Single Axis Copy Router

Instruction Manual

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1. Main uses and scope of application

The single axis profiling milling machine for aluminum and plastic doors and windows is used to process all kinds of shaped holes, mortise, water outlet, etc. of aluminum and plastic doors and windows. The machine is compact in structure and small in volume.
The profile clamping adopts pneumatic transmission. It has the advantages of simple adjustment and replacement, wide application range, high efficiency, continuous processing, simple and safe operation.

2. Technical parameters

Power Supply: 380V 50HZ 3P

Input Power: 1.1kw

Working Pressure: 0.5-0.8Mpa

Profiling Range: 90 × 290mm

Diameter of milling cutter: Ø5 and Ø8

Diameter of profiling contact: Ø5 and Ø8

3. Main structure

3.1 Milling head

The motor drives the milling head to rotate through the annular belt, and the parts can be processed continuously after being clamped.

3.2 Two stage profiling contact rod

The diameter of the two-stage profiling contact rod is the same as that of the milling cutter (the contact rod is adjusted according to the diameter of the milling cutter), and the profiling milling can be carried out according to the relationship of 1:1 to ensure that the shape of the milled part is consistent with that of the profiling plate hole.

3.3 Clamping device

There are two compression cylinders, which are used to clamp parts to ensure stable and reliable operation.

3.4 Spray system (for aluminum profile processing)

In order to improve the roughness and prolong the service life of the parts, a spray cooling device is installed. In order to ensure that the milling process is always carried out under the condition of spray cooling, the spray device is linked with the foot switch.

3.5 Positioning structure

The extension length of the positioning screw can be adjusted to ensure the cutting depth of the feed.

3.6 Profiling plate

Before manufacturing, it should be based on the shape of the corresponding parts. On the square frame of the machine tool, the profiling plate is positioned on the left side and the bottom side, and fixed with screws, so it is easy to replace.

If the profiling plate is not used, the lateral position can be limited by adjusting the brake nut, and the longitudinal position can be ensured by adjusting the positioning ruler on both sides of the square frame.

If the above two methods are used at the same time, the product quality will be more stable and reliable.

3.7 Pneumatic system

Refer to pneumatic schematic diagram

3.8 Electrical system

Refer to electrical schematic diagram and electrical wiring diagram

4. Installation and adjustment

4.1 Installation

4.1.1 environmental requirements

The machine shall be installed on dry, non corrosive gas indoor hard cement floor.

4.1.2 leveling

Before leveling, remove the transport protection device to fix the machine head, and adjust the height of the four adjustment bases of the machine tool to keep the machine table level.

4.1.3 grounding

The fuselage must be grounded. The ground wire must be grounded according to the requirements of the electrical wiring diagram, and the ground resistance of the soft copper core with sectional area greater than 2mm2 and the insulated wire with green and yellow combination color shall not be greater than 4 ohm.

4.1.4 power connection

The input voltage is 220V and the frequency is 60Hz. After the power supply is connected, the rotation direction of the milling machine tool should be consistent with the direction of the arrow marked on the motor, that is, opposite to the direction of the tool when the lock nut is tightened (the rotation direction can be observed when the motor is started and

stopped instantaneously). If the rotation direction is opposite to the required direction, the two wires in the three-phase power supply can be exchanged and checked again.
If problems are found, they should be checked and handled by electrical professionals.

4.1.5 air connection

The working pressure is 0.5-0.8mpa, and the air consumption is 30L / min. Install the air pipe with an inner diameter of 8 mm from the compressed air storage tank on the joint of the air source treatment triad, and check whether there is air leakage after air supply.

4.1.6 installation of auxiliary support

The auxiliary support is used to support the profile. The user can install one auxiliary support on both sides of the worktable when machining long workpieces according to the needs and plant conditions.

4.2 Adjustment

4.2.1 adjustment of profiling plate

The profiling contact rod has two levels of Φ 8 and Φ 5, which are matched with the diameter of milling cutter. When the parts are processed by this method, the hole shape of the workpiece to be processed is consistent with that of the profiling plate.

The profiling contact rod should be adjusted according to the diameter of the milling cutter. Loosen the butterfly screw 2, pull the wrench 4 to make the positioning nut 3 off the pin 5, and then rotate 90 ° to make another hole of the positioning nut 3 on the pin 5. Because the depth of the hole on the positioning nut 3 is different, the contact rod 1 can be fixed in the required position under the action of the spring. Lock the contact rod 1 with butterfly screw 2, and the adjustment is completed.

The profiling hole should be the same as that of the part.

When a milling cutter with a diameter different from that of the profiling contact rod is needed, the actual size of the backup plate should be paid attention to. For example: when the diameter of the milling cutter is larger than that of the profiling contact rod, the milling hole is one diameter difference larger than that of the profiling plate. Therefore, the profiling plate should be made into a small diameter difference to get the required size, and vice versa.

4.2.2 adjustment of milling feed depth

Milling depth adjustment: when the handle 1 is pulled, the square frame can move up and down, and the milling head also moves with it. Facing the machine tool, a limiting frame is installed at the left rear of the square frame. There is a positioning brake screw on the

limiting frame, which corresponds to the brake screw on the support below. The screw on the support can be adjusted up and down to achieve the required braking height. When the square frame descends, two screws collide to limit its travel distance, which is the milling depth.

4.2.3 adjustment without profiling plate

When the profiling plate is not used, the milling head stroke can be adjusted by the brake device. When adjusting the milling head, loosen the handle 3 and 8, adjust the positioning ruler 5 and 6 to adjust the longitudinal stroke, loosen the two nuts 4, and adjust the distance between the two nuts to adjust the transverse stroke.

4.2.4 Adjustment of spray coolant

Facing the machine tool, the right side of the milling head is equipped with a spray cooler, and the small handle on the tail valve is turned to adjust the spray amount to the required size.

5. Use and operation

5.1 Safety regulations

5.1.1 the operator should be familiar with this manual before using the machine tool.

5.1.2 special tools without defects shall be used.

5.1.3 it is not allowed to knock or apply pressure on the tool on the machine tool, so as not to affect the normal operation of the spindle.

5.1.4 the power supply must be cut off before the maintenance of the machine tool or the replacement of tools and templates.

5.1.5 the pneumatic support for lifting and feeding shall not be disassembled, disassembled or used upside down.

5.2 Start up

5.2.1 turn on the air compression pump and provide 0.4-0.6mpa compressed air.

5.2.2 loosen the screws of the two compression cylinders of the clamping mechanism, move the cylinder forward and backward to the appropriate position, then fix it, and check the compression force. The compression force should be such that the workpiece will not move after being clamped.

5.2.3 when installing the profiling plate, it should be noted that the hole is consistent with the hole of the machined part, and the workpiece should be adjusted and positioned according to the position of the profiling plate hole. When the profiling plate is not used, the braking device should be adjusted accurately.

5.2.4 when starting the machine tool, you can manually press the start button 9 at the end of the handle on the control lever 7, and then the circuit is connected. The machine starts to run.

5.2.5 When the spray cooler works, the spray should achieve a good atomization state.

5.2.6 after feeding, it should be until the set screws collide to ensure the correct milling depth.

5.3 Operation

5.3.1 press down the pedal of the foot switch, and the pedal will lock itself. At this time, the two pressing cylinders will press the parts.

5.3.2 hold the control lever with the right hand to control the milling direction, press the button, rotate the cutter, and pull the feed handle with the left hand to make the milling head reach the adjusted position.

5.3.3 during feed milling, the contact rod moves along the profiling plate hole and can be operated freely by holding the control rod with the right hand.

5.3.4 when the handle is released with the left hand (or without force), the milling head will reset automatically; when the button is released with the right hand, the tool will stop rotating.

5.3.5 release the foot switch, return the cylinder head to its original position and release the workpiece.

5.3.6 remove the finished workpiece and replace it with a new one.

6. Maintenance

6.1 In order to protect the sliding parts, in addition to frequently removing the chips on the surface of the machine tool, lubricating oil should be added to the sliding parts before and after work.

6.2 Replenish the coolant in the cooling tank regularly. In working condition, the coolant in the tank should be kept at 2 / 3-1 / 4 height. The spray coolant will accumulate sediment during storage and use. The coolant and cleaning the cooling box should be replaced timely according to the actual situation. If the blockage is found, the pipeline should be cleaned and the coolant can be configured with emulsifier.

6.3 Always check the good condition of cutting tools, and do not use defective cutting tools.

6.4 In the gas source processor, N32 mechanical oil should be added to the oil mist device, and the oil drop should be adjusted to 1 drop / 80 seconds. The filter element of the water

separation filter in the air source processor should be cleaned regularly, and the water storage cup should be drained regularly.