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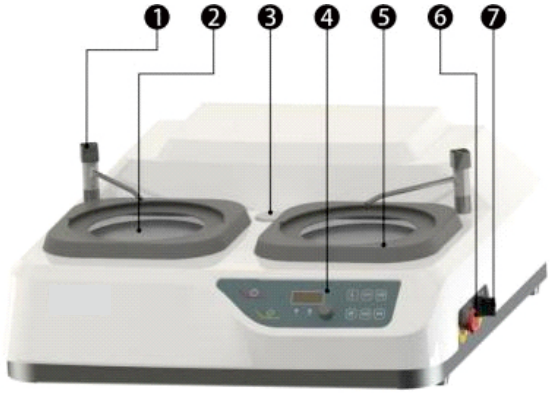
MLP-GP270

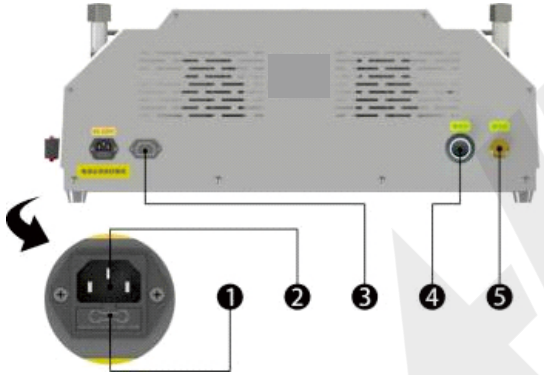
Metallographic sample grinding and polishing machine OPERATION MANUAL

V2

Machine Schematic Drawing



①Swirl nozzle ②Polishing disc ③hole for head ④Control panel
⑤Baffle ring ⑥Emergency stop ⑦ Switch



① Safety socket ②Power cord interface ③ Power interface of grinding head (optional) ④Drain-pipe ⑤ Water inlet

Please read the following terms

Installation & Precaution

1. The equipment must have a good grounding and must use the the power socket which is three level standard.
2. The equipment should be installed on the stable working table without the vibration.The environment should be ventilated and dry and the temperature is 10 -30 and the relative humidity is less than 85%.There is no corrosive gas and conductive dust.
3. Open the box, remove the attachments and foam and move to the working table. Insert one end of the drainpipe into the outlet of the back side of the equipment and go deep into the shell. Then the water inlet pipe is screwed into the water inlet to make the rubber pad contact with the inlet and seal well.

Drain pipe must be lower than the body parts in order to ensure no leakage. drainage smooth!

4. According to the situation of inlet and outlet, determine the location of the equipment and put it in place, adjust 4 adjustable cushion so that the equipment is on the the basic level and make it stable.
5. Grinding disc can be changed quickly.When the hands take the grinding disc gently and the disc will be unloaded.The other grinding disc holds with the hands.When the three piston rod hole is on the same level with the three pistopn rod,you may fall down the grinding disc .

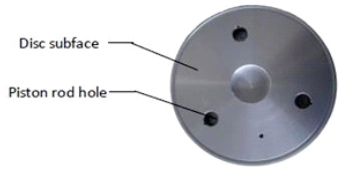


Fig 4

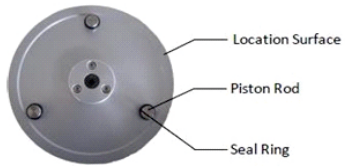


Fig 5

6. Metallographic sandpaper and polished fabric are divided into two types: adhesive and non- adhesive

1）Installation methods of PSA metallographic sand paper and polishing fabric

Clean the upper disc and paste the metallographic sandpaper with the special glue or polishing fabric into the grinding disc. Visually check that the distance between the sandpaper or fabric and the edge of the plate is basically the same, and press it evenly by hand to make it bond firmly

	Sandpaper Granularity	Grinding Disc Speed	Requirements
coarse grinding	240#-400#	50r/min-1000 r/min	Remove the machining marks left by cutting
semi fine grinding	600#-800#	50r/min-1000 r/min	Remove the grinding marks of coarse grinding
fine grinding	1000#-2000#	50r/min-1000 r/min	Grinding to near the mirror surface without obvious grinding marks
Remark: Abrasive size and grinding disc speed should be based on the requirements of the different metallographic specimen appropriate. When the sample requirements, omitting semi fine grinding steps. When the specimen is required, it should be appropriate to increase the grinding step.			

2）Grinding Method：

a.first the selected rough grinding with metallographic sandpaper installed on the grinding disc, press the start key, the equipment to set the speed of operation; key, the equipment to 150 r/min of operation; turning the knob can adjust the grinding disc to the required speed.Slowly turn the water volume adjusting knob to open the rotary nozzle and adjust the water flow, so it is appropriate to change the water flow from dripping to columnar. Hold the cut or inlaid specimen hard, and gently close to the sandpaper, initially gently press the specimen to the center position of the grinding disc, while grinding edge outward translation of the specimen, when the specimen and sandpaper contact is good and no runout, can press the specimen hard for grinding, the strength is about not to cause the grinding surface because of friction overheating burn tissue is better (about 2 kgf). For each change of sandpaper, the specimen shall rotate 90º, to thoroughly remove the abrasion marks of the previous pass until the requirements are met; then, press the stop key to stop the operation and turn the water quantity adjusting knob to close the rotary nozzle

1、Drainage should be ensured so as to avoid excessive water storage in the lumen and enter the equipment through the inner wall

2 、 After the stop button is stopped, and then press the start button, the device will run before the above stop speed.

b.the selected semi-fine grinding or fine grinding with metallographic sandpaper to the grinding disc, the grinding method is the same as rough grinding until the requirements of fine grinding.At the end of the work, press the stop key to stop the operation; turn the water quantity adjusting knob to close the rotary nozzle. This is the end of the grinding work.

3. Methods of Polishing:

Polishing is composed of rough polishing and fine polishing.

	Particle Size of Polishing Agent	Grinding Disc Speed Range	Requirements
Rough	W3-W5	50r/min-1000r/min	Remove fine grinding scar and surface deformation
Fine	W0.5-W2	50r/min-1000r/min	Fine polished smooth mirror without scratches

Remark:1 、 The use of abrasive polishing agent type, particle size and grinding disc speed and the fabric should be according to the requirements of the different metallographic specimen appropriate. Common grinding / polishing supplies: grinding paste, polishing powder, spray polishing agent and abrasive suspension. Aluminum oxide, chromium oxide, diamond and colloidal silica.

2、When the sample requirement is high, the polishing steps should be appropriately increased

2) polishing method:

a.Coarse Polishing: Install adhesive or non-adhesive flocking cloth onto the grinding disc. Turn the water volume adjusting knob to open the rotary nozzle so that the water drops onto the flocking cloth. Press the start button to start the operation, and then press the key, the equipment to operate in 300 r/min; turning the knob can adjust the grinding disc to the required speed.After fully wetting the flocking cloth, close the rotary nozzle and drop the modulated polishing agent onto the flocking cloth for about 10 seconds after dumping the excess water. Hold the ground specimen hard, and gently close to the flocking cloth, first gently press the specimen to the center position of the grinding disc, while polishing while moving the specimen outward, when the specimen and flocking cloth contact is good and no runout, can press the specimen hard for polishing, but the pressure should not be too large, so as not to overload the motor and tear flocking cloth. For each replacement of flocking cloth or different particle size of the polishing agent, the sample should be rotated 90º, to make the previous throw mark thoroughly removed, when the operation feels that the flocking cloth is very sticky, the polishing agent should be diluted more. until the requirement of coarse polishing is reached. Then, press the stop key to stop running.

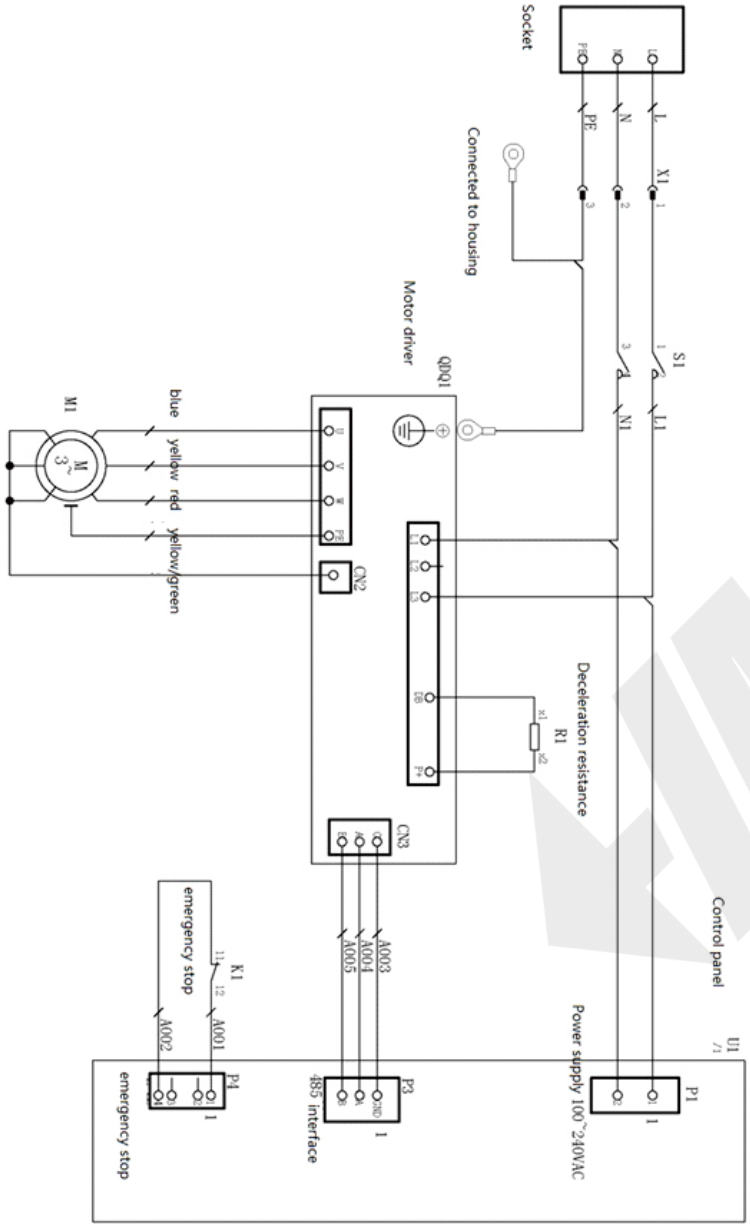
	Display	Name
15	OL	Overload
16	OL2	Overload 2
17	LU	Low voltage
18	OF	Excess of deviation
19	POL	Power-down alarm
20	ND	No motor code
21	CE	Motor selection error
22	GOH	Zero error
23	PPOT	Soft limit alarm
24	PNOT	Negative soft limit alarm

Remarks: After troubleshooting, power off reset

	Display	Name
1	E100	Stop Press
2	E101	Start button long press
3	E102	Press the switch button long
4	E103	Press the left button long
5	E104	Press the right button long
6	E105	V1 button long press
7	E106	V2 button long press
8	E107	V3 button long press
9	E108	V4 button long press

Remarks: After troubleshooting,
press the emergency stop and reset at release

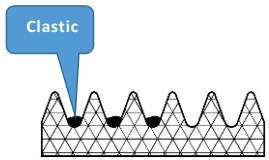
Appendix wiring diagram



	Display	Name
1	OC1	Overcurrent 1
2	OC2	Overcurrent 2
3	EH	Damage to current sampling circuit
4	PLD	CPLD error
5	OS	Overspeed
6	HU	Over-voltage
7	EC	Encoder Communication Abnormal
8	EC2	Encoder Communication Abnormal 2
9	EP	Fault in the discharge circuit
10	AH	Drive Overheating
11	RH1	Regenerative resistance overheating
12	DE	Memory exception
13	CE	Motor code error
14	SE	Speed overshoot error

b.polishing: install adhesive or non-glue flocking cloth onto the grinding disc. The finishing polishing method is the same as the rough polishing, and the polishing agent uses the finishing polishing abrasive until the sample meets the requirements of metallographic analysis. At the end of the work, press the stop key to stop the operation; turn off the power switch and the system power supply, turn off the water source switch.

4.The plastic parts of this machine shall be operated under 0℃with special care to avoid damage.
5.When abnormal sound of the machine is detected, the machine should be stopped immediately for inspection.
6.At the end of each operation, clean and maintain the equipment.
7. Regular inspection of the maintenance belt without loosening, aging cracking, belt loosening, aging will seriously affect the braking effect; as shown in the following figure, the root of the belt left wear debris, affecting the stability of the transmission, after removal of the belt can be used normally.



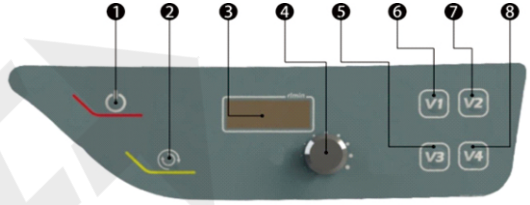
Notice:
Don't use the damaged sandpaper and polishing fabrics .
Othervise,whengrinding /polishing it will be dangerous

Simple troubleshooting

Fault phenomenon	Exclusion methods
Press Power Switch No Display	1.check if the power has electricity 2.check the power cords and sockets in good contact. 3.safety pipe broken
No response from motor	1. keys are damaged
Collision sound of grinding disc and piston rod at start	the sealing ring is worn, the sealing ring should be replaced
After a period of time, when using feel the disk power is insufficient	check the tension and wear of the triangle belt

keyboards and display instructions

The control panel is shown as below



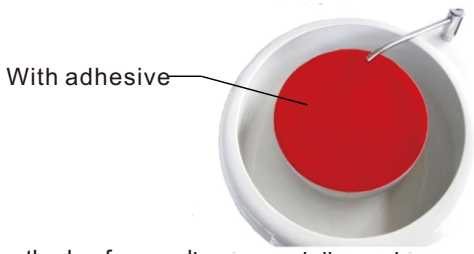
①Start/stop: Press this key to control the grinding disc running; press the key again to stop the disc
②Steering key: When the machine is running in the forward direction, press thiskey to change the steering to reverse
③Display screen: Display the set speed of the disc
④knob: Sets the speed (r/min) of the grinding disc
⑤Fixed speed key: Press this key at 600 r/min
⑥Fixed speed key: Press this key at 150 r/min
⑦Fixed speed key: Press this key at 300 r/min
⑧Fixed speed key: Press this key at 1000 r/min

Operation Description &Notice

1.Plug the power plug into the power outlet, the equipment is energized, the display displays the set speed, press the start key, and the grinding disc starts to operate. Wait for empty operation for about 1 minute, check the normal operation of the equipment before entering the next operation.

1.Press the emergency stop to stop the equipment while you are face with danger under grinding/polishing.
2.Emergency stop is not use as stop button.

2 Method of grinding:
After the metallographic sample has been cut or inlaided. If it is general equipment to intercept the sample, it needs to be polished in the grinder, and dipped in water cooling, to prevent the recommended organizational changes. Special cutting machine to intercept the sample, which can be directly used for coarse grinding. Grinding is divided into three steps: coarse grinding, semi fine grinding and fine grinding. Table 1 grinding parameters of grinding and polishing block



2） Installation methods of non-adhesive metallographic sand paper and polishing fabric

a.Clean the upper surface of the grinding disc, lay the non glue metallographic sandpaper or polishing fabric on the grinding disc, and then press the buckle ring on the outer circle of the grinding disc to fix the non glue sandpaper or fabric (Fig. a).

b.If it is flocking cloth, the fabric shall be pasted flat on the grinding disc, so that the edge of the sagging fabric is basically the same, and then the buckle ring shall be placed on the outer circle of the disc to press and flatten the fabric (Fig. b).

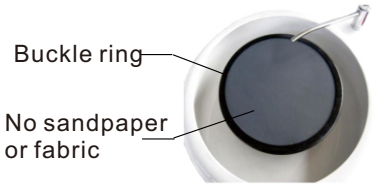


Fig.a

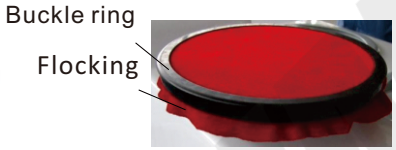
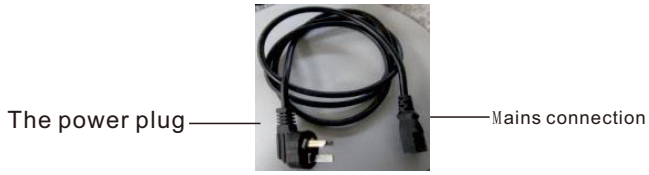


Fig.b

7. After closing the switch on the external outlet, connect the external outlet of the inlet pipe. Confirm that the water quantity adjustment knob of the rotary nozzle on the equipment has been closed, and then open the external nozzle switch, the water intake pipe connection part can notleak water.

8. Place a container at the outlet of the drain pipe or lead the drain pipe to the sewer so that the waste liquid is discharged. Turn the water quantity adjusting knob counterclockwise, open the rotary nozzle, check whether the inlet and drain pipes are unobstructed, and the connecting parts can not leak water. then close the rotary nozzle.

9. Insert the power cord connector into the power cord interface.



Safety Notice

Before you install and use this product, please read this manual carefully, and pay special attention to the contents and suggestions and observe the precautions so as to avoid damage to equipment, fire and personal injury!

◆Check the input range of the power supply before using and check if matches to the equipment.

◆Check if the grounding meets the requirements.

◆The operator must do some safety training before working and after qualifed ,the operator may use this machine

◆We determined whether the environment meet the installation requirements We operate the equipment according to the operating rules

◆The cleaning equipment should unplug the power

◆When trouble ,do not allow to disassemble the equipment, we should ask professional maintenance, to avoid electric shock

◆Please keep the manual good

FOREWORD

This grinder polisher is of single plate. It is suitable for pre grinding, grinding and polishing metallographic specimens. Since the machine is speed-adjusted by microprocessor, it can run at a revolution of 0 to 1400/1000rpm, which favors the machine with wide applications. The machine is equipped with cooling system that can cool down the specimen during pre-grinding so as to prevent overheating and damage the metallographic structure. Featuring easy operation and reliable performance, it is an indispensable device for the factories, research institutions and college labs to prepare metallographic specimen.

Main Technical Indexes

Code	MLP-GP270	MLP-GP280
Wheel diameter	φ203mm	φ250mm
Rotational speed	0-1400r/min	0-1000r/min
Rotational direction	Clockwise or anticlockwise	
Constant speed	150 r/min 、300 r/min、600 r/min、1000 r/min	
Input voltage	Single phase AC220V 50Hz	
Input power	0.75KW	
Dimension	755×780×310mm	
Net weight	50Kg