

Polishing Processes for Heat Cure Fiber Optic Connectors

Revision History

Issue	Date	Reason for Change
1	06/2007	Initial release

1. GENERAL

This procedure provides guidelines for heat cure fiber optic connector polishing processes.

IMPORTANT: *The processes documented in this procedure were established using controlled laboratory environments and equipment. All recommended procedures must be individually evaluated and adjusted due to equipment, operator, environmental, material, and utility variations.*

Necessary items for polishing include alcohol, compressed air, lint-free wipes, and distilled water. Additional films can be purchased using the part numbers listed in the Process Tables referenced throughout this document. Contact your customer service representative for assistance.

2. BEFORE POLISHING

- Inspect the polishing machine and fixture for cleanliness. Clean with alcohol and lint-free wipes.
- Inspect rubber polishing pads and glass plates. Clean with alcohol and lint-free wipes before and after each polishing step.
- Inspect all connectors to be polished. Ensure there is no epoxy on the sides of ferrules. If there is epoxy on sides, it must be removed before the connector will fit into the polishing fixture.

3. SELECT APPROPRIATE PROCESS TABLE

Select the appropriate Process Table from the list below depending on the polishing machine being used and the ferrule type being polished. Actual Process Tables are located at the end of this instruction.

- TABLE 1: Dommille HDC Series Process for 2.5mm Ceramic Ferrules (12 ports)
- TABLE 2: Dommille HDC Series Process for 2.5mm Composite Ferrules (12 ports)
- TABLE 3: Dommille HDC Series Process for 1.25mm Ceramic Ferrules (12 ports)
- TABLE 4: Dommille HDC Series Process for MTRJ Thermoplastic Ferrules (10 ports)
- TABLE 5: Dommille HDC Series Process for MTP Thermoplastic Ferrules (10 ports)

4. CONNECTOR POLISHING INSTRUCTIONS

- a. Remove the sharp fiber cleave on each connector using the film noted in Step #1 of the appropriate process table. Use light hand pressure in a circular motion during this denub process as shown in Figure 1.

IMPORTANT: *The purpose of the denub process is to break sharp fiber edges so they do not damage polishing film. Excessive pressure or duration can permanently damage the ferrule end-face.*

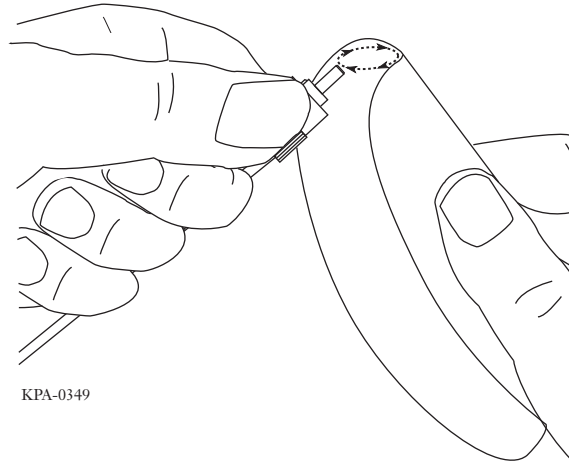


Figure 1 — Denub Ferrule

- b. Install denubbed connectors into appropriate polishing fixture for the machine being used and the connector type being polished.

IMPORTANT: *All ports of the polishing fixture must be filled; no ports may be left empty. Fill any unused ports with dummy connectors.*

- c. Place the appropriate polishing film on a clean backup pad using a 0.5-inch piece of double-sided tape to hold the film in place. Proper film and pad are noted in the corresponding Step Number in the appropriate Process Table.

IMPORTANT: *For films used in each step, clean with distilled water and lint-free wipes. Then blow dry with air. Do NOT clean any films with alcohol. Remove any air bubbles that may get trapped between the film and the pad.*

- d. Add lubricant to the film per the appropriate Process Table and Step Number.
- e. Set the time, pressure, and speed settings on the polisher per the appropriate Process Table and Step Number. Reference manufacturer's instructions for details.
IMPORTANT: *Pressure settings are optimized to the number of connector ports shown on each Process Table. If the fixture being used has more or less ports, the pressure must be adjusted to the proper pressure per port.*
- f. Position the loaded polishing fixture onto the polisher per manufacturer's instructions.
- g. Clean the connector end-faces using alcohol and lint-free wipes.

- h. Lower the polishing fixture onto the film and secure the fixture in place per the manufacturer's instructions. Press start button to begin the polishing cycle.
- i. After completing each step, clean the connector end-faces and the polishing fixture using distilled water and lint-free wipes. Clean a second time using alcohol and lint-free wipes. Blow dry with compressed air.
- IMPORTANT:** *Improper cleaning between polishing steps could affect the quality of the connector end-face.*
- j. Repeat instructions c. through i. for all process steps listed in the appropriate Process Table.
- k. After completing the final process step in the Process Table, inspect the connector end-faces with a microscope.
- IMPORTANT:** *Depending on visual or measured end-face results, repeat as many polishing steps as needed to achieve desired results. Regardless of initial rework step performed, all subsequent steps must be performed in the proper order.*

5. PROCESS TABLES

Table 1: Domaille HDC Series Process for 2.5mm Ceramic Ferrules (12 ports)

Step #'s for Fiber Type		Film Part # and Description	Pressure (lbs)	Speed (rpm)	Time (seconds)	Backup Pad	Film Lubricant	Film Usage
MM	SM							
1	1	1506104-01 16 micron Silicon Carbide	N/A	N/A	N/A	N/A	N/A	As Film Space Allows
2	2	1506062-01 3 micron Silicon Carbide	4	130	30	70 Duro.	Distilled Water	2
3	3	1506093-01 1 micron Diamond	6	130	30	70 Duro.	Distilled Water	4
N/A	4	1506121-01 Final Polish (SO-SP)	6	140	90	70 Duro.	Distilled Water	1

Table 2: Domaille HDC Series Process for 2.5mm Composite Ferrules (12 ports)

Step #'s for Fiber Type		Film Part # and Description	Pressure (lbs)	Speed (rpm)	Time (seconds)	Backup Pad	Film Lubricant	Film Usage
MM	SM							
1	N/A	1506104-01 16 micron Silicon Carbide	N/A	N/A	N/A	N/A	N/A	As Film Space Allows
2	N/A	1506111-01 5 micron White Fused Alumina	4	175	45	70 Duro.	Distilled Water	1
3	N/A	1506124-01 1 micron Calcined White Alumina	4	175	25	70 Duro.	Distilled Water	1
4	N/A	1506124-01 1 micron Calcined White Alumina	0.5	175	20	Glass Plate	Distilled Water	1

Table 3: Domaille HDC Series Process for 1.25mm Ceramic Ferrules (12 ports)

Step #'s for Fiber Type		Film Part # and Description	Pressure (lbs)	Speed (rpm)	Time (seconds)	Backup Pad	Film Lubricant	Film Usage
MM	SM							
1	1	1506104-01 16 micron Silicon Carbide	N/A	N/A	N/A	N/A	N/A	As Film Space Allows
2	2	1506062-01 3 micron Silicon Carbide	2.5	125	25	80 Duro.	Distilled Water	2
3	3	1506093-01 1 micron Diamond	2.5	125	25	80 Duro.	Distilled Water	4
N/A	4	1506121-01 Final Polish (SO-OP)	2.5	125	90	80 Duro.	Distilled Water	1

Table 4: Domaille HDC Series Process for MTRJ Thermoplastic Ferrules (10 ports)

Step #'s for Fiber Type		Film Part # and Description	Pressure (lbs)	Speed (rpm)	Time (seconds)	Backup Pad	Film Lubricant	Film Usage
MM	SM							
1	1	1506104-01 16 micron Silicon Carbide	N/A	N/A	N/A	N/A	N/A	As Film Space Allows
2	2	1506104-01 16 micron Silicon Carbide	4.0	175	45	Rubber Backed Glass	Distilled Water	1
3	3	1506101-01 2 micron Silicon Carbide	4.0	175	90	Rubber Backed Glass	Distilled Water	1
4	4	1506060-01 1 micron Alumina, Flock	5.0	175	70	Rubber Backed Glass	Distilled Water	1
5	N/A	1506060-01 1 micron Alumina, Flock	5.0	175	70	Rubber Backed Glass	Distilled Water	1
N/A	5	1506054-01 0.5 micron Cerium Oxide, Flock	5.0	175	70	Rubber Backed Glass	Distilled Water	1

Table 5: Domaille HDC Series Process for MTP Thermoplastic Ferrules (10 ports)

Step #'s for Fiber Type		Film Part # and Description	Pressure (lbs)	Speed (rpm)	Time (seconds)	Backup Pad	Film Lubricant	Film Usage
MM	SM							
1	1	1506104-01 16 micron Silicon Carbide	N/A	N/A	N/A	N/A	N/A	As Film Space Allows
2	2	1506104-01 16 micron Silicon Carbide	4.0	175	60	Rubber Backed Glass	Distilled Water	1
3	3	1506062-01 3 micron Silicon Carbide	1.5	135	90	Rubber Backed Glass	Distilled Water	1
4	4	1506101-01 2 micron Silicon Carbide	1.5	135	30	Rubber Backed Glass	Distilled Water	1
5	5	1506060-01 1 micron Alumina, Flock	6.0	175	120	Rubber Backed Glass	Distilled Water	1
6	N/A	1506060-01 1 micron Alumina, Flock	6.0	175	120	Rubber Backed Glass	Distilled Water	1
N/A	6	1506054-01 0.5 micron Cerium Oxide, Flock	6.0	175	120	Rubber Backed Glass	Distilled Water	1