# **MANUAL**



# Manufacturer:

Seikoh Giken

# **Product Name:**

Seikoh Giken SFP-550C High Duty Cycle Fiber Optic Polishing Machine

# **Manufacturer Part Number:**

SFP-550C

Click here for more details on the Seikoh Giken SFP-550C High Duty Cycle Fiber Optic Polishing Machine





SFP-550 Maintenance Manual

SFP-550 Operating Manual

# **MAINTENANCE MANUAL**



**Manufacturer:** Seikoh Giken

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# SFP-550

Maintenance Manual



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# Introduction

This manual covers items and procedures for the periodic inspection required for the SFP-550 Polishing Machine. At the periodic inspection or in the event of problems arising, read this manual and familiarize yourself with the machine before maintaining it. Make sure that power is off when performing inspections or maintenance on the machine.

### Note

This manual covers maintenance of the SFP-550 when used in accordance with SFP-550 Polishing Machine Operating Manual. Read the Operating Manual and the Polishing Process Manual along with this manual also.

# § • Inspection

# 1-1 Functioning Inspection

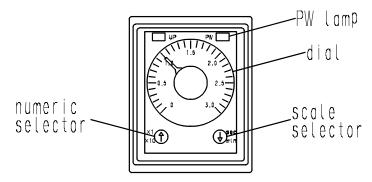
At the first starting or operating the machine after your purchase or any problem arising, conduct performance inspection as outlined below.

# Power cable plugging

Make sure an adaptation of electrical specifications before plugging in a power cable.

# Timer setting

Make sure the scales on the timer are set as [min] and  $[\times 1]$ .

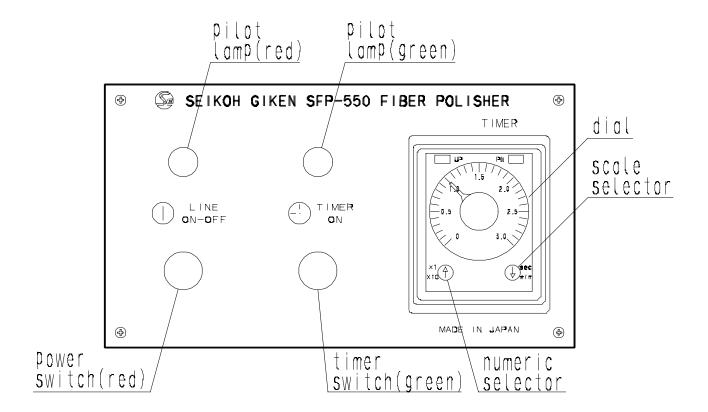


# **Power Switch ON**

- Does the pilot lamp (red) light on?
- Is the cooling fan runing?

# **Timer Switch ON**

- Does the [PW] lamp on the timer light on?
- Do the pilot lamp (red and green) light on?
- Does the turntable begin revolution and rotation?
- Does the cooling fan keep running?



# **Time Up**

- Does the [PW] lamp on the timer go out?
- Does the pilot lamp (red) go out?
- Does the turntable stop revolution and rotation?
- Does the cooling fan keep running?

# **Power Switch OFF**

- Do all the lamps on the front panel go out?
- Does the cooling fan stop running?

# 1-2 Regular inspection and maintenance

Critical points in a principle of polishing with SFP-550 Polishing Machine are following:

- 1. Polishing track of ferrule by revolution and rotation of the turntable
- Pressure of polishing (the space between the clamping posts on the four corners and the turntable, the protrusion length of ferrules from the bottom side of the polishing holder)

Read and familiarize yourself with the followings before inspection.

# 1-2-1 Grease check in the drive unit (once a month or for every 100-500 driving hours)

Remove the turntable and check the drive unit if it is full up with grease. See Figure 1-2-1.

# 1-2-2 Dimension check for the turntable and others (once for 3 months or for 500-1000 driving hours)

Check the space between the clamping posts on the four corners and the turntable.

• The space between each clamping post and the turntable: 5.5• 0.02mm
See Figure 1-2-2.

# 1-2-3 Pressurizing unit check (once for 6 months or for every 1000-2000 driving hours)

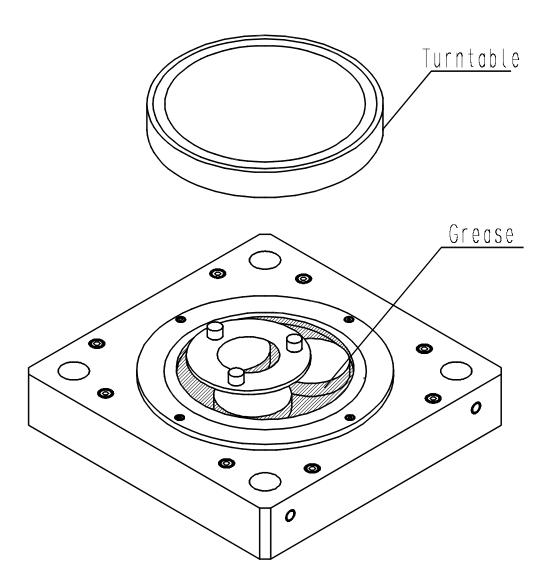
Check the free length of the pressurizing coil springs installed in the clamping posts.

• The free length of the pressurizing coil springs (P/N: RP55-20): 14• 1mm See Figure 1-2-3.

# Figure 1-2-1: Grease check in the drive unit

The turntable can be removed as it is lifted up.

- Make sure that the drive unit is full up with grease.
- If there is any space in the hatching part of the figure below, fill it up with the grease (FP-GS).

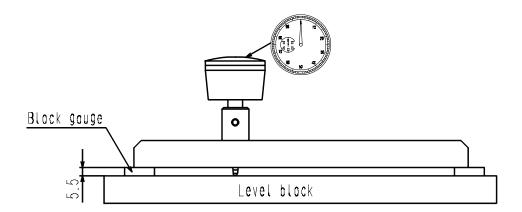


# Figure 1-2-2: Dimension check for the turntable and others

We provide the height gauge(P/N: FP-HG55) for this inspection as the optional tool.

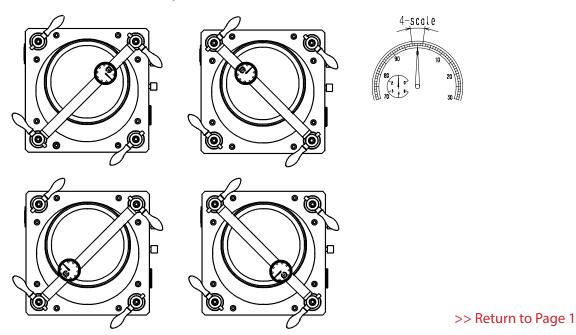
### Reference

Place the 5.5mm-block gauge and the height gauge on the level block and set the dial of the height gauge as the hand comes to zero.



## Measurement

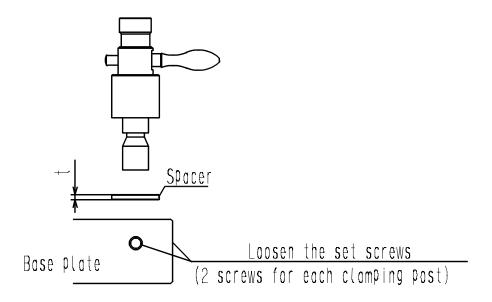
Place the gauge on the clamping posts diagonally and check each four posts. Make sure that the space on each points is within the specification of 5.50mm. 0.02mm. At the scale indication, the specification value is 0(Zero). 2. If the measurement result is out of this specification at the scale indication, adjust the space in accordance with the followings.



# Adjustment

Adjust the space between the clamping posts and the turntable, if it is out of the specification value, in accordance with the following procedure.

- Loosen the set screws on the side of the base plate (two screws for each clamping post).
- Remove the clamping post (pressurizing) unit and spacer.
- Measure the thickness of the spacer, t.



 Calculate the required thickness of the spacer, with the former measurement result of the spacer, t, in accordance with the following expression.

# Required thickness of the spacer • Space between the turntable and clamping post + the thickness of the present spacer, t

# Example:

Space between the turntable and clamping post: 4-scale to minus (-0.04mm) and the thickness of the present spacer, t: 3.00mm, then

Required thickness of the spacer = (-0.04mm) + 3.00mm = 2.96mm

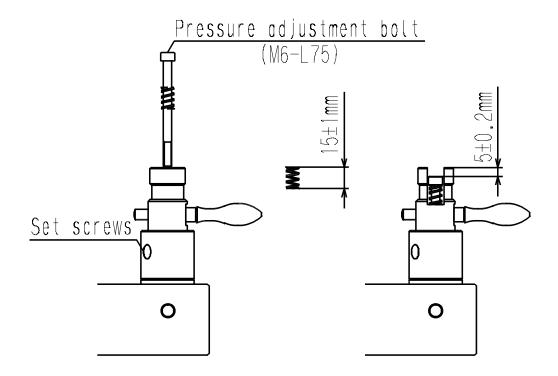
Repeat this procedure for all four clamping posts each.

 When you order the spacer (RP55-16), please designate the thickness of the spacer.
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# Figure 1-2-3: Pressurizing unit check

- Loosen the retaining screws on the side of the clamping posts (2 screws for each post) and remove the pressure adjustment bolt.
- Remove the pressurizing coil springs and measure its free length.

# Specification for the free length of the coil spring: 14. 1mm



- If the free length of the pressurizing coil spring (RP55-20) is out of the specification, exchange it for new one.
- When you tighten the pressure adjustment bolt, adjust the length between the bolt head and the upper plane of the clamping post as 5• 0.2mm (see the right figure above).
- When you tighten the pressure adjustment bolts, tighten both bolts evenly from the both side of the clamping post. If the bolts are tightened unevenly, the clamping levers do not move smoothly.

# § • Treatment for unusual conditions

· · · · · · · CAUTION· · · · · ·

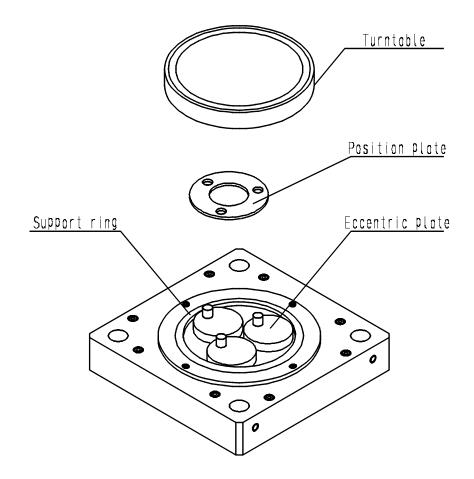
Make sure the power cable is unplugged while the inspection and the maintenance.

- -• Unusual sound is occurred while the machine is driving.
  - Check wear-outs in the drive unit.

### 2-1-1 Eccentric plates checking

The turntable and the position plate can be removed as they are lifted up.

- Make sure that no large scratch or wear-out on the three eccentric plates.
- Make sure that no large scratch, bend, distortion, or wear-out on the upper side of the supporting ring.
- If there is any large scratch or wear-out on the eccentric plate (RP-55-05) and the



supporting ring (RP55-03), exchange them for new ones.

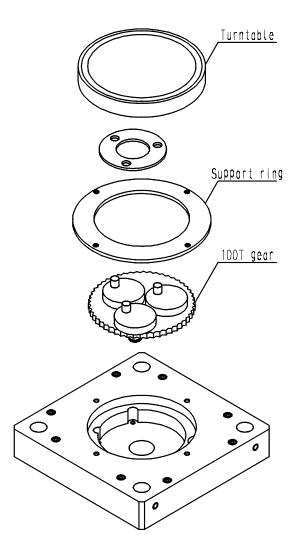
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# -• The turntable doesn't move smoothly while the machine is driving. • Check wear-outs in the drive unit.

### 2-2-1 Gear unit checking

The gear unit can be removed as it is lifted up by the center hole of the 100T gear or the eccentric plates, after the supporting ring is removed.

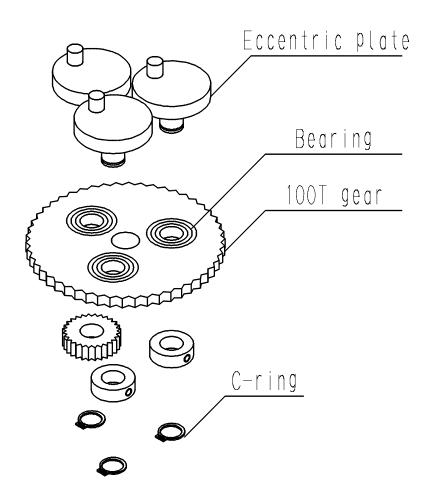
- Make sure that no large scratch, bend, distortion, or wear-out on the bottom side of a supporting ring.
- Make sure that no large scratch, bend, or distortion on the upper and bottom side of the 100T gear.
- Make sure that the bearings attached to the bottom of the turntable moves smoothly.



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# 2-2-2 Eccentric plates removal

Check the bearings when the eccentric plates do not rotate smoothly. Remove the eccentric plates from the 100T gear. The eccentric plates are attached by C-rings on the bottom side of the 100T gear. To take off the c-rings, use the tool generally on the market.



Make sure that inner hole of bearings for the eccentric plates rotate smoothly.

The bearings need to be replaced when the bearings under the turntable and in the 100T gear do not move smoothly. Tools, such as a bearing puller and a press are needed to replace the bearings. Please ask us or our agents if there is any difficulty on the bearing replacement.

### §• **Mechanical Structure**

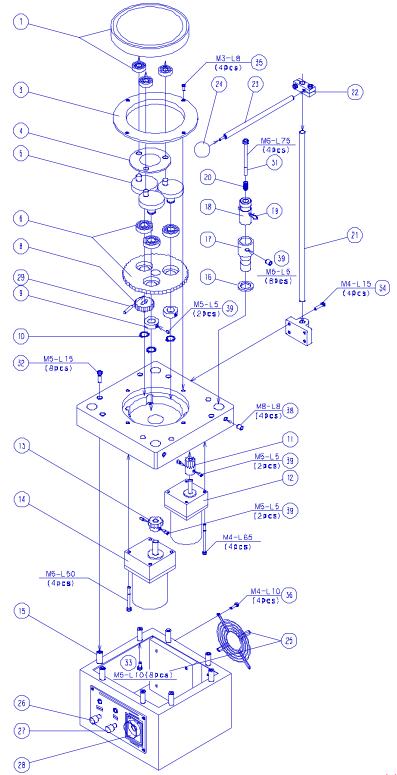
# 3-1 Mechanical components

		Components	
#	Part No.	Description	Q'ty/set
1 F	5555.04	5-Inch turntable for SFP-550	1
	RP55-01	Bearing for turntable	3
3	RP55-03	Support ring for SFP-550/520	1
4	RP55-04	Position plate for SFP-550/520	1
5	RP55-05	Eccentric drive ring for SFP-550/520	3
		(including knock pin)	
	DDEE OC	100T Gear for SFP-550/520	1
6	RP55-06	Bearing for 100T gear	3
8	RP55-08	28T Gear for SFP-550/520	1
9	RP55-09	Retaining collar for SFP-550/520	2
10	RP55-10	C-ring for SFP-550/520/510	3
11	RP55-11	14T Gear for SFP-550/520	1
		6W Motor & Gear box for SFP-550/520/510	1
12	RP55-12	(including "M4-L65"bolt 4pcs)	
13	RP55-13	20T Gear for SFP-550/520	1
		15W Motor & Gear box for SFP-550/520	1
14	RP55-14	(including "M5-L50"bolt 4pcs)	
15	RP55-15	Supporting Column for SFP-550/520	8
16	RP55-16	Adjustment spacer	4
17	RP55-17	Clamp rod	4
10	DDEE 10	Clamp pin	4
18	RP55-18	(including knock pin)	
19	RP55-19	Clamp lever for SFP-550	4
20	RP55-20	Coil spring for SFP-550	4
21	RP55-21	Cable support rod A	1
22	RP55-22	Strut clamp	1
23	RP55-23	Cable support rod B	1
24	RP55-24	Cable hook	1
0.5	RP55-25	Cooling fan for SFP-550	1
25		(including electrical cord , fan guard)	
26	RP55-26	Power switch for SFP-550	1
27	RP55-27	Timer switch for SFP-550	1
28	RP55-28	Timer for SFP-550	1
29	RP55-29	Locate pin for SFP-550/520	1
30	RP55-30	Power cord for SFP-550/520	1
31	RP55-31	M6-L75 Allen hex socket screw	4
	l .	I .	

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32	RP55-32	M5-L15 Allen hex socket screw	8
33	RP55-33	M5-L10 Allen hex socket screw	8
34	RP55-34	M4-L15 Allen hex socket screw	4
35	RP55-35	M3-L8 Allen hex socket screw	4
36	RP55-36	M4-L10 Cross recessed head screw	4
37	RP55-37	M3-L8 Cross recessed head screw	9
38	RP55-38	M8-L8 Clamping screw (ball type)	4
39	RP55-39	M5-L5 Set screw	14
40	RP55-40	M4 Nut	3
41	RP55-41	M3 Nut	3
42	RP55-42	M4 Washer	15
43	RP55-43	M3 Washer	3

# 3-2 Structure Schematic



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# **OPERATING MANUAL**



**Manufacturer:** Seikoh Giken

**Product Name:** 

Seikoh Giken SFP-550C High Duty Cycle Fiber Optic Polishing Machine

**Manufacturer Part Number:** 

SFP-550C

Click here for more details on the Seikoh Giken SFP-550C High Duty Cycle Fiber Optic Polishing Machine

SFP-550

Operating Manual



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# **Safety Precautions**

To ensure safe operation and maximize product service life, observe the following precautions:

- Wear safety shoes and clothes appropriate for safe operation. Take caution to avoid getting clothes or hair caught in the machine.
- Install the machine on a workbench with sufficient strength to support it. the machine level and stableness in order to keep it from tipping over or falling off the workbench.
- Use the rated power supply indicated on the machine.
- Use a 2A fuse. Make sure the machine is unplugged when changing fuses.
- Ground the machine to prevent electric shock before you turn on the power. Never touch the machine when your hands are wet.
- Never touch rotating parts while the machine is running. Make sure the machine has come to a full stop before changing the polishing holder. Always turn off the power and unplug the machine when leaving the machine.
- To prevent rusting, immediately wipe the unit dry after you turn off the power. Never use or store the unit in very humid environment.
- Do not use the machine under unattended operation. Make sure the power is off while leaving.
- Keep the machine away from inflammables, chemicals, and explosives.
- Do not disassemble or make any modifications to the machine. Do not place foreign substances or objects inside the machine.
- Maintain a clear space of at least 30cm from the cooling fan outlet.
- During transportation, take extra precaution not to drop the unit. In general, avoid subjecting the machine to any shock or damage.
- If the machine overheats, makes unusual noises, or gives off smoke or unusual odors, immediately stop using and unplug the machine. Then contact us or your nearest agent.
- Use only the accessories and consumables specified by the manufacturer.
- To ensure safe and correct operation, read the Process Manual and the Maintenance Manual along with this Operating Manual before using the machine.

# Introduction

- Thank you for purchasing SFP-550 Polishing Machine -

This operating manual covers operating procedures for SFP-550 Polishing Machine in depth. Before use, read this manual carefully and familiarize yourself with the various features and functions of this machine.

# Features of SFP-550

Designed to polish the ferrule endfaces of fiber-optic connectors, the SFP-550 offers the following features:

# High-Yield Operation

Capable of quick polishing up to many ferrules\* at once. (\* The number of ferrules varies slightly depending on the types of connectors.)

# Easy Operation

Both maintenance and operation are remarkably easy and require no special skills.

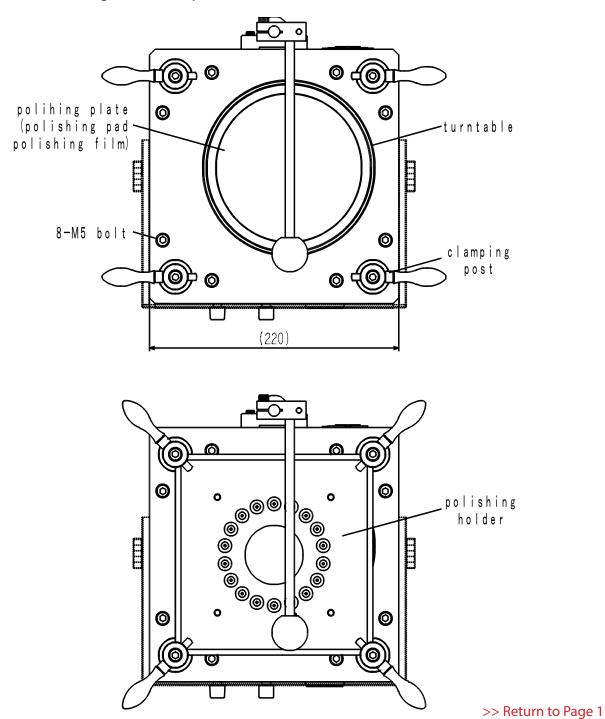
# Wide Range of Application

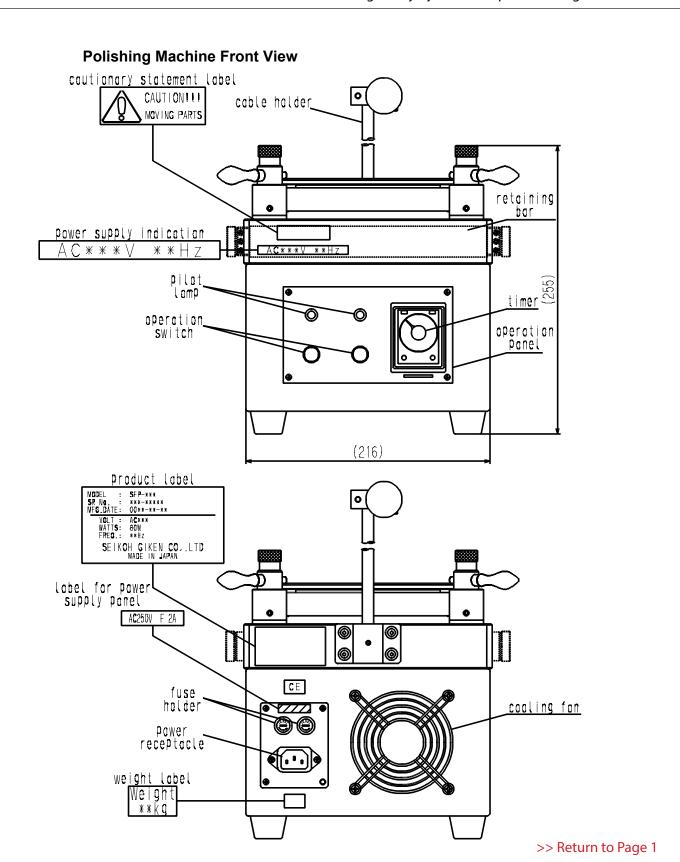
Applicable to FC, SC, and various other connector types in high-physical contact, angled physical contact or flat contact, simply by changing the polishing holder.

# § 1. Specifications

# • 1.1 Structure and Parts

# **Polishing Machine Top View**





# 1.2 Standard Specifications

Item	Specification	
Power Supply		
Voltage, Frequency	AC110• <b>4</b> 20V: 50Hz/60Hz or	
	AC220• 240V: 50Hz	
Power Consumption	80VA	
Drive Unit		
Revolution Motor (rpm)	15W Motor with reduction gear	
revolution wotor (ipin)	(70rpm)	
Rotation Motor (rpm)	6W Motor with reduction gear (1rpm)	
Cooling Fan	90mm propeller fan	
Operating Unit		
Control Timer	Setting increment: 0.1minutes	
Dower Cwitch	Maximum setting time: 3.0 minutes	
Power Switch Timer Switch	Red-lamp button(on-off alternately) Green-lamp button(on-off alternately)	
Timer Switch	Green-lamp button(on-on alternately)	
Pressurizing Unit		
Pressurizing Method	By clamps on the four corner with coil	
	spring	
Daliahing Diatos		
Polishing Plates  Number of ferrules to be Polished	10 ferrules, minimum	
Polishing Film	Outer diameter: 127mm, plastic base	
Polishing Pad	Outer diameter: 127mm	
For Flat Polishing	glass pad	
For PC Polishing	Synthetic rubber pad	
Performance	4 mm	
PC Polishing	4 processes, 1.4• 2.4 minutes	
APC Polishing	5 processes, 3.0 • 5.0 minutes	
Dimensions and Weight		
Dimensions	W230 • • D230 • • H255 mm	
Weight	23.5 kg	

<sup>\*</sup>Above specifications are subjected to change without notice.

# 1.3 Standard Accessories A (for SPC Polishing)

Description	Part No.	Qty
Polishing Pad		
4.80mm thickness Pad	PR5X-480-80	4
5.00mm thickness Pad	PR5X-500-80	4
4.90mm thickness Pad	PG5X-490-00	2
Polishing Film/Oil		
Adhesive Removal Film	GA5D	50
Rough Polishing Film	DR5D	2
Middle Polishing Film	DM5D	2
Final Polishing Film	SF5D	50
0.05mm thickness Film (for re-polishing)	15303-05	2
Polishing Oil(500ml)	PL50	1
Other Accessories Spare Coil Spring Spare 2A Fuse Allen Wrench Set Double-Sided Tape Power Cable Cable Hanger	FP-CS55 FP-F2A FP-TS FP-DST FP-AC## FP-CH	4 2 1 1 1
Manuals Operating Manual Polishing Process Manual Maintenance Manual	FP-IM55 FP-PM55 FP-MM55	1 1 1

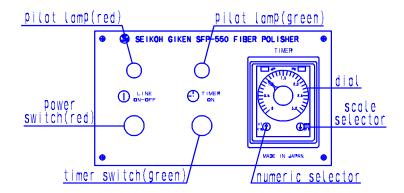
# 1.4 Standard Accessories B (for HPC Polishing)

Description	Part No.	Qty
Polishing Pad 4.80mm thickness Pad 5.00mm thickness Pad 5.05mm thickness Pad 4.90mm thickness Pad	PR5X-480-80 PR5X-500-80 PR5X-505-80 PG5X-490-00	4 3 1 2
Polishing Film/Oil Adhesive Removal Film Rough Polishing Film Middle Polishing Film Final Polishing Film 0.05mm thickness Film (for re-polishing) Polishing Oil(500ml)	GA5D DR5D DM5D HF5D 15303-05 PL50	50 2 2 50 2
Other Accessories Spare Coil Spring Spare 2A Fuse Allen Wrench Set Double-Sided Tape Power Cable Cable Hanger	FP-CS55 FP-F2A FP-TS FP-DST FP-AC## FP-CH	4 2 1 1 1
Manuals Operating Manual Polishing Process Manual Maintenance Manual	FP-IM55 FP-PM55 FP-MM55	1 1 1

# § 2. Operating Procedures

# 2.1 Operating Panel

# **Front Panel**



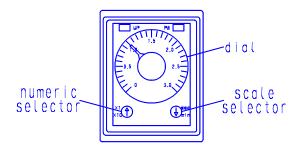
# <Procedure>

- ① Power Switch ON
  Turn on the power switch. The red lamp will light up, and the cooling fan will start running.
- ② Timer Switch ON

  Turn on the timer switch. The green lamp will light up, and the polishing machine (turntable) will be operating while the timer is running.
- ③ Timer Switch OFF After the set time elapses, the polishing machine (turntable) will stop automatically and the green lamp will be off.
- 4 Power Switch OFF

Make sure you turn off the power switch when you stop or shut down the polishing machine. Check if all switch lamps are off.

This power switch alternates ON-OFF functions by pushing.



Scale Selector: Turning this screw one notch changes the scale indicated.

 $sec \rightarrow min$ 

\*Select [min] unless otherwise specified.

Numeric Selector: Turning this screw one notch changes the timing range as follows.

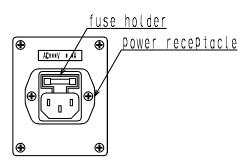
 $\times 1 \rightarrow \times 10$ 

\*Select [×1] unless otherwise specified.

×1: Normal Time Setting

×10: Operates 10 times longer than the normal

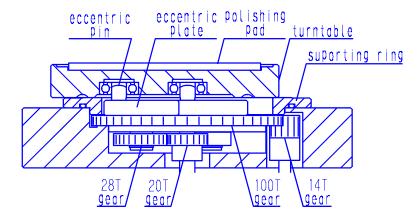
## **Rear Panel**



**Fuse Holder:** To change the fuse, rotate the fuse holder in the direction indicated by the arrow (counterclockwise) and remove the fuse.

**Power Receptacle:** Insert the power plug into this receptacle.

# 2.2 Turntable Assembly Turntable Structure



The turntable structure is shown above. 6W motor & gearbox creates turntable rotation. 15W motor & gearbox also creates eccentric circular motion and turntable revolution.

# **Turntable Maintenance**

No maintenance is required on the turntable as a regular basis. However, inspection and cleaning are recommended every 3000• 4000 hours of operation or every one or two years.

### ~ ~ ~ Caution ~ ~ ~

- Please refer to the maintenance manual before you work on the maintenance.
- Please do not disassemble or apply any mainte
- nance on the areas and parts not described on the maintenance manual.

# 2.3 Polishing Materials

## **Polishing Film**

Use the correct polishing film. Polishing films can be easily distinguished by color or label. Service life will varies depending on the type of film used. For more information, please refer to the Polishing Process Manual.

Service life also varies depending on its use and storage condition.

Store the polishing film in a dry environment after wiping the film dry and clean.

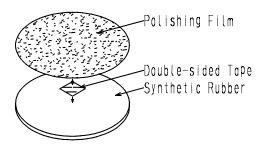
Polishing Film	Identification	Service Life
GA5D	Green	1
DR5D	Label (DR)	15~20
DM5D	Label (DM)	15~20
SF5D	Light Green	1
HF5D	Semitransparent	1
CF5D	Light Brown	50

## **Polishing Pad**

Several polishing pad types are available for various uses. Use only the pad specified for each purpose. The identification mark of each pad is on the center of its reverse side. Attach a polishing film on top of the polishing pad as shown below. Replace the polishing pad with new one regularly as the lifetime of one year. Also replace it with new one when the pad is damaged or deformed.

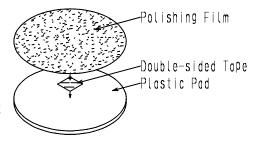
## a. Pad for Convex Polishing

Made of synthetic rubber, this pad has an identification mark at the center of its reverse side. Make sure the top surface of the pad is clean when attaching a polishing film to it. Attach a polishing film to this pad with double-sided tape. Do not use thinner, acetone, or other solvents, since such solvents will affect the quality of the pad.



# b. Pad for Flat Polishing

Made of glass with antiskid rubber film on the reverse (bottom) side. This pad has an identification mark at the center of its reverse side. Make sure the top surface of the pad is clean when attaching a polishing film to it. Attach a polishing film to this pad with double-sided tape. Do not use thinner, acetone, or other solvents, since these solvents will affect the quality of the pad.



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# Important!

Apply the double-sided tape to the center diameter of 30mm on the pad so that the ferrule end faces, during polishing, will not be on the area that the double-sided tape be placed. When changing film, clean the surface of the pad and make sure the pad surface is free of foreign particles. Such particles can cause the film to come loose, or scratch the ferrule.

# 2.4 Polishing Holder

# **Polishing Holder Design**

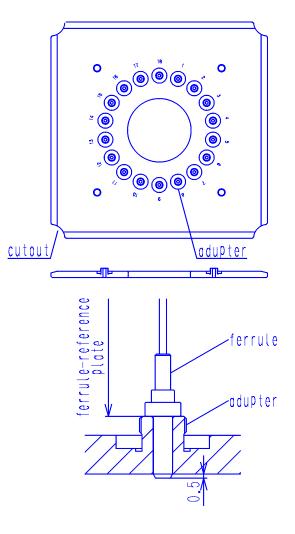
There are two types of polishing holders; one for right-angled flat or right-angled convex polishing and the other for angled flat or angled convex polishing. Each holder is available to suit different connector types.

The polishing holder has round shape cutouts on the four corners to place it onto the clamping posts of the base plate.

The polishing holders have 10, 12, 18 or 20 positions to install adapters as shown in the right hand figure. After the adhesive removal process, the tip of ferrules must protrude 0.5mm from the bottom side of the polishing holder. The protrusion is critical to the accuracy of the polishing process.

### CAUTION • • •

Make sure that the ferrule-reference plane and the ferrule insertion hole are clean. This will ensure that all ferrules protrude to the same height, thereby ensure desired polishing results.



### **Maintenance Requirement**

Accuracy of polishing holders affects on polishing result. Thus, please be aware with these points.

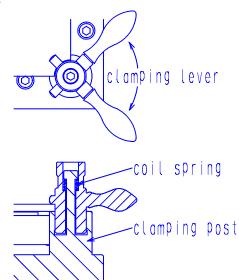
- Before installing ferrules, please make sure to clean ferrules and ferrule insertion holes with lint-free tissues.
- The polishing holders are made of stainless steel. However, to avoid its rusting, it is recommended that all traces of water must be removed and Although the polishing holders are lubrication oil is sprayed after use. heat-treated, please avoid anything leads to damage such as bending, falling, or applying any shock.

# 2.5 Pressurizing & Holding Unit

The clamping posts standing on the four corners of the base plate have pressurizing units with coil springs inside. The clamps on the corners hold the polishing holder.

The height of the clamping posts is set to provide 0.1mm impression of the ferrules into the polishing film by the manufacturer. The clamping posts should only be disassembled if it becomes necessary to adjust this setting.

Adjustment for the height of the clamping posts is required when the protrusion of the ferrule tips is not 0.5mm from the bottom side of the polishing holder, because of changing ferrules.



 Please refer to the maintenance manual in case of adjusting the height of the clamping posts and replacing coil springs.

# **Operation**

- Mount optical connectors or ferrules on the polishing holder.
- Install the polishing holder on the polishing machine.
  - Turn the clamping levers on the four corners so that their pressure pins are clear off the polishing holder area.
  - Place the polishing holder on the polishing machine between the clamps.
  - Pull up and turn the four clamping levers until their pressure pins are fully over the polishing holder.
  - Turn the four clamping levers when the holder is removed.