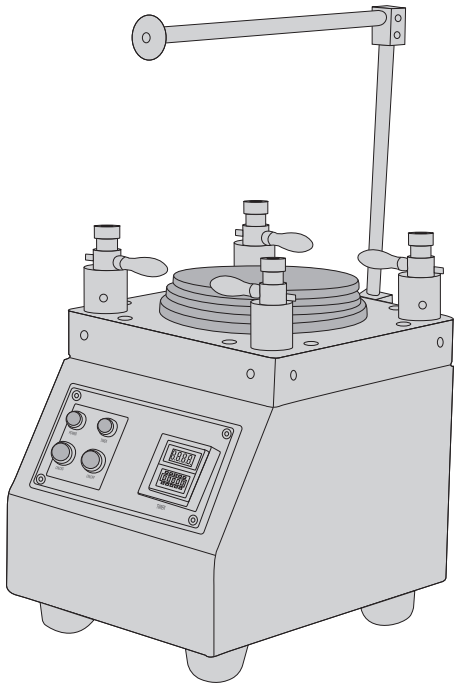


FS-20A

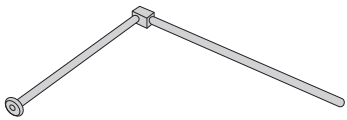
FIBER OPTIC POLISHING MACHINE

Quick Start Guide V1.0

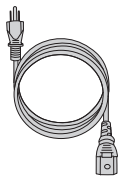
Introduction

The FS-20A high-performance polish machine offers superior quality and maximum processing capacity. With high speed rotation & revolution method, this Square Pressure Fiber Optic Polishing Machine can polish 18~40 standard fiber optic connector at one time. The square is pressurized by the spring, making the operation simple with high flexibility.

Accessories



Fiber Pigtail Shelf x1

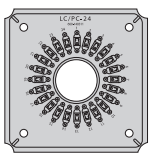


Power Cord x1

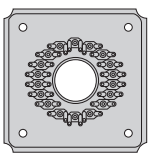
Optional (Not Included)

Polishing Jig

ST/UPC-20

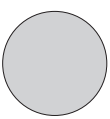


LC/UPC-24

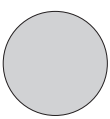


FC/APC-18

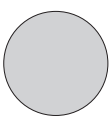
Polishing Film



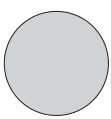
FS-PP01



FS-PP03

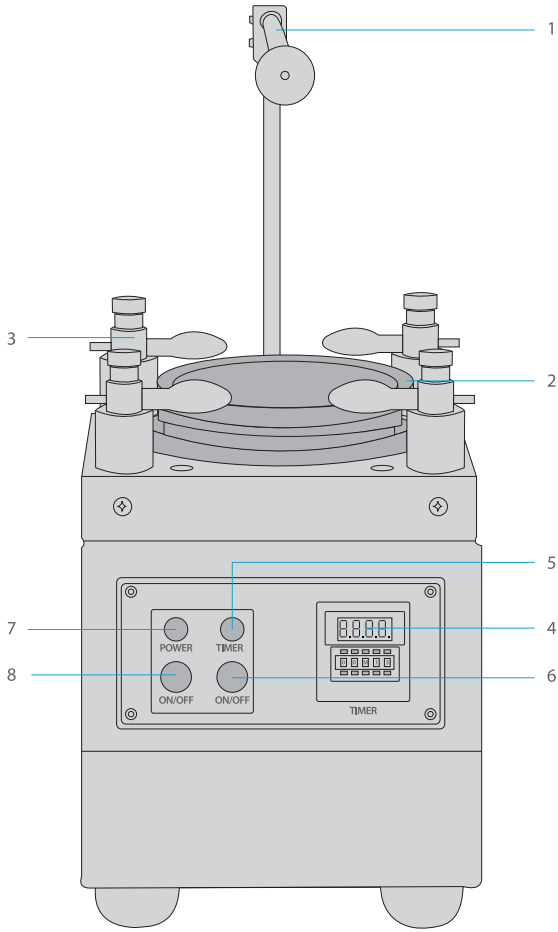


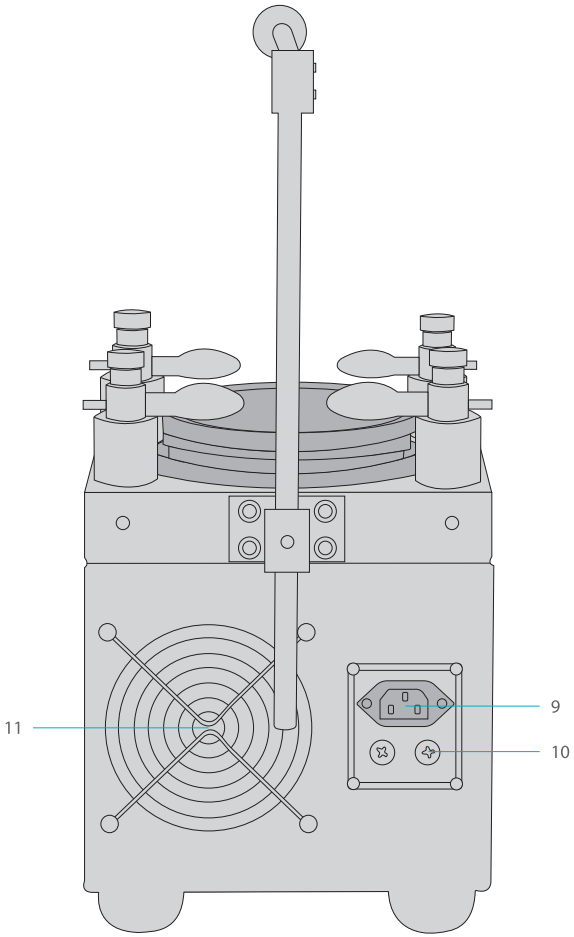
FS-BP09



FS-YP30

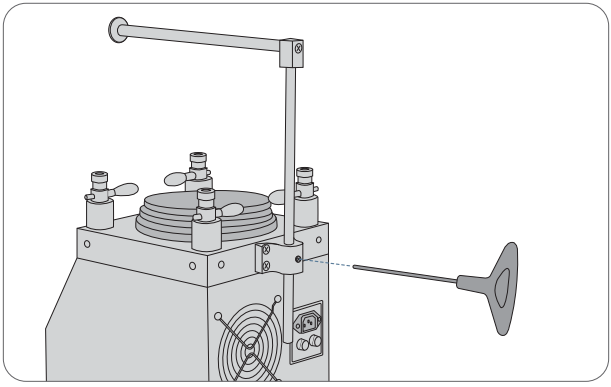
Function Introductions



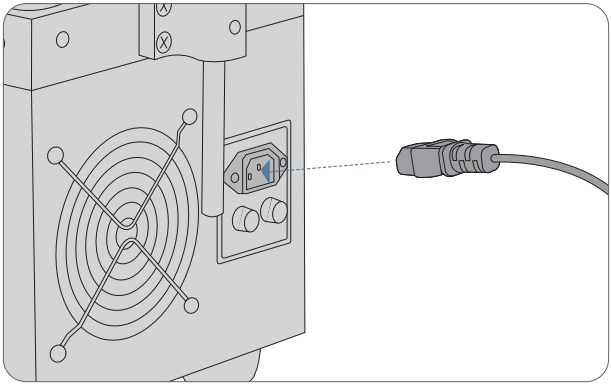

11
9
10

NO.	Part	Description
1	Fiber Pigtail Shelf	When polishing ferrules, coil the fiber on the shelf and adjust the height of the shelf to make sure the fiber cable doesn't touch the rotation parts.
2	Rotation Plate	Put rubber pad and polishing film on this part. The Rotation Plate is drived by motors and makes the films grind the ferrule ends of fiber optic connectors, which makes surface become the required shape and roughness.
3	Pressure Handle	Add pressure on polishing jig, adjusting the spring screw to change the pressure force.
4	Timer	Set the cycle time and display polishing time.
5	Running Indicator (Green)	Green light is ON/OFF when the machine runs or stops.
6	Start Switch (Green)	Push the green button to make the machine run or stop.
7	Start Indicator (Red)	Red light is ON/OFF when the power is ON/OFF.
8	Power Switch (Red)	Control power ON/OFF.
9	Power Receptacle	Connect to the AC power source to supply power.
10	Fuse	Fuse specification is 250V-0.5A.
11	Fan Cover	Keep the air flow and protect the machine from sundries.

Installing



1. Install the Fiber Pigtail Shelf on the back of the polisher.



2. Connect to the power.

Operation Instructions

Preparation Before Polishing

Preparation of Rotation Plate

1. Cut off the power.
2. Coat enough lubricant on the back of Rotation Plate.
3. Put the Rotation Plate onto rotation axis, and make the Rotation Plate contact with the rotation axis completely.

NOTE: Make sure the rotation axis insert the holes on the back of Rotation Plate correctly. Don't rotate the Rotation Plate without lubricant so that the Rotation Plate could not be frayed fast. We suggest the lubricant be coated every 30 days.

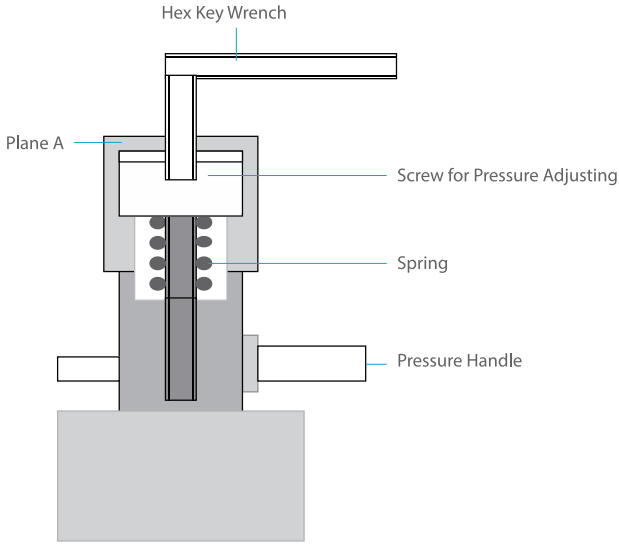
Placement of Polishing Films

1. Use cleaning paper and purified water to clean the Rotation Plate and rubber pads, and make sure that there is not anything and faults on their surface.
2. Put the rubber pad and the film onto the Rotation Plate. Paste the film onto the rubber pad from center to right and left side with fingers so that you could keep the air escape from the rubber pad and the film.

NOTE: Use the 4 kinds of polishing films, such as 9μm-3μm-1μm-0.05μm (or other kind of final polishing films).

Settings for Pressure Parameters

There are 4 pressure handles on the 4 corners of polisher, the frame sketch as follow shown.



Operators could use Hex Key Wrench to adjust pressures and the heights of the 4 screws. Make sure the distance between screw top and Plane A is about 5mm (Measured by caliper). Repeat the same operation on the 4 handles to finish the pressure adjusting.

NOTE: Please adjust the distance between the screw top and Plane A depending on polishing procedures and quantity of connectors. If the quantity of connectors or ferrules is fewer than 10, please fill the blank positions with scrapped connectors or ferrules to reach 10 pieces.

Parameters for Polishing Pressure Settings

Connectors or Ferrules Quantity on Jig	The Distance Between Screw Top to Plane A			
	The 1st Polishing	The 2nd Polishing	The 3rd Polishing	The 4th Polishing
20	5mm	5mm	5mm	5mm
16	4.8mm	4.8mm	4.8mm	4.8mm
12	4.5mm	4.5mm	4.5mm	4.5mm
10	4mm	4mm	4mm	4mm

Settings for Polishing Time

Rotate the timer knob on the control panel to choose the time for each polishing procedure. Please find the parameter details in the following table.

Process	Films	Liquid	Pressure	Time	Film Lifetime
Remove Glue	30μm Film	Nothing	About 1~2 kg	30 sec	3 or 5 times
The 1st Polishing	9μm Film (Green)	Water	About 2 kg	50 sec	Increase 5 sec after every 10 cycles, 30~40 cycles
The 2nd Polishing	3μm Film	Water	About 2 kg	50 sec	Increase 5 sec after every 10 cycles, 30~40 cycles
The 3rd Polishing	1μm Film (Gray)	Water	About 2 kg	50 sec	Increase 5 sec after every 10 cycles, 30~40 cycles
The 4th Polishing	0.05μm Film (Lacte)	Water	About 2 kg	50 sec	Increase 5 sec after every 10 cycles, 30~40 cycles

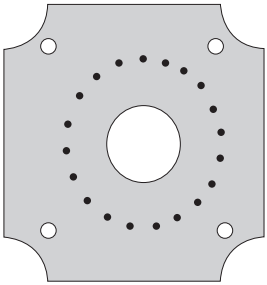
Remark:

1. The parameters are tested by FS polishing films. If operator uses other brand film, the actual parameters may not be the same as above.
2. Remove the glue with hand in small force. If the film is use for a long time and could not remove glue on the end surface in 30 sec, please change a new to rework.
3. If the ferrules and connectors are not fixed into jigs correctly, the polished connectors could not reach the target qualities. If the ferrules and connectors are fewer than 20 pieces, please set aside space averagely. Otherwise the connectors could not be polished normally.

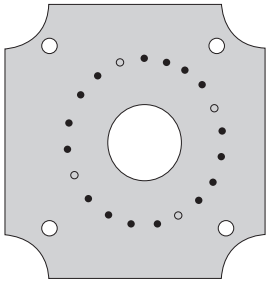
Polishing

1. Fix Connectors

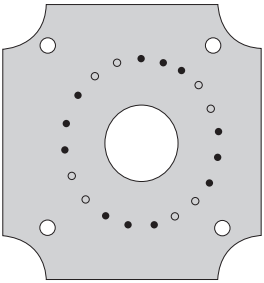
(1) Take out the rubber pad from Rotation Plate and fasten the jig with the 4 Pressure Handles.
(2) Insert the connectors into the holes of the polishing jig, and rotate the nut on the connectors to fasten the connectors (Please choose the right positions for connectors depending on the connector quantity, as follow pictures shown).
(3) Pick up the jig from the Pressure Handles, and watch the back of the jig to confirm whether the heights of the exserted ferrules are the consistent (it is generally about 0.8mm). If some of the ferrules are shorter than others, push the shorter ferrules with hand to confirm whether the shorter ones reach the same height with others. If no, please screw off the nuts of the shorter connectors and fix them again till the short ferrules reach the same height.



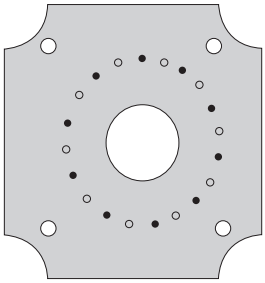
Fix 20 connectors



Fix 16 connectors



Fix 12 connectors



Fix 10 connectors

2. Startup Polisher

Connect power and turn on the Power Switch of polisher.

3. Remove Glue

(1) Clean the rubber pad with purified water and make sure nothing on its surface.
(2) Put a piece of new 30μm film on the rubber pad.
(3) Put the fixed jig onto the 30μm film, and hang the coiled fiber onto the Fiber Pigtail Shelf. Adjust the height of the Fiber Pigtail Shelf to make the fiber length over the jig is proper. Push the Start Switch and run the polisher. Make the polisher rotate 10 sec with pressures from the 4 Pressure Handles, and then fasten the fixed jig with Pressure Handles. Stop the polisher after 20 sec rotation.
(4) Take out the jig and wipe the ferrule ends with cleaning paper. And make sure that there is no glue leaving on the ferrule ends. A piece of new 30μm film could be polished for 3 or 5 times.

4. Coarse Polishing (The 1st Polishing), Fine Polishing 1 & 2 (2nd and 3rd Polishing) and Final Polishing (The 4th Polishing)

(1) Put 9μm film for Coarse Polishing onto the Rotation Plate, and wipe the rubber pad with cleaning paper & water, then extrude 2ml water drops from soft bottle.
(2) After finishing the above operations, set the polishing pressure, then put the fixed jig onto the polisher and rotate the Pressure Handle to fasten the fixed jig.
(3) Rotate the Timer Knob to the right position according to time settings. The polishing is finished when the polisher stops automatically.
(4) Push down the Start Switch, the polisher will start running (Notes: If there is any problem or failure during polishing process, operator could push down the Start Switch or Power Switch to stop polishing).
(5) When time is up, polisher will stop running automatically. Then rotate the Pressure Handle to take the polished jig out. Don't let the film touch the polished ferrules.
(6) Turn over the polished jig and make the ferrules ends up. Wipe every ferrule end with cleaning paper and purified water. Make sure the polished sands and other sundries are cleaned out.
(7) Inspect the ferrule ends and make sure they are clean (Not to permit to take the connectors away from jig). Make the ferrule end up and face to the parallel fluorescent lamps, confirm whether the reflection lights are parallel. If no, please repeat the Coarse Polishing.
(8) Clean the polishing film with wood slurry paper and water.
(9) Replace the 9μm film by 3μm film to start Fine Polishing 1, repeat "Step (2)" to "Step (8)" to finish Fine Polishing 1.
(10) Replace the 3μm film by 1μm film to start Fine Polishing 2, repeat "Step (2)" to "Step (8)" to finish Fine Polishing 2.
(11) Replace the 1μm film by 0.05μm film to start Final Polishing, repeat "Step (2)" to "Step (6)".
(12) Take all the connectors away from the jig, and wash the ferrule ends with water. Then dry the ferrule ends with cleaning paper.
(13) Clean the film with cleaning paper and water to finish Final Polishing.

5. Inspecting the Polishing Effect

Insert the finished ferrules into Inspection Video Scope and inspect the surface quality. If there are faults on the ferrule end surface, please rework the final polishing.

Maintenance

In order to keep the polisher normal status, please execute the following maintenance procedures after operator finishes polishing.

1. After operators finish polishing or stop polisher for a long time, clean all the films completely on the polisher. Otherwise, the polishing liquid will get dry and stiff.
2. If operators don't use polisher for a long time, please clean the jigs with Chloroethane in Ultrasonic Cleaning Machine. Then coat protection oil and store them in appropriative tool case. The lifetimes of polishing films are different depending on different brands, And the lifetime in different processes are not the same. We recommend that users try their best to choose FS polishing films.
3. Examine the driving parts periodically and coat lubricant oil in time. Inspect the cooling fan periodically and confirm whether it is stopped by dirt and dust. Then clean the dirt on the fan in time.
4. Protect the Rotation Plate and brace of the Rotation Plate, Avoid them not to be polluted and crashed by other things.

Troubleshooting

Failure	Cause	Solutions
Polisher can't work.	Confirm power, and examine speed adjusting knob	Contact Power and start the adjust knob.
	Whether the timer stop at ZERO.	Refresh time settings.
	Whether fuse is OK or not.	Change fuse and fix it properly.
Polished ferrules could not reach required shape or quality 1. Spots 2. Obvious Scrapes 3. Ferrule end curvature is out of spec.	Film is used over 40 times.	Reworking
	Water doesn't be used.	
	Films are not cleaned completely.	
	Ferrules and jig are not fixed correctly.	
	The distance adjustment between screw top and Plane A is not correct.	
Bad quality for the polished surface. 1. Not slippery. 2. Return Loss is less than 40 dB.	Film is used over 40 times.	
	Polishing liquid is not used.	
	Film is dirty	
	Ferrules are not cleaned completely	
	Scraped by film when pulling out the ferrules.	

Online Resources

- Download **https://www.fs.com/download.html**
- Help Center **https://www.fs.com/service/help_center.html**
- Contact Us **https://www.fs.com/contact_us.html**

Product Warranty

FS ensures our customers that any damage or faulty items due to our workmanship, we will offer an exchange service within 30 Days from the day you receive your goods.

Warranty: Fiber Optic Polishing Machine FS-20A enjoys 1 year limited warranty against defect in materials or workmanship. For more details about warranty, please check at https://www.fs.com/policies/warranty.html

Return: If you want to return item(s), information on how to return can be found at https://www.fs.com/policies/day_return_policy.html

Q.C. PASSED

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