

***SMART CUT* 6018**

Automatic Precision Sectioning

Operating Manual

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One. Introduction

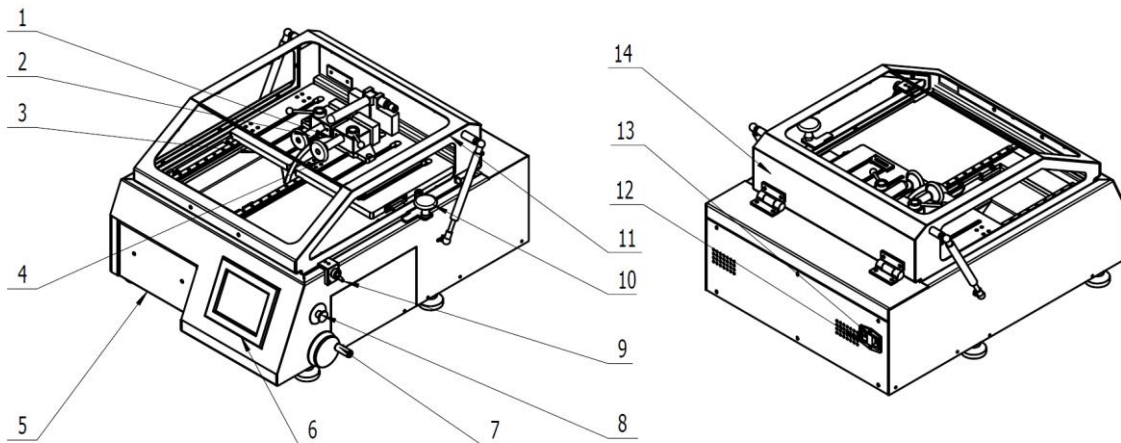
This model adopts the speed regulation motor which drives the belt to control the cut-off wheel to achieve the effective speed. With the touch screen control, the display is clear and the function layout is reasonable. The feed of cutting can be controlled by cut-off wheel propulsion or by cutting table propulsion according to the different materials or user preference, and it can also atomically cut according to programmable parameters. With built-in independent stainless steel circulating filter cooling water tank, combined with 80% water and 20% cutting fluid, it can effectively avoid the sample surface heat and prevent rail and ball screw rust. The machine has safety protection function for opening the cover, which will automatically turn off the motor. The working area is totally enclosed and has a transparent cover for observation during cutting. The cutting table can be equipped with different clamping tools which can be freely disassembled and cleaned. This benchtop cutting machine can be applied to the cutting of PCB boards, metal materials within $\Phi 30\text{mm}$, electronic parts and mounting samples, etc. The machine is very simple and straight forward to operate

Two. Technical Parameters

Cutting Method	Manual / Automatic, Spindle feeding or Table feeding
Feed Speed	Manual / Automatic 1-36mm/min (Step 0.1mm/min)
Cut-off Wheel	180 × 0.8 × 22mm
Max. Cutting Capacity	30mm
Max. Travel	Spindle travel 140mm, Table travel 230mm
Spindle Speed	500-3000r/min
Electromotor Power	1.2kW
Cutting Table	245×415mm, T-slot 8mm
Clamping Tool	Quick clamp, Jaw height 45mm; Vertical clamp, Opening 27mm
Control and Display	5.7 inch touch screen

Power Supply	220V, 50Hz, 8A
Pump Flow	16L/min
Dimensions	620 × 740 × 380mm
Net Weight	80kg

Three. Structure



1. Cut-off wheel	2. Spray nozzle	3. Cutting table	4. Quick clamp
5. Water tank	6. Touch screen	7. Hand wheel	8. Emergency stop button
9. Locking handle	10. Pushing rod	11. Cover	12. Power
13. Power switch	14. Limit switch		

Four. Unpacking and Installation

First. Unpacking

This machine is fixed on the bottom plate in case of the damage during the transportation. First cut off the iron belt and screw off the bottom edge screws with the cross screwdriver, pull out the case there will be the machine and the bottom plate, remove the packages and then screw off the bolt under the bottom plate with the spanner. Place the machine on the stable table.

Second. Working Condition

1. The work table should be stable and the suggest height is 0.8M.
2. Power supply should accord with general factory electricity use, 220V, 50Hz. The power cable is about 1meter long.

3. Temperature 5~40°C, humidity 30%~90% noncondensing.

Third. Installation

1. Open the water tank cover, combined with 80% water and 20% cutting fluid to fill into full, it can effectively avoid the sample surface heat and prevent rail and ball screw rust. You must ensure that the brand and type of cutting fluid are correct and of good quality.
2. Connect the electrical cable and switch on the machine.
3. Open the clamp and lock the sample.
4. Close the machine cover and make sure that it can touch the limit switch.

Five. Operation Panel

1. Main Interface



Press Welcome to enter the main operation interface.






- (1) Motor On: Press it to start the rotating of the spindle, and the water pump also works when the motor is on.
- (2) Motor Off: Press it to stop the rotating of the spindle, and the water pump also stops.
- (3) Cut: Press Cut to start automatic cutting according to the set parameters.
- (4) Stop: Press Stop to stop the automatic cutting.
- (5) Fast Return: press this key to let the spindle fast return to the original position before cutting.
- (6) Cut&Return: when it is switched on, the spindle will quickly return after the cut is finished.

2. Parameter Setting Interface



Press Parameter key to enter the parameter setting interface.

- (1) Motor Speed is the rotating speed of the spindle. Press the digit to enter the numerical input interface and change the value.
- (2) Feed Speed is the cutting speed along Y axis. Press the digit to enter the numerical input interface and change the value.
- (3) Y axis Travel is the Y axis cutting distance under automatic cutting state. Press the digit to enter the numerical input interface and change the value.
- (4) Press Save key to save the current parameter into Process No. It can call the saved data when it is required according to the process no. The default no. is 1, maximum 10 sets.
- (5) Press  key to make the spindle forward moving and press  key to make the spindle backward moving.
- (6) Auto: Under Auto state, the spindle moving is automatic, press  key to stop or it will stop by reaching the limit. The default state is under Auto state, only under this state, the cutting is automatic.
- (7) Inching: Under Inching state, press the up and down key once to move

1.5mm each time. The spindle moves fast under Auto state, so should change to Inching state when it is 5mm distance close to the sample.

(8) Pump On and Pump Off can be used for cleaning.

Six. Usage Instruction

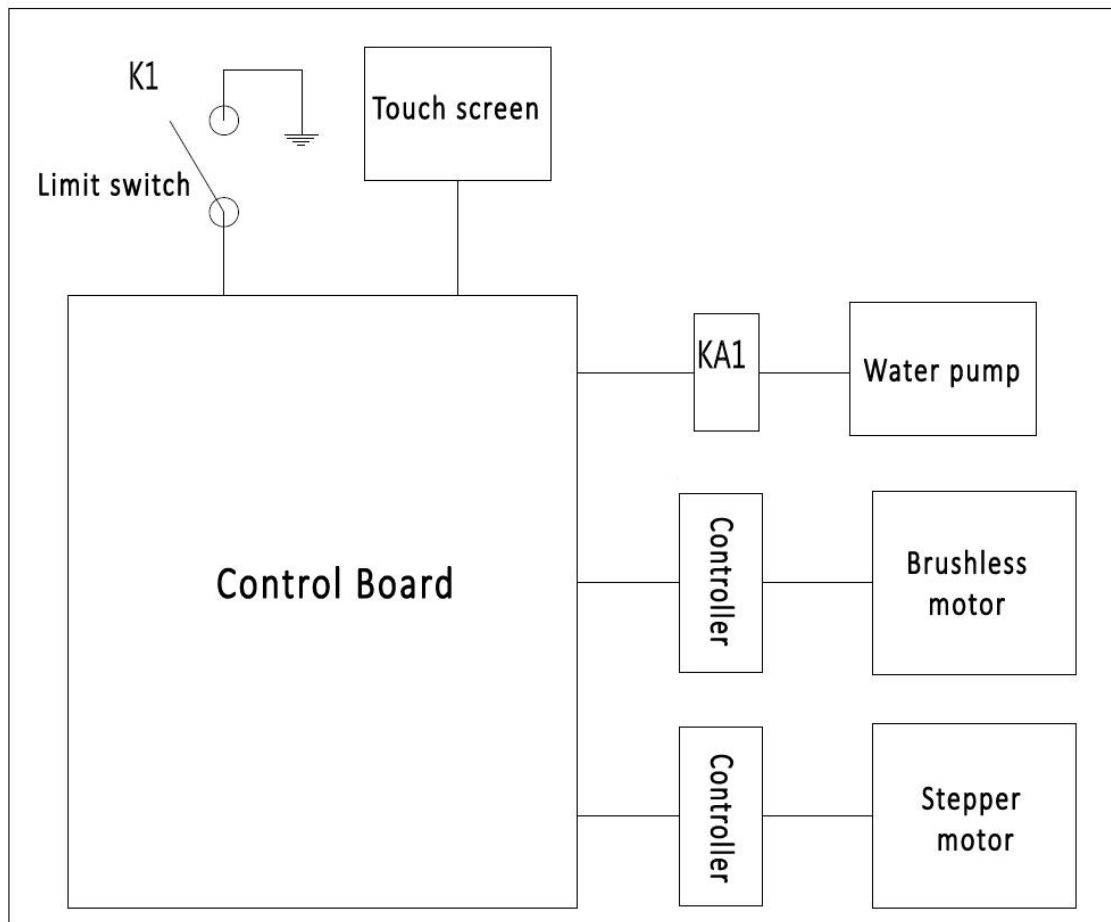
1. Before turn on the power switch, should select the proper cut-off wheel according to the sample material.
2. Turn on the power switch and open the protective cover, pull the cutting table to the bottom and lock it with the right handle.
3. Open the clamp and lock the sample.
4. Close the cover and make sure that it can touch the limit switch.
5. Set the parameters for automatic cutting, and then press Motor On key, the water pump will also work, and press Cut to start automatic cutting.
6. If adopt manual cutting, use the right hand wheel feeding or unlock the handle and use table feeding.
7. Should set the parameters before the automatic cutting, generally set 5mm/min feeding speed for iron metal and suggest to set 3mm/min for those higher hardness materials.

Seven. Maintenance

1. Check the machine if it is normal before using.
2. Water and dirt are strictly prohibited on the touch screen.
3. The direction of motor must be checked before the operation, if the rotation doesn't meet the requirement, adjust it immediately.
4. This machine is suitable for diamond and resin cut-off wheel, when using resin cut-off wheel, the spindle speed should not exceed its maximum linear speed.
5. Check the lubrication regularly and inject lubricating oil into the spindle with an oil gun.
6. Regularly clean the filter in case of block.
7. The cooling liquid used for cutting must be the anti rust coolant, to guarantee the cutting quality.
8. After the power is switched on, first check the table feeding and spindle feeding manually if they are normal.

9. The manual cutting speed is not suggested too fast, this machine is mainly for cutting PCB materials. It' s better to cut backwards and forwards to prevent from blocking.
10. When repairing the motor, please turn off the power and pull up the machine shell. Pay attention to connection cables of the screen, and remove the cable interfaces (remember the position).
11. When the machine is not in use, turn off the back power switch.

Eight. Electrical Diagram



Nine. Cautions

1. The machine can be used only the operator is sufficiently trained.
2. Check the safety limit switch before using the machine, don' t use the machine in case any problems.
3. Please confirm the supplied voltage is correct and the power is switched

off before start the machine.

4. Turn off the machine before do the cleaning work.
5. The machine has the safety device and labels. Don' t remove or change them, in case any problems, don' t use the machine.

Ten. Troubleshooting

Possible Issue	Possible Cause	Solution
Touch screen is ineffective.	Communication failure, plug is no inserted. Circuit board is broken. Touch screen is broken.	Fasten the plug connection. Change the circuit board or touch screen.
Touch screen is not light.	The fuse is broken or the power is broken.	Change the fuse or the power.
Motor doesn' t run.	The limit switch or the controller is broken.	Change the limit switch or the controller.
No feedback for motor on.	The cover is not closed or the screen is broken.	Close the cover or change the screen.
No water.	The pump is broken or there is no water in the water tank.	Change the pump or add the water.
The cutting spindle doesn' t move.	The step drive is broken	Change the step drive.

Eleven. Packing List

Name	Specification	Qty
Machine Body		1 set
Cut-off Wheel	180 × 0.8 × 22mm Diamond cut-off wheel	1 pc
Cutting Fluid	3kg	1 bottle

Spanner	22mm, 14×17mm	each 1 pc
Inner Hexagon Spanner	4mm	1 pc
Vertical Clamp Spanner		1 pc
Vertical Clamp		2 pcs
Power Cable		1 pc
Usage Instruction Manual		1 copy

Twelve. Optional Accessories

Name	Specification
Diamond Cut-off Wheel	180 × 0.8 × 22mm
CBN Cut-off Wheel	180 × 0.8 × 22mm
Resin Cut-off Wheel	180 × 0.8 × 22mm
Cutting Fluid	SMART CUT coolant, 1 quart