fiber polishing process. These sheets are made by coating polyester film with precision-grade silicon dioxide. These sheets produce an excellent surface finish with minimal scratches and offer no binder contamination on the optical fiber during polishing.

We recommend using these sheets over the less expensive aluminum oxide, silicon carbide, or calcined alumina sheets when polishing ceramic or zirconia ferrules because they do not cause undercutting when polishing the connector like silicon carbide can. Undercutting occurs when the fiber material is removed more quickly than the ferrule material creating a dip just above the fiber. When the connector is mated to another connector, instead of obtaining a glass-to-glass interface, the air

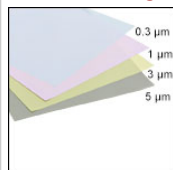
gap created by the undercutting causes a glass-air-glass interface and excess loss, which is undesirable.

Despite the higher upfront cost per sheet, each area of the sheet can be used up to 20 times instead of once, compared to the aluminum oxide, silicon carbide, and calcined alumina sheets featured below. This greatly increases its value. These 6" x 6" sheets should be used with our glass polishing plates and rubber mats (see below).

Note: The diamond and final polishing films are sold in packages of 5.

Part Number	Description	Price	Availability
LF0CF	6" x 6" Final Lapping (Polishing) Sheets, 0.02 μm Grit (5 Sheets)	\$43.68	Today
LF1D	6" x 6" Diamond Lapping (Polishing) Sheets, 1 μm Grit (5 Sheets)	\$43.68	Today
LF3D	6" x 6" Diamond Lapping (Polishing) Sheets, 3 μm Grit (5 Sheets)	\$43.68	Today
LF6D	6" x 6" Diamond Lapping (Polishing) Sheets, 6 μm Grit (5 Sheets)	\$43.68	Today
LF30D	6" x 6" Diamond Lapping (Polishing) Sheets, 30 μm Grit (5 Sheets)	\$43.68	Today

Fiber Polishing/Lapping Film for Use with Stainless Steel Ferrules



Thorlabs offers aluminum oxide, silicon carbide, and calcined alumina lapping/polishing sheets to polish a connector after the fiber has been epoxied into the ferrule. Lapping sheets are like sandpaper for optical connectors. Tiny aluminum oxide, silicon carbide, or calcined alumina particles are glued to a substrate of polyester with a non-pressure-sensitive adhesive. As we highly recommend a four step polishing process when using these sheets, we offer our sheets in four different grit sizes: 5 μm grit using silicon carbide, 1 and 3 μm grits using aluminum oxide, and 0.3 μm grit using calcined alumina.

Typically, each area of each sheet can only be used once to polish a single connector. Care should be taken when polishing your connector as these sheets can cause undercutting especially with ceramic or zirconia ferrules. Undercutting occurs when the fiber material is removed quicker than the ferrule material creating a dip just above the fiber. When the connector is mated to another connector, instead of getting a good glass-to-glass interface, the air gap created by the undercutting causes a glass-air-glass interface and undesirable excess loss.

These 11" x 9" sheets should be used with our glass polishing plates and rubber mats (see below).

Note: All polishing/lapping sheets for stainless steel ferrules are sold in packages of 10.

Part Number	Description	Price	Availability
LF03P	11" x 9" Calcined Alumina Lapping (Polishing) Sheets, 0.3 μm Grit (10 Sheets)	\$16.74	Today
LF1P	11" x 9" Aluminum Oxide Lapping (Polishing) Sheets, 1 μm Grit (10 Sheets)	\$16.74	Today
LF3P	11" x 9" Aluminum Oxide Lapping (Polishing) Sheets, 3 μm Grit (10 Sheets)	\$16.74	Today
LF5P	11" x 9" Silicon Carbide Lapping (Polishing) Sheets, 5 μm Grit (10 Sheets)	\$16.74	Today

Connectorized Fiber Polishing Pucks



In order to hold the fiber connector securely and to maintain the proper angle, a Manual Fiber Polishing Puck can be used. The puck makes easier holding the connector against the polishing film and ensures an even polish. We offer polishing discs for six different connector types. Please note that discs are specific to the type of connector and are not interchangeable. Please verify connector type and size prior to purchase.

FC/PC and SC/PC Connector Polishing Disc

This polishing disc will accommodate both flat and pre-radiused connectors. This polishing disc accepts IEC standard $\text{Ø}2.499 \pm 0.0005$ mm PC-style ferrules.

FC/APC Connector Polishing Disc

This polishing disc is designed to polish ferrules at 8° while securing the connector key in the proper orientation with respect to the polish angle. This polishing disc accepts IEC standard $\text{Ø}2.499 \pm 0.0005$ mm PC-style ferrules.

SMA Connector Polishing Disc

This polishing disc will accommodate both SMA905 and SMA906 connectors. Each disc is factory set to produce the correct ferrule length after polishing is complete. The D50-SMA polishing disc can be recalibrated using our D50-A calibration pin, which is included with the D50-SMA polishing disc. For information on the recalibration procedure, please view the D50-SMA Calibration tab above. This polishing disc accepts IEC standard $\text{Ø}3.17 \pm 0.002/-0.004$ mm SMA905 ferrules.

ST[®]/PC or LC[®]/PC Connector Polishing Disc

These polishing discs are designed to allow the ST/PC (D50-ST) or LC/PC (D50-LC) connector to float. This design allows the polishing of both flat and pre-radiused connectors. The D50-LC polishing disc accepts $\text{Ø}1.249 \pm 0.0005$ mm LC-style ferrules, while the D50-ST polishing disc accepts IEC standard $\text{Ø}2.499 \pm 0.0005$ mm PC-style ferrules.

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Part Number	Description	Price	Availability
D50-FC	FC/PC and SC/PC Connector Polishing Disc	\$79.00	Today
D50-FC/APC	FC/APC Connector Polishing Disc	\$124.73	Today
D50-SMA	SMA Connector Polishing Disc with Calibration Pin	\$79.00	Today
D50-A	SMA Calibration Pin for D50-SMA	\$24.23	Today
D50-LC	LC [®] /PC Connector Polishing Disc	\$102.16	Today

D50-ST	ST®/PC Connector Polishing Disc	\$102.16	Today
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Bare Ferrule Polishing Pucks



D50-F

Thorlabs' bare ferrule polishing pucks provide a convenient and secure platform to evenly polish bare ferrules. Each puck includes a jig that is used to set the depth of the ferrule and a setscrew that firmly holds the ferrule in the puck. To use, simply place the puck on the jig, drop the ferrule into place, and tighten down the setscrew with the included 0.050" hex key (see image to the right). The puck will ensure that the ferrule is held perpendicular to the polishing surface while allowing the user to polish by holding the puck instead of the ferrule. During the polishing process, it may be necessary to return the puck to the jig in order to reset the proper depth. This simple yet practical device alleviates concerns of damaging or breaking the fiber while



Click to Enlarge D50-F Polishing Puck in Jig with Secured Ferrule

polishing the ferrule.

We offer the D50-F polishing puck for FC/PC and SC/PC ferrules and the D50-L for LC/PC ferrules.

Part Number	Description	Price	Availability
D50-F	FC/PC and SC/PC Ferrule Polishing Disc	\$102.46	Today
D50-L	LC/PC Ferrule Polishing Disc	\$102.46	Today

Polishing Plates and Pads



NRS913A

CTG913

Glass Polishing Plate

Polishing of fiber optic connectors requires a flat, hard surface. The glass plate is produced from safety glass with all edges and corners rounded. Rubber feet help to ensure the plate will not mar the work surface and keep the plate from sliding. These 5 feet, located at the four corners and center of the plate, raise the top of the glass to a height of 0.5" (12.7 mm).



Click to Enlarge Polishing Pad on Glass Polishing Plate

Polishing Pad

This solid silicone polishing pad (50 Durometer) is required when polishing PC-style pre-radiused connectors. When used with our glass polishing plate, as shown in the photo to the right, the pad helps to maintain the radius of the connector tip during polishing. This pad is 8.75" x 13" (222.3 mm x 330.2 mm) and 0.12" (3.1 mm) thick uncompressed.

Part Number	Description	Price	Availability
CTG913	Glass Polishing Plate, 9.5" x 13.5"	\$43.66	Today
NRS913A	Polishing Pad for PC Finishes, 8.75" x 13", 50 Durometer	\$25.42	Today

Fiber Polishing Notes



FN96A

Guide to Connectorization and Polishing of Optical Fibers

The FN96A Polishing and Connectorization Guide contains easy-to-follow, step-by-step instructions that show the reader how to properly cleave a fiber, assemble a cable and connector, and polish the connector. A color manual can be purchased below, or it can be downloaded here in PDF format for free.

Part Number	Description	Price	Availability
FN96A	Guide to Connectorization and Polishing of Optical Fibers	\$8.68	Today

Fiber Optic Termination Kits



CK05

- ▶ Includes All Tools and Supplies to Connectorize an Optical Fiber (Optical Fiber and Connectors Not Included)
- ▶ Kits for FC/PC, FC/APC, or SMA Connectors

Thorlabs' Fiber Optic Termination / Connectorization Kits contain all of the materials for your connectorization needs with the exceptions of the single mode or multimode connectors and the optical fiber, which need to be purchased separately. The CK01 is an SMA Connectorization Tool Kit, the CK03 is an FC/PC Connectorization Tool Kit, and the CK05 is an FC/APC Connectorization Tool Kit. The CK03 and CK05 kits include a Rubber Polishing Pad (50 Durometer) that is used to produce PC (radiused) polishes.

We recommend our fiber optic disposal unit (FTDU, sold separately) to properly dispose of all cleaved fiber scraps, epoxy, and syringes.

To view the SDS documents for the F112 epoxy included in these kits, click on the red Docs icons below. Please note that the epoxy included in these kits is classified as a dangerous good in some countries. Depending on the delivery location, this item may need to be shipped separately from the rest of your order at an additional charge. Please contact our sales department if there are questions or concerns when placing an order for these kits.

Connectorization Kit Components					
Item #	Description	Qty.	Item #	Description	Qty.

FN96A	Step-by-Step Instructions	1	MS403-10	10 Epoxy Syringes	1
CT042	Crimp Tool ^a	1	FT030	Furcation Tubing (2 m)	1
CTG913	Glass Polishing Plate	1	F112	Epoxy	10
FS201	200X Fiber Scope	1	T06S13	Fiber Stripper (Cladding/Coating: 125 µm / 250 µm)	1
BFG1	Bare Fiber Gripper	1	FTS4	Three-Holed Furcation Tubing Stripper	1
S90R	Ruby Fiber Scribe	1	KW32	Kim Wipes (280 Sheet Box)	1
-	Wash Bottle ^b	1	T186	Kevlar Cutting Shears	1
CK01 Only					
LF03P	0.3 µm Grit Polishing Film	10 Sheets	LF3P	3 µm Grit Polishing Film	10 Sheets
LF1P	1 µm Grit Polishing Film	10 Sheets	LF5P	5 µm Grit Polishing Film	10 Sheets
D50-SMA	SMA Polishing Puck	1	-	-	-
CK03 and CK05					
LFCF	0.02 µm Final Lapping Film	5 Sheets	LF6D	6 µm Grit Lapping Film	5 Sheets
LF1D	1 µm Grit Lapping Film	5 Sheets	LF30D	30 µm Grit Lapping Film	5 Sheets
LF3D	3 µm Grit Lapping Film	5 Sheets	NRS913A	Rubber Polishing Pad	1
CK03 Only			CK05 Only		
D50-FC	FC/PC Polishing Puck	1	D50-FC/APC	FC/APC Polishing Puck	1

- a. The color of the handle may vary.
- b. The wash bottle is a single bottle from the B2939 solvents bottle kit.

Part Number	Description	Price	Availability
CK01	SMA Termination / Connectorization Tool Kit	\$911.14	Lead Time
CK03	FC/PC Termination / Connectorization Tool Kit	\$937.27	Today
CK05	FC/APC Termination / Connectorization Tool Kit	\$982.41	Today

Connector Touch-Up Polishing and Repair Kit



TUK05



Click to Enlarge
The TUK05's Carrying Case has Removable Foam Inserts Secured by Hook & Loop Tabs

- ▶ Repair Fiber Optic Connectors with Scratched End Faces
- ▶ Compatible with FC/PC and FC/APC Connectors with Ceramic Ferrules
- ▶ Repair Approximately 20 Connector End Faces with the Included Lapping Film

A fiber optic connector end face is an optical-quality surface that needs to be free of dirt and scratches for optimal performance. When cleaning the end face is not effective, Thorlabs' TUK05 Touch-Up Polishing Kit allows worn fiber connector end faces to be repaired by polishing out the scratches.

Touch-Up Polishing Kit Components					
Item #	Description	Qty.	Item #	Description	Qty.
-	Step-by-Step Instructions	1	FCC-7020	Fiber Cleaning Tape	1
D50-FC	FC/PC Polishing Puck	1	LF1D	1 µm Grit Lapping Film	5 Sheets
D50-FC/APC	FC/APC Polishing Puck	1	LFCF	Final Lapping Film	5 Sheets
-	30 mL Dropper Bottle for Distilled Water	1	-	Polishing Pad ^a	1
-	30 mL Dropper Bottle for Isopropanol	1	-	Carrying Case ^b	1

- a. The Polishing pad is one half of our NRS913A pad, measuring 8.75" x 6.5" (22.2 cm x 16.5 cm).
- b. The carrying case has extra slots for the FS200 or FS201 microscopes, two extra polishing pucks, and one extra dropper bottle as well as space for additional polishing film.

The kit includes polishing supplies and complete repair instructions, all housed in a convenient carrying case. The kit has components compatible with FC/PC and FC/APC ceramic ferrule connectors and has enough polishing film to repair approximately 20 connector end faces.

Connectors can generally be repolished 10 times before reconnectorization is necessary. For replacement of worn or marred connectors, contact Thorlabs' tech support for assistance.

Kit Expansion Options

We strongly recommend using a fiber inspection scope such as the FS201 with this kit. To repair different connector types, additional polishing pucks can be purchased separately. Our aluminum oxide polishing film can be used with this kit to polish steel ferrule connectors, and rougher grits of diamond lapping film can be used to repair deeply scratched connectors (see the User's Manual for details).

The carrying case included with the TUK05 has extra storage slots for the FS201 microscope, two extra polishing pucks, and one extra dropper bottle as well as space for additional lapping film. The scope itself includes batteries and fiber adapters compatible with FC/PC, FC/APC, ST[®]/PC, SC/PC, SMA905 and SMA90 connectors. For more information about the FS201, see the full web presentation. The case has removable foam inserts (see photo to the left) for reuse or storage of other components.

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We Recommend Using the FS201 Fiber Inspection Scope with the TUK05 Kit

Part Number	Description	Price	Availability
TUK05	Touch-Up Polish Repair Kit for FC/PC & FC/APC Ceramic Ferrule Connectors	\$343.31	Today
FS201	Fiber Inspection Scope with FS201-FC and FS201-SMA Adapters	\$245.26	Today

