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**MLP-PCM200
AUTOMATIC PRECISION CUTTING MACHINE
OPERATION MANUAL**



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Safety precautions



Please read this manual carefully before you install and use the equipments. Meanwhile follow the notice, especially the recommended content.

- ◆ Please check the voltage input range before using the machine, which is in compliance with the requirements.
- ◆ The operator must be trained and after they are qualified , they can operate this machine.
- ◆ Please determine if the surrounding environment meets the installation requirement
- ◆ Please operate the equipment according to the rules.
- ◆ Do not allow to disassemble the equipment when the trouble happens. You should invite the professional to repair so as to avoid the shock.
- ◆ When cleaning equipment, the operator should unplug the power.
- ◆ Please keep this manual.

1. Foreword

MLP-PCM200 Specimen cutting machine is suitable for cutting various metal, non metal material in order to observe the metallographic, petrographic structure. The machine has a cooling device. When using the configured cooling liquid, the heat may be taken away to avoid overheating. It is easy for the user to operate the machine. Therefore the machine is one of the equipments for samples in the factories, scientific research institution and colleges laboratory.

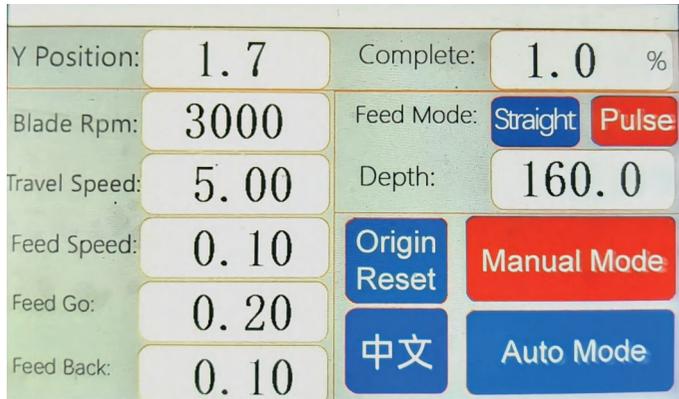
2. Main Technical Indexes

Maximum cutting diameter	Ø40mm
Maximum travel	190mm
Diamond blade	Ø200×0.8×Ø12.7mm
Cutting method	manual/automatic, straight line/pulse
Automatic moving speed	0~10mm/s
Automatic cutting speed	0.1~5mm/s
Pulse feed distance	0~5mm
Rotation speed	500~3000r/min (can be customized)
Table dimension	368×424mm
Motor power	600W
Power supply	220V, 50Hz
Dimension (L×W×H)	550×475×360mm
Weight	35kg

3. Machine Schematic Drawing



Fig.1



Digital Display Touch Screen

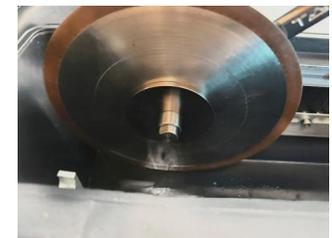
1. Y Position: Relative coordinate position of Y-axis movement
2. Blade Rpm: Cutting speed (500~3000rpm)
3. Travel Speed: Speed of Y-axis movement when no cutting (0~10mm/s)
4. Feed Speed: Cutting speed of Y-axis in linear cutting mode (0.1~5mm/s)
5. Feed Distance: Feed distance of Y-axis at the set cutting speed in pulse cutting mode (0~5mm)
6. Feed Go: Retract distance of Y-axis at the set cutting speed in pulse cutting mode (0~5mm)
7. Feed Back: Cutting progress reflected during the cutting process with the set cutting length in automatic mode
8. Feed Mode: Two cutting modes in automatic mode (Straight/Pulse)
 Straight: Cutting at a constant cutting speed;
 Pulse: Reciprocating forward and backward cutting at a constant cutting speed
9. Depth: Length dimension of the workpiece to be cut (5~160mm)
10. Origin Reset: Click the button after cutting completion to automatically reset the Y-axis to the absolute zero point
11. Manual Mode: Rotate the cutting crank to cut after selection
12. Automatic Mode: The machine performs automatic cutting according to the set parameters after selection



Please read the following terms carefully!

4. Preparation before working

- 4.1 Install the machine on a stable and vibration-free workbench.
- 4.2 Install the drain pipe to ensure there is no water leakage. The drain pipe shall be lower than the machine body to avoid poor drainage.
- 4.3 Check whether electrical components such as the power cord and plug connectors are in good condition. Then connect the power supply, start the machine, and confirm that the spindle rotation direction is consistent with the direction mark on the machine.
- 4.4 Installation and Removal of the Cutting Blade
 - 4.4.1 Open the machine cover, unscrew the two thumb screws on the cutting platform, lift the cutting platform and support it with the left-side support rod. Use the wrench supplied with the machine to loosen the fixing nut of the cutting blade chuck. Remove the clamping plate and replace it with a new cutting blade.
 - 4.4.2 Mount the cutting blade and chuck onto the spindle, then properly tighten the left-hand nut with a wrench. Next, manually rotate the spindle twice to check if there is runout on both sides of the cutting blade. The runout shall not exceed 2mm; if it does, inspect the parts and reinstall them correctly.



1. When replacing the cutting blade, ensure that the "power switch" is turned off or the "emergency stop button" is pressed.
2. Damage to the machine caused by improper operation is not covered under the warranty.

5. Operating instructions

5.1 Operation Button Description (Refer to Figure 1)

- 1) Safety switch: A self-locking button. When the green self-locking switch is off, the two split black magnetic switches have no engagement, and the equipment cannot be started.
- 2) Start: Start button for cutting operation. During normal operation, the indicator light of this button is on.
- 3) Stop: Press this button to stop the machine when cutting is not completed. When the machine is idle, the indicator light of this button is on.
- 4) Emergency stop button: Emergency stop button. Press this button in case of emergency to achieve protection. (At this time, the indicator light of the "Cutting Stop" button is off.)
- 5) Forward button: When cutting is stopped, press this button to move the Y-axis forward.
- 6) Backward button: When cutting is stopped, press this button to move the Y-axis backward.
- 7) Cutting crank: In manual mode, control the forward and backward movement of the cutting blade when the machine is started.

5.2 Coolant Filling

Mix the coolant in the ratio of coolant to water (1:20). Lift the black cutting table and add the uniformly mixed coolant until the liquid level submerges the lower edge of the cutting blade by 5mm.



1. When cutting, apply force evenly; do not exert excessive force. It is recommended to cut at a constant speed of 1-2 mm per second.
2. Ensure that the cutting blade comes into contact with the coolant before cutting the workpiece.
3. The coolant must be prepared using a coolant with good lubricity (provided with the machine as a gift; reordering is available from our company). Do not use ordinary tap water as coolant.
4. For samples such as rocks and ceramics, a diamond cutting blade must be used for cutting.

6. Maintenance

- 6.1 The machine must install reliable grounding line
- 6.2 The inlet pipe and outlet pipe must be in good condition but it can't leak.
- 6.3 Do not allow the broken cutting wheels to cut the sample.
- 6.4 Do not permit to use cutting wheel whose velocity is lower than 35m/s.
- 6.5 After operation per time, the operator must clean the machine to ensure the machine have longer life.
- 6.6 Replace the cooling fluids periodically to prevent the deterioration.
- 6.7 When you find abnormal sound, you should immediately stop the machine and check.
- 6.8 Regularly fill the lubricating oil.



1. It is recommended to use our company's special-purpose cooling and lubricating fluid for sample cutting; otherwise, it may easily cause damage to the equipment.
2. Cutting capacity and speed vary depending on the cutting blade and the material being cut.
3. Please use qualified metallographic-specific cutting blades. Users can purchase metallographic-specific cutting blades from our company.