

# PP-U3

## Operation Manual



### To users:

1. Please check the machine and its accessories according to the packing list.
2. Do read through the manual before operating the machine.
3. Be sure to install and test the machine according to the instructions.
4. Read through the manual to learn about its performance, operation requirements and maintenance. If you have any questions about it, please contact the company.

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Attached:

Certificate of approval  
Packing List

## II Application

The Graver Grinder (PP-U3) is the necessary machine to be equipped with the engraving-milling machine. It is applicable to grind and carve the end mill, graver and pins of various shape and angle, which is used on engraving milling machine and engraving and marking machine. In addition it has many accessories, which could be used to sharpen various cutters, such as turning tools, milling cutters and drilling bits. The machine has beautiful outlook, advanced structure and powerful functions. It has been widely used in industrial production.

## III Parameters

Item No	Name		Metric system (mm)	British system (in)
1	Grinding wheel	Diameter	100	4
		Thickness	50	2
		Bore diameter	20	3/4
		Grinding speed	5200RPM	
2	Collet capacity		3~16	1/8~5/8
3	Taper angle		0~180°	
4	Negative angle		0~52°	
5	Relief angle		0~44°	
6	The longitudinal displacement of cutter holder		140	11/2

Item No	Name		Metric system (mm)	British system (in)
7	The longitudinal displacement of micro adjustment of the cutter holder		18	3/4
8	The longitudinal displacement of micro adjustment of the main spindle		6	1/4
9	Motor	Power	0.18KW/0.37KW	1/4HP / 1/2HP
		Speed	2800/3360RPM	
		Volt	220V /380V	
10	Weight		45Kg	110.lb
11	Dimensions of Principal Machine		450x350x340	18"x14"x14"
12	Package Dimensions		500x400x380	19"x15"x14"

**Attention:**

1. We could supply both the metric grinding wheel and British Grinding wheel. Please specify it when you order. The standard one is metric grinding wheel.
2. We equip the machine with a grinding wheel of 6mm (1/4"). The grinding wheel of other sizes should be ordered specially.
3. We could supply the motor of 380V/220V, 50Hz/60Hz according to customer's requirement.

## IV. Cautions

### I. Preventative Measures

1. Only professionals with electrician licenses are authorized to install or repair electrical appliances.
2. Be sure the voltage indicated on the nameplate of the motor conforms to that of the power supply.
3. The power plug of the machine tool and each contact of the socket should be reliable and firm. It is forbidden to have loose or bad contact.
4. Only use authorized power cords. Don't pull the power cord from the socket violently. The power cord should be away from hot, oily, or sharp places.
5. The power supply should be cut off by turn off the switch on the left side of the machine tool as soon as any fault or abnormal sound is detected, then have it checked and repaired.
6. Never leave the tool run unattended. Don't leave the tool until it is powered off and stops.
7. Keep the operating place clean and tidy. Don't operate it in any damp, untidy, dim, flammable, and explosive place. Keep children or visitors away from the tool to avoid accidents.
8. Keep it under its max. cutting capacity to avoid accidents.

9. No operator should wear loose clothes, ornaments, and gloves. Long hair should be fixed with a hairpin and tucked in a cap; otherwise, it may be rolled into the machine.
10. All work pieces should be held and clamped tightly and reliably in processing. Never hold one with your hand, if so, you cannot operate the machine with two hands.
11. Never operate the machine when you feel tired, or after you drink alcohol or take anesthetics.
12. Only replace damaged parts or accessories with those having the same performance. It is optimal to use those from our company.

## II. Adjust and Operate

1. Before starting the machine, add lubricants in each part and ensure that all locking mechanisms are in proper locking and power supply is proper.
2. Sand should be removed from the machine after operation, and apply engine oil on uncoated surface to prevent it from becoming rusty.

## V Operation instruction

1. The grinding of the edge of engraving milling cutter.
  - (1) Adjust the grinding length of the cutter: Tighten the cutter in the collet. The protruding length of the cutter should be longer than the needed grinding length. Adjust the cutter holder in order to align the " 0 " scale line on the plate with the axial scale line on the cutter holder's spindle. Meanwhile adjust the cutter holder's axial position on the cutter holder's spindle, in order to let the outer circular face and the front end of the cutter are 1-2mm away from the front end of the grinding wheel. Lock and rotate the adjusting screw and let the cutter protruding to the needed length.
  - (2) Grinding the front face of the cutter: By adjusting the cutter holder and rotating the collet handle sleeve, the cutter holder could be moved toward the grinding wheel. Thus it could grind the front surface of the cutter. When first grinding it, the front face of the cutter should be 0.03mm higher than the center of the grinding wheel.
  - (3) The grinding of the taper angle  $2^{\circ}$  of the cutter: Set the index pin handle in the short slot of the dovetail block. Let the index plate could rotate freely. On one hand, feed it slightly by the handle sleeve; on the other hand continue to rotate the knurling nut clockwise. Thus the taper angle  $2^{\circ}$  could be grinded.
  - (4) Grinding the relief angle of the cutter: We need to rotate the swivel base to certain angle in order to grind the relief angle and the secondary relief angle of the cutter. Take care not to damage the main cutting edge. It should be 0.01mm(0.0004 " ) away from the main cutting edge.

## Packing List

Machine Name	Graver Grinder
Machine Model	PP-U3
Collet Capacity	3~16mm
Factory No.	

### Parts Attached to the Machine

Name	Specifications	Quantity	Remarks
Graver Grinder	PP-U3	1	
Lathe tool accessory		1	
Drill accessory		1	
Mill accessory		1	
Spring collet	4; 6; 8; 10; 12mm	1	
Hook Spanner	38-42	2	
Grinding wheel spanner		1	
Inner-hexagon spanner	M3-M8	1	
Screwdriver		2	
Belt		1	
Diamond grinding wheel	Φ100×52×Φ20	1	Installed on the machine
Grinding wheel	Φ100×50×Φ20	1	
Diamond pen		1	

### Optional parts

Name	Specifications	Quantity	Remarks
Spring collet	3/16"	1	
	5/16"	1	
	3/8"	1	
	1/2"	1	

**Packed and Inspected on:** \_\_\_\_\_

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- (5) Adjust the eccentric center of the eccentric cutter: Adjust the leading screw rod and align the scale.
- (6) We need to grind the back of the cutter after grinding the relief angle.  
The method is to let the radius of the back of cutter is a little smaller than the radius of the main cutting edge. The radius should be decided according to the size of the cutter.
- (7) Grinding the back of the cutter: First let the axial line of the cutter holder to be vertical to the grinding wheel's spindle. Thus the index plate and the cutter could rotate by 180° repeatedly. Feeding according to the scale indication on the handle, we could avoid damaging the main cutting edge when we grind the needed radius of the back of the cutter.
- (8) In addition, the cutter could be rotated by any angle to set the position again.