Automatic Hangtag Stringing Machine

(MB6010A)

Instruction Manual

Please read this instruction manual before using this device.

Please keep this instruction manual in a convenient place for reference.

Thank you for purchasing the IMB automatic hangtag stringing machine.
Before using this machine, please read the following instructions carefully; they will help you better understand the operation of this machine.

These instructions clearly describe the correct working methods in accordance with current regulations.

No part of this manual may be copied or transcribed without prior authorization from IMB.

The contents of this manual are subject to change without prior notice.

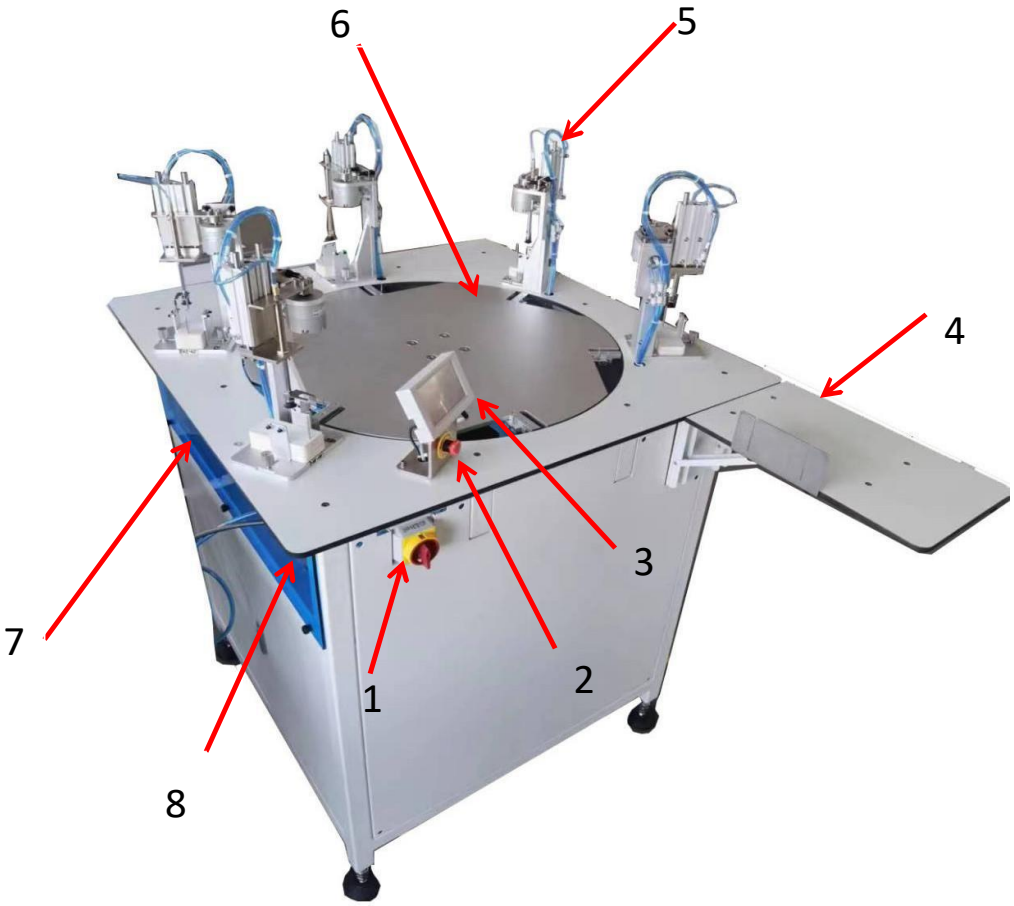
We gladly welcome any suggestions or indications on how this manual could be improved.

The introduction of this machine is divided into three parts. For details, please refer to "MB6010A - Operation Manual", "MB6010A - Parts Manual" and "MB6010A - Touch Screen Interface Operation Instructions".

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1. Basic Information



1: Power switch; 2: Emergency stop switch; 3: Touch screen; 4: Auxiliary table board assembly; 5: Suction unit;

6: Rotating mechanism; 7: Suction negative pressure alarm; 8: Electric control box and air source treatment unit;

2. Technical Parameters

MB6010A Automatic Hangtag Stringing Machine		
1	Working voltage/V	220
2	Working air pressure/MPa	0.5
3	Rated power	200W
4	Machine dimensions/mm	900L×1320W×1300H
5	Number of hangtags (pcs)	1~5
6	Hangtag width X (mm)	20~78
7	Hangtag length Y (mm)	45~150

3. Safety Precautions

Precautions for the safe use of the automatic machine

 危险	1. To prevent accidents caused by electric shock, do not open the cover of the motor/electric box or touch the parts inside the electric box while the power is on.
 注意	1. To prevent personal injury, be very careful not to pinch your fingers when the device moves up and down or returns to its original position. 2. Do not cut off the power supply or the air supply while the machine is running. 3. To prevent accidents caused by electric shock, do not operate the device with the grounding wire removed. 4. To prevent accidents caused by electric shock or damage to electrical parts, always turn off the power switch before plugging in or unplugging the power plug. 5. To prevent damage to electrical parts, stop operation and unplug the power plug for safety during a thunderstorm. 6. To prevent damage to electrical parts: condensation may occur when the machine is moved immediately from a cold place to a warm place; wait until all water droplets are completely dry before turning on the power. 7. As this product is a precision machine, operate it with great care: do not splash water or oil onto the machine, and do not drop it or subject it to impact. 8. This machine is a Class A industrial machine. If it is used in a domestic environment, radio interference may occur; in that case, the user should take appropriate measures to resolve the interference.

* Important safety information:

√ Improper operation of the machine may cause personal injury. Please read this manual carefully and operate the machine correctly before use.

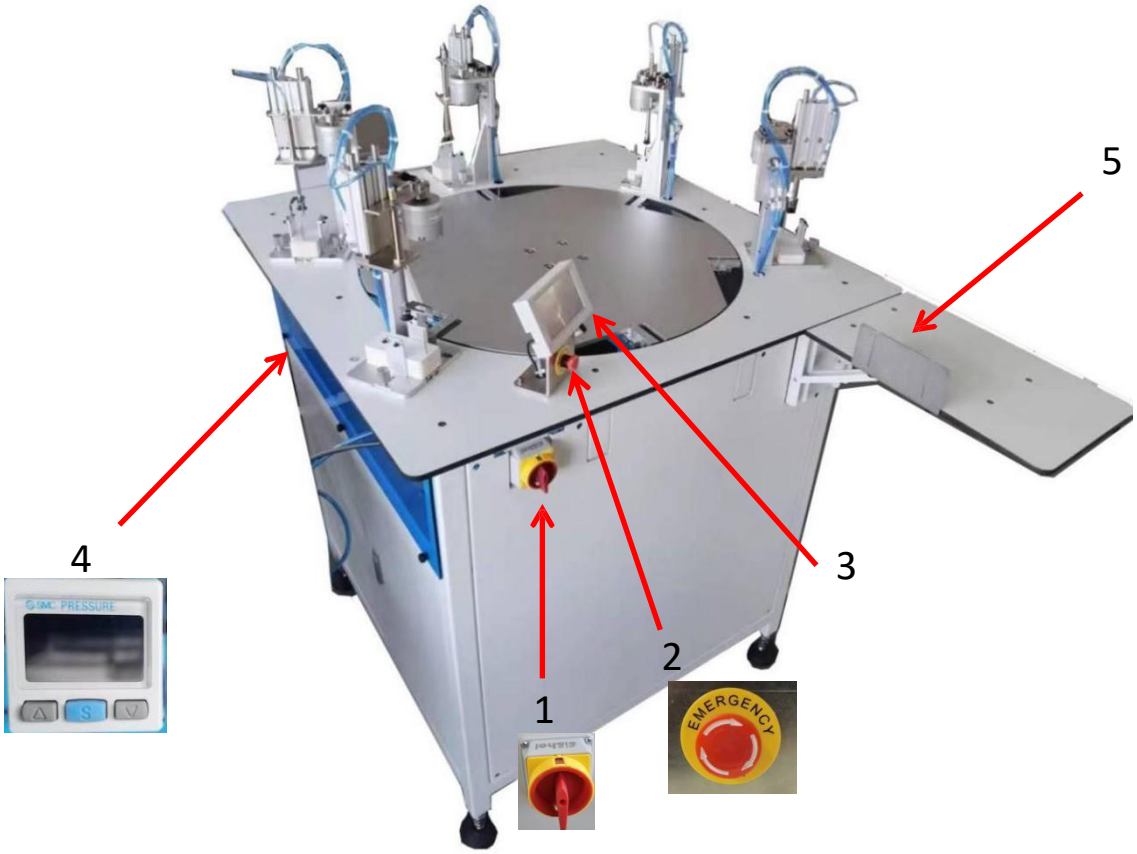
√ Supply air to the machine before switching on the power for formal operation.

√ It is strictly forbidden to open the electric control box or touch the internal parts of the touch screen while the power is on.

√ This machine must be used after training or under the guidance of a designated person to ensure the personal safety of the user.

4. Button Functions

4.1. Button Functions



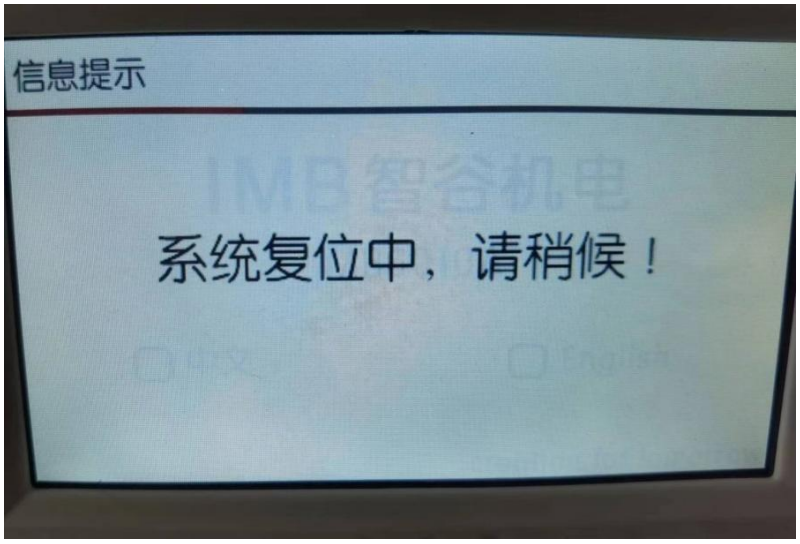
(1) : Power switch --- Turn to ON to power on the device; the device starts to work.
(2) : Emergency stop button --- Stops the device in an emergency.
(3) : Touch screen --- Displays and sets device parameters.
(4) : Digital vacuum pressure switch --- Detects whether the suction unit has picked up material; if no material is picked up, a material alarm is triggered.

(5) : Auxiliary table board assembly --- Holds the hangtags threaded with plastic pins.

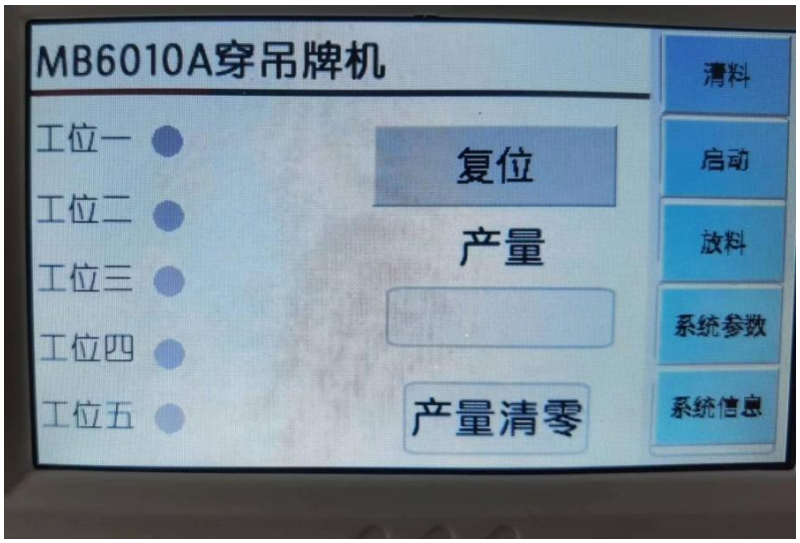
The initial interface is shown below:



If no operation is performed, the system defaults to the Chinese interface and enters the following screen:



The system automatically enters the reset state. After resetting is completed, the following screen appears:

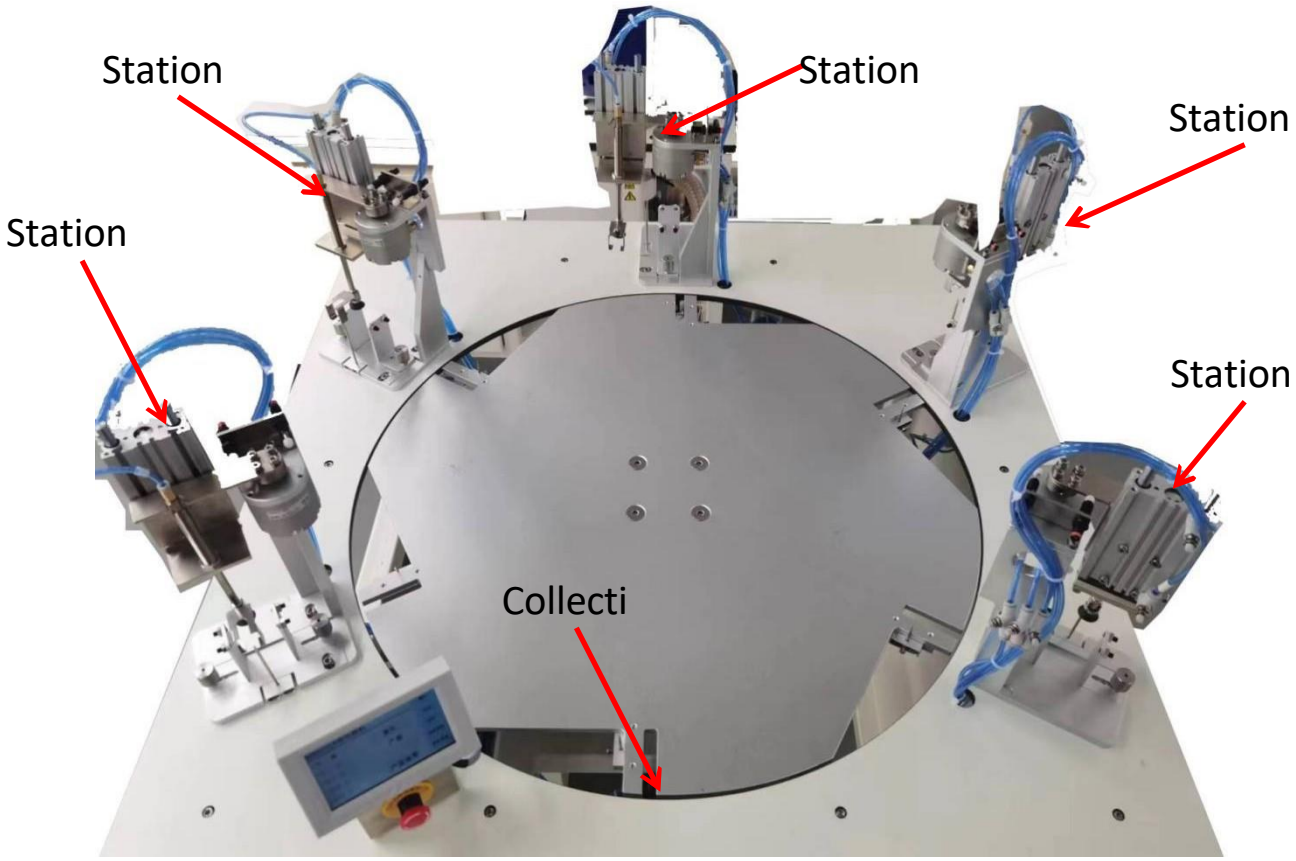


4.2. Reset Operation

4.2.1 Power-on Reset

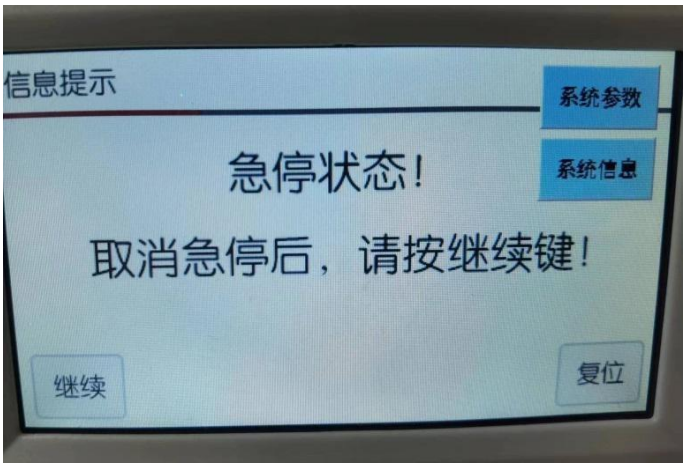
Step	Description	Button Method
1	Power on	4.1(1)
2	Reset	4.1(3)--复位

Click the reset button "复位" on the touch screen, and the device resets automatically as shown in the figure below.



4.2.2 Reset After Emergency Stop

Steps to reset the device after an emergency stop: Rotate the emergency stop switch clockwise to release it, click the Continue button on the touch screen, rearrange the hangtags, then click the Reset button on the touch screen, and the rotating mechanism resets.



5. Operation Instructions

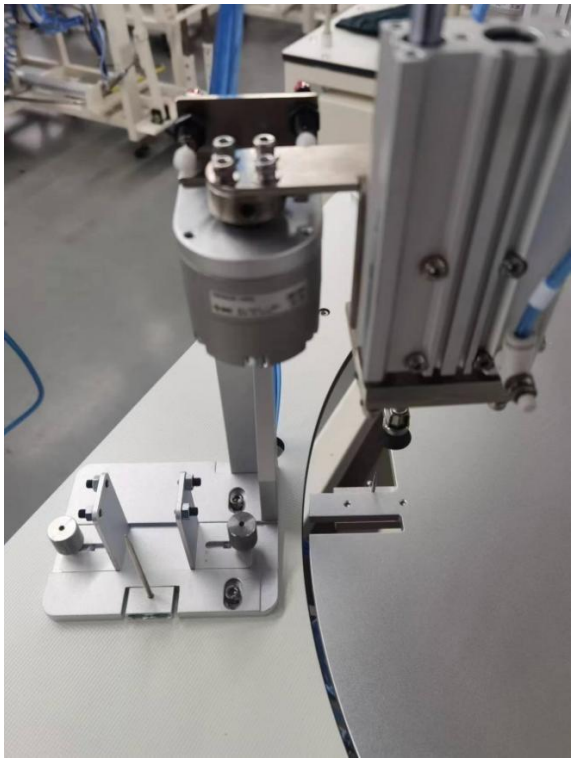
5.1. Preparation Before Operation

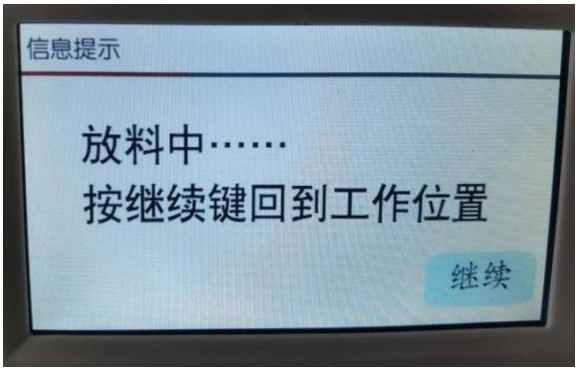
√ The device must be in a stopped state when the operator carries out checks
√ Check that the suction cups are intact
√ Clear the machine table of any debris to ensure that nothing obstructs operation
√ Check the air pressure gauge so that the pressure meets the machine's requirements

5.1.1 Hangtag Loading

Click the loading button "

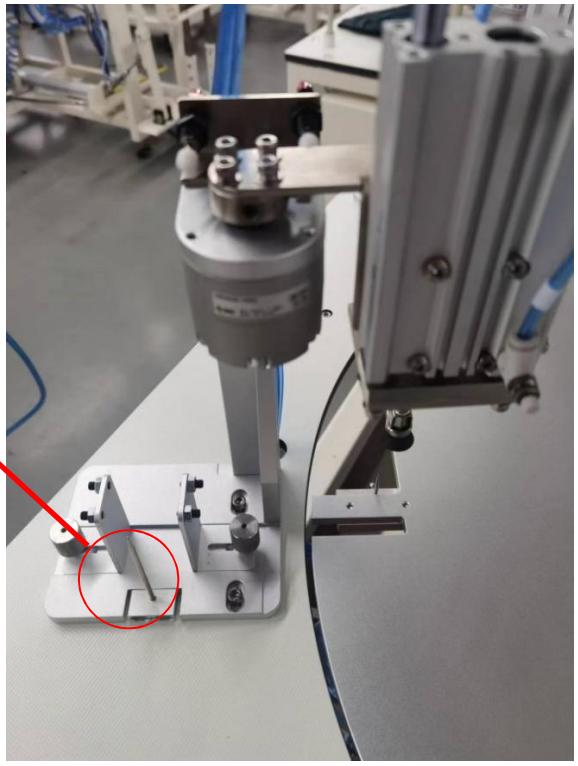
" on the touch screen, and the suction unit rotates to the turntable loading position. The device is shown in figure a and the touch screen in figure b below:

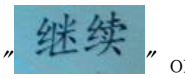




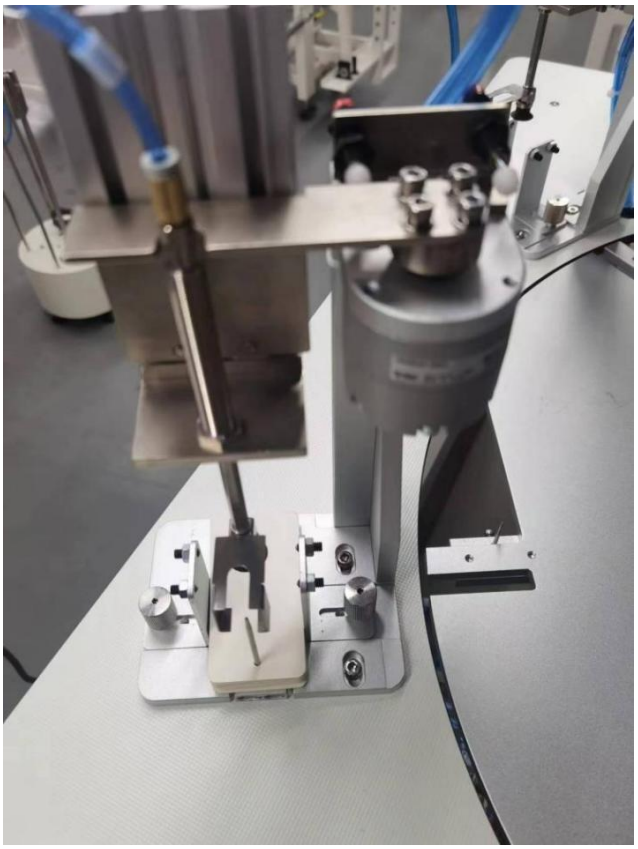
a b

Then place the hangtags with their hole positions aligned with the loading positioning pins, as shown below:



After placing the hangtags, click the Continue button "

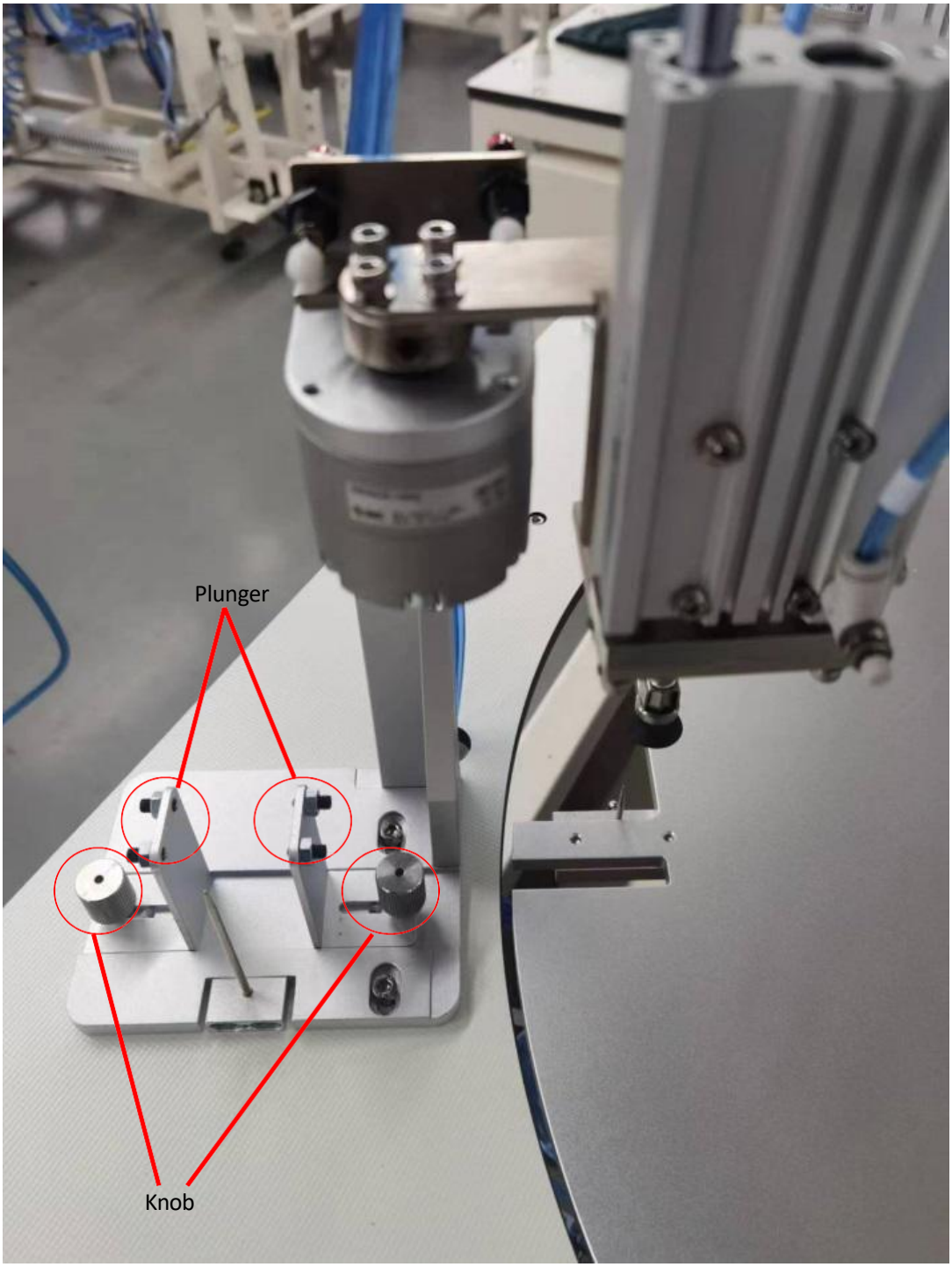
" on the touch screen again; as shown below, the suction unit returns to its original position.



5.1.2 Hangtag Replacement

Click the loading button "

" on the touch screen, and the suction unit rotates to the turntable loading position. Loosen the knob in the figure below and move the side guides on both sides apart to open a gap. Take out the hangtag to be replaced and place the new one. During placement, make sure the hole positions of the hangtag stay aligned with the positioning pins of the suction unit. Finally, clamp the hangtag with the side guides on both sides and tighten the knob.



Note: 1. The side guides must not clamp too tightly, otherwise the suction unit will fail to pick up the hangtag.

2. The plungers on the side guides must not protrude too much, otherwise the suction unit will fail to pick up the hangtag; nor should they be recessed too much, otherwise the suction unit may pick up extra hangtags.

5.1.3 Test Operation Before Running

5.1.3.1 Test Interface

On the initial interface, click the System Information button "" to enter the options shown below:



Click the Output button "输出" to enter the output mode, as shown below:



Click the Rotate button "旋转"; the suction unit of the device performs one rotation, as shown in figure a below. Click again and it returns to its original position, as shown in figure b;



a



b

Click the Lift button "升降"; the suction unit of the device performs one up-and-down movement, as shown in figure c below. Click again and it returns to its original position, as shown in figure d;



c



d

Note: Before rotating, the suction unit must be in the raised position to prevent the suction cups from colliding with the positioning pins and damaging them during rotation.

Click the Suction button "

"; the suction cups of the station suction unit perform a pick-up action. Click again and the suction stops;

Click the Station Forward button "

"; the rotating mechanism of the device performs one forward rotation;

Click the Station Backward button "

"; the rotating mechanism of the device performs one reverse rotation;

5.1.3.2 Suction Unit Adjustment Procedure

Enter the output interface described in 5.1.3.1.

Step 0: Use the Station Forward button "

" to move the positioning pin of the rotating mechanism (as shown below) to the position of the suction unit to be adjusted;



Step 1: Click the Lift button "

"; the suction cups of the suction unit press down, as shown below;



Step 2: Click the Suction button "吸盘"; the suction unit picks up the material;

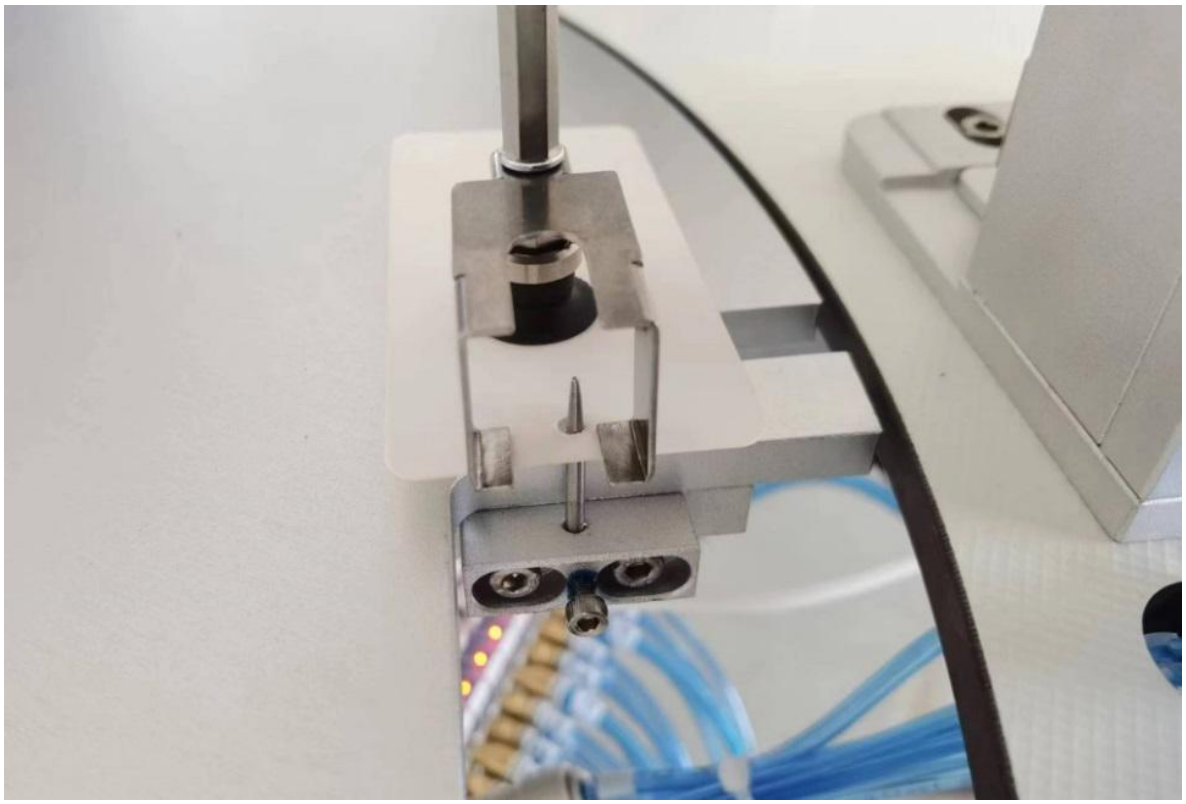
Step 3: Click the Lift button "升降"; the suction cups of the suction unit rise, as shown below;



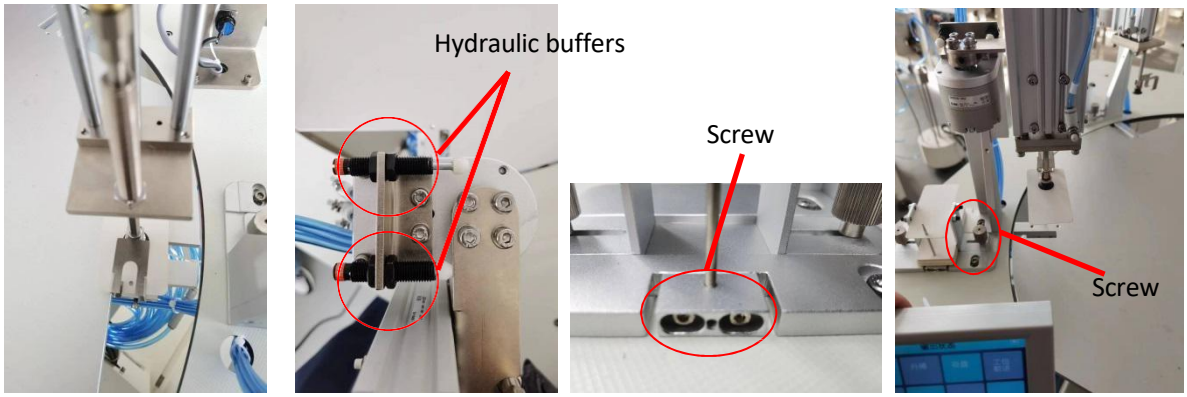
Step 4: Click the Rotate button "旋转"; the suction unit rotates above the rotating mechanism, as shown below;



Step 5: Click the Lift button "升降"; the suction cups of the suction unit press down, as shown below;



If the hangtag holes are not aligned with the positioning pins of the rotating mechanism, as shown in figure a below, adjust the following three positions (adjust the rotation position of the rotating cylinder via the hydraulic buffer, figure b; adjust the positioning pin position of the suction unit after loosening the screws, figure c; adjust the overall position of the suction station after loosening the screws, figure d) so that the hangtag holes align with the positioning pins of the rotating mechanism.



a b c d

Step 6: Click the Station Forward button "工位前进"; the rotating mechanism of the device advances to the next station. Repeat Steps 0-5 above until all suction units have been adjusted;

5.1.3.3 Positioning Pin Adjustment Procedure of the Rotating Mechanism

Step 0: Adjust a single station position following the suction unit adjustment procedure in 5.1.3.2;

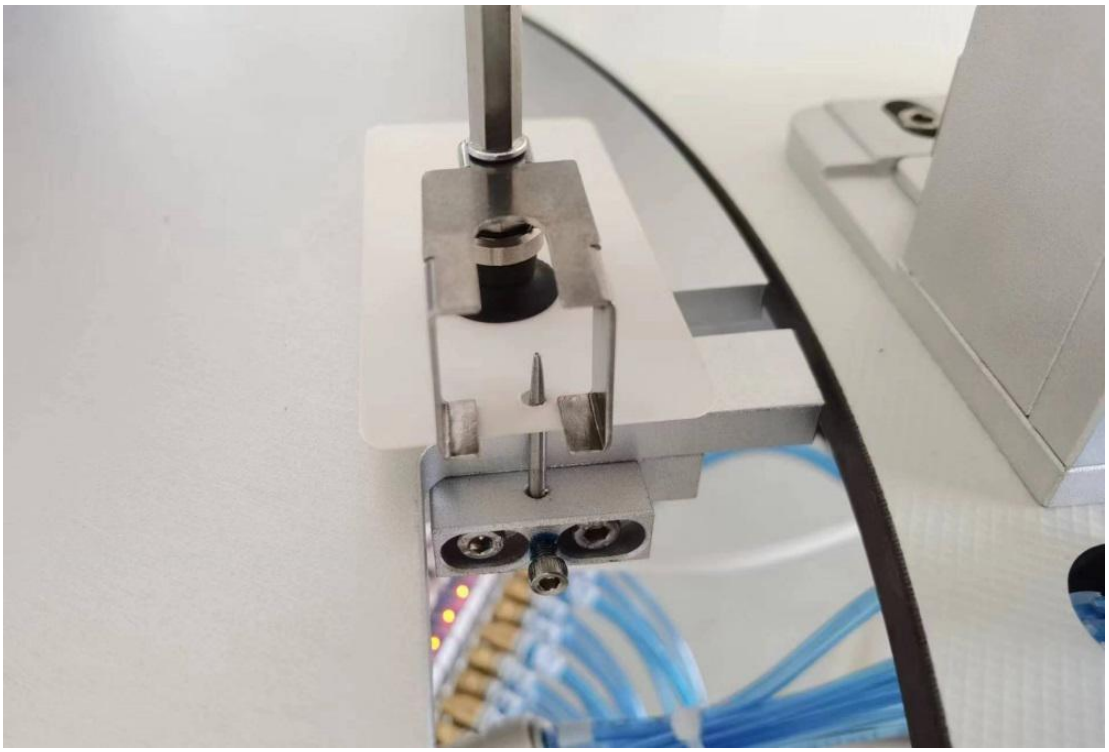
Step 1: Click the Station Forward button "

"; the rotating mechanism of the device advances to the next station, so that the positioning pin to be adjusted moves to the station whose suction unit has already been adjusted;

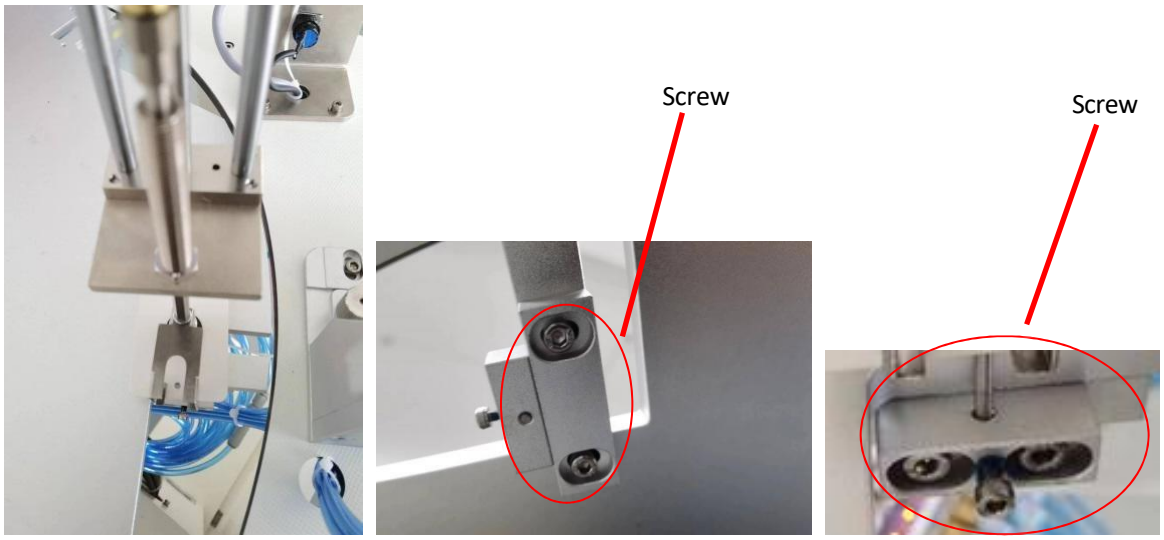
Step 2: Repeat Steps 1-4 of the suction unit adjustment procedure in 5.1.3.2;

Step 3: Click the Lift button "

"; the suction cups of the suction unit press down, as shown below;



If the hangtag holes are not aligned with the positioning pins of the rotating mechanism, as shown in figure a below, adjust the following two positions (adjust the front-back position of the positioning pin after loosening the screws, figure b; adjust the left-right position of the positioning pin after loosening the screws, figure c) so that the hangtag holes align with the positioning pins of the rotating mechanism.



a b c

Step 4: Click the Station Forward button "工位前进"; the rotating mechanism of the device rotates, moving the positioning pin to be adjusted to the station with the adjusted suction unit. Repeat Steps 1-3 above;

5.2. Operation Procedure

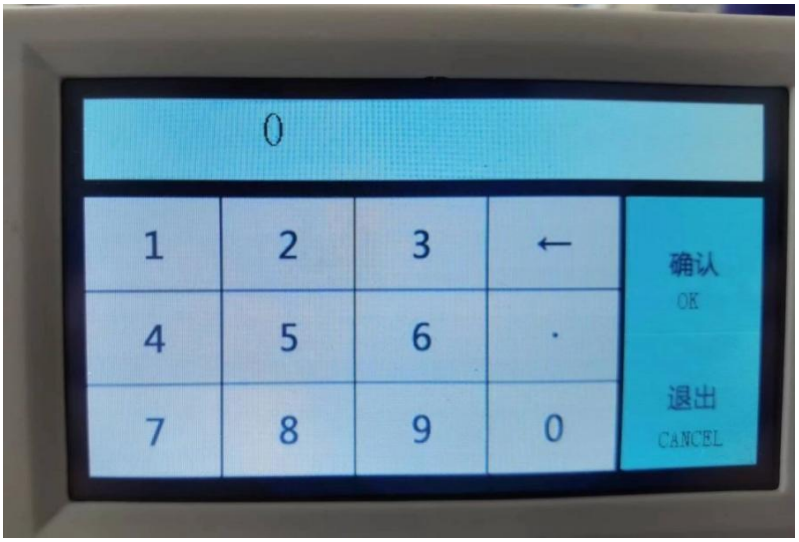
5.2.1 Starting the Device

Connect the air hose to the air circuit;

Turn the power switch to ON to power on the device;

5.2.2 Selecting the Number of Hangtags

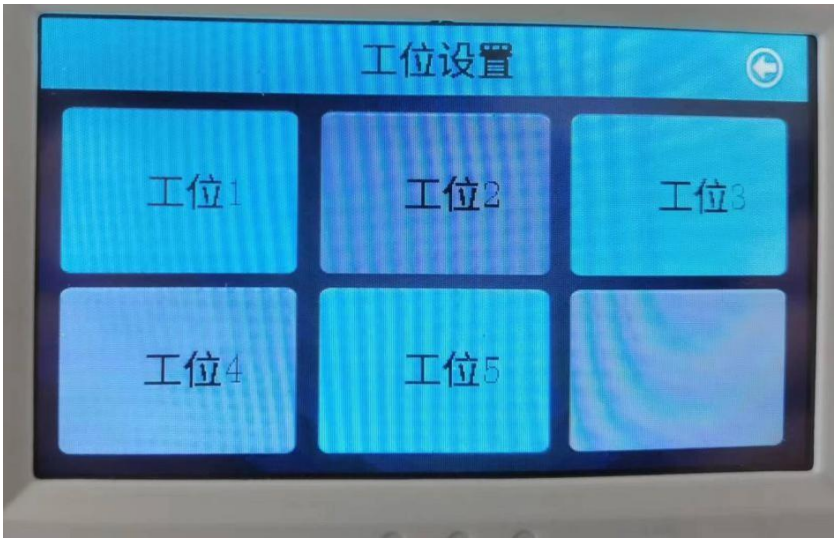
Click the System Parameters button "系统参数" on the touch screen to enter the device screen shown below:



Enter the system password to enter the system parameters screen, as shown below:



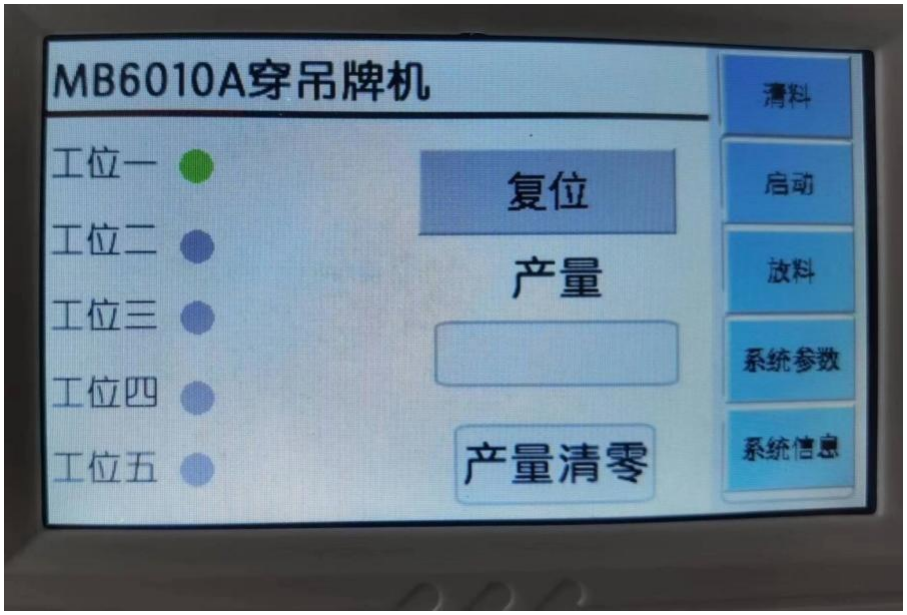
Click Station Setting "工位设置" to enter the station setting screen, as shown below:



Click the station you want to select "工位1"; once selected, the station button turns green, as shown below:



After the selection is completed, click the Exit button "" to exit the station selection screen and return to the main interface, as shown below:

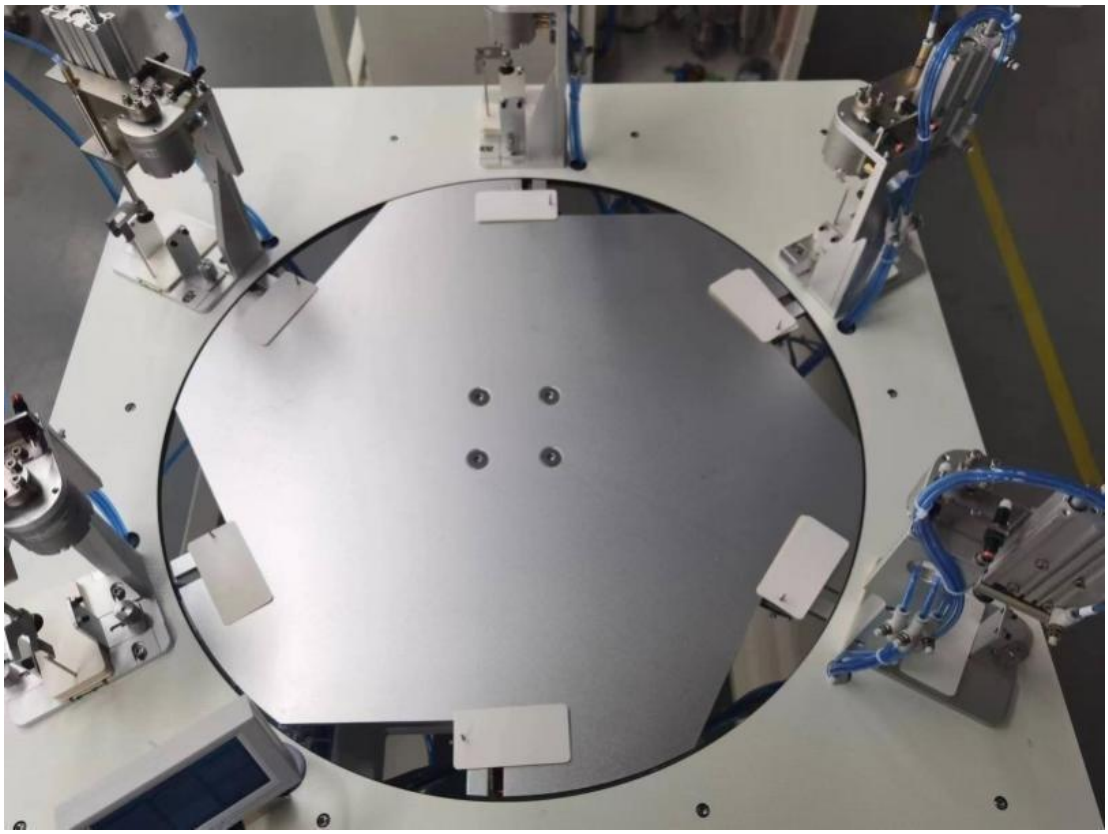


5.2.3 Hangtag Picking Process

Before the device picks material, perform the reset operation described in 4.2;

1. Click the Start button "

" on the touch screen; the suction unit of the device starts picking up and placing hangtags. After a hangtag is placed, the rotating mechanism rotates to the next station. This process repeats in sequence until a hangtag appears at the collection position, as shown below;



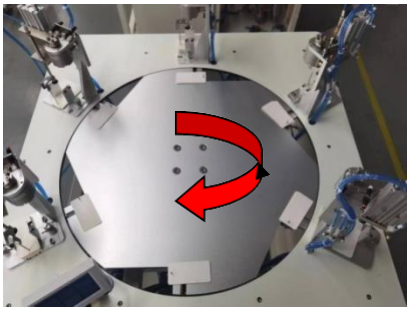
2. Manually take the hangtag from the collection area. The sensor switch under the hangtag (as shown below) no longer detects the hangtag and therefore sends an electrical signal; the rotating mechanism rotates to the next station, and the suction unit starts



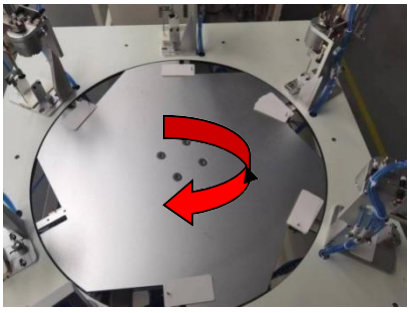
picking up and placing the next hangtag;

3. Repeat the material collection process described in 5.2.3 until you are ready to finish work;

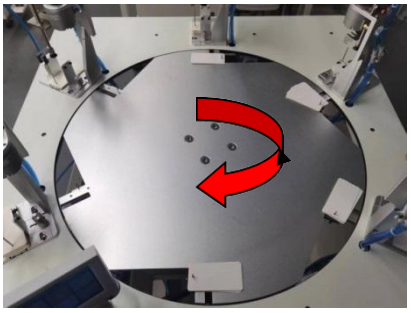
4. Press the Clear Material button "清料" on the touch screen (4.1 (3)); the device starts clearing material. The stations on the rotating mechanism rotate to the collection position in turn to unload. After one manual collection, the suction units at stations lacking hangtags replenish the missing hangtags. The suction units that finish collecting stop running until all hangtags on the rotating mechanism have been collected. The clearing sequence is shown below.



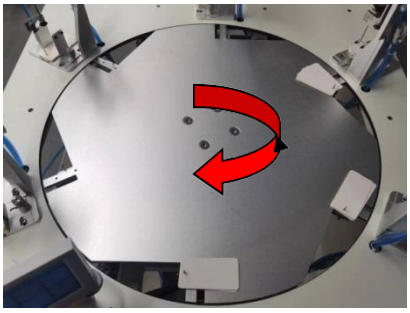
1



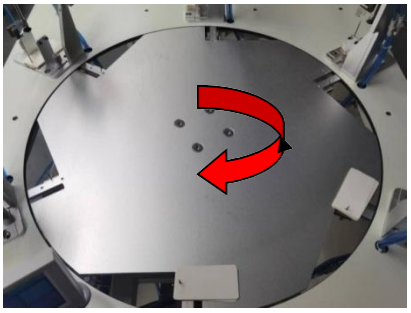
2



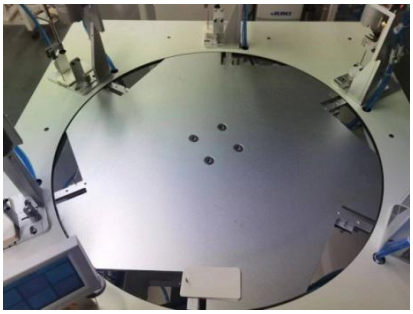
3



4



5



6

5.2.4 Shutting Down

After the operation is completed, turn the power switch (4.1 (1)) to switch off the automatic hangtag stringing machine.

6. Commissioning Method

6.1. Steps Before Commissioning

Step 0: Reset the device following the reset operation in 4.2;
Step 1: Set the number of hangtags following the selection procedure in 5.2.2;
Step 2: Load the hangtags following the loading procedure in 5.1.1;

6.2. Single-Station Linkage Commissioning Steps

Reset the device following the reset operation in 4.2, then click the System Information button "

" on the initial interface to enter the options shown below:

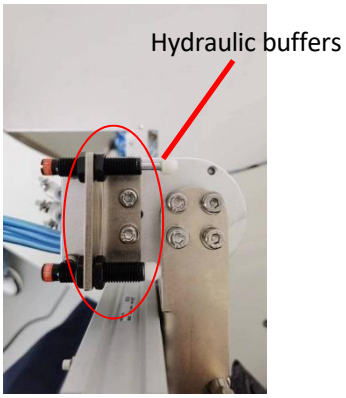


Click the Station Debugging button "工位调试" to enter the station debugging screen, as shown below:

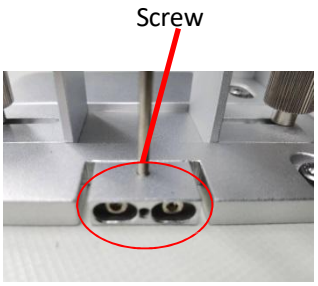


Click the station button of the station to be debugged, and the suction unit to be debugged performs one action (the continuous action of Steps 1-5 in 5.1.3.2). Repeatedly check whether the positioning pins on the rotating mechanism align with the hangtag holes. After confirming the alignment, click the Single-Step Forward button "单步前进" to check the next suction unit, until all mechanisms have been checked;

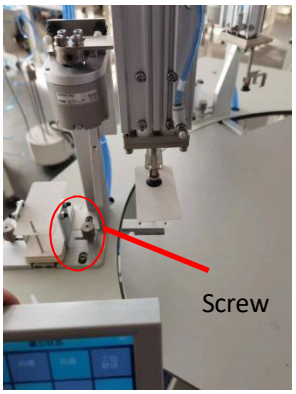
If the positioning pins on the rotating mechanism are not aligned with the hangtag holes, as shown in figure a below, adjust the following three positions (adjust the rotation position of the rotating cylinder via the hydraulic buffer, figure b; adjust the positioning pin position of the suction unit after loosening the screws, figure c; adjust the overall position of the suction station after loosening the screws, figure d) so that the hangtag holes align with the positioning pins of the rotating mechanism.



a



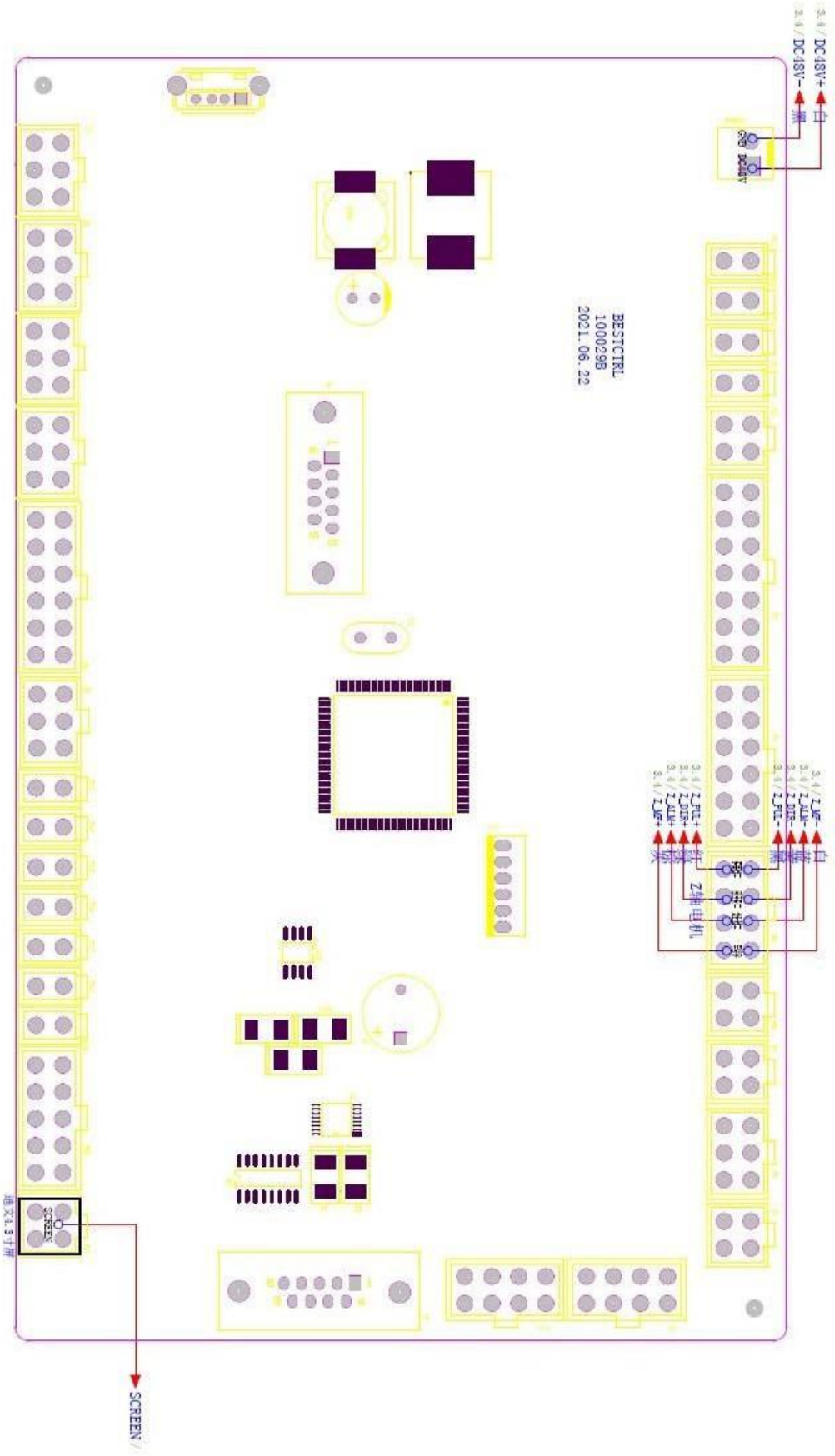
b



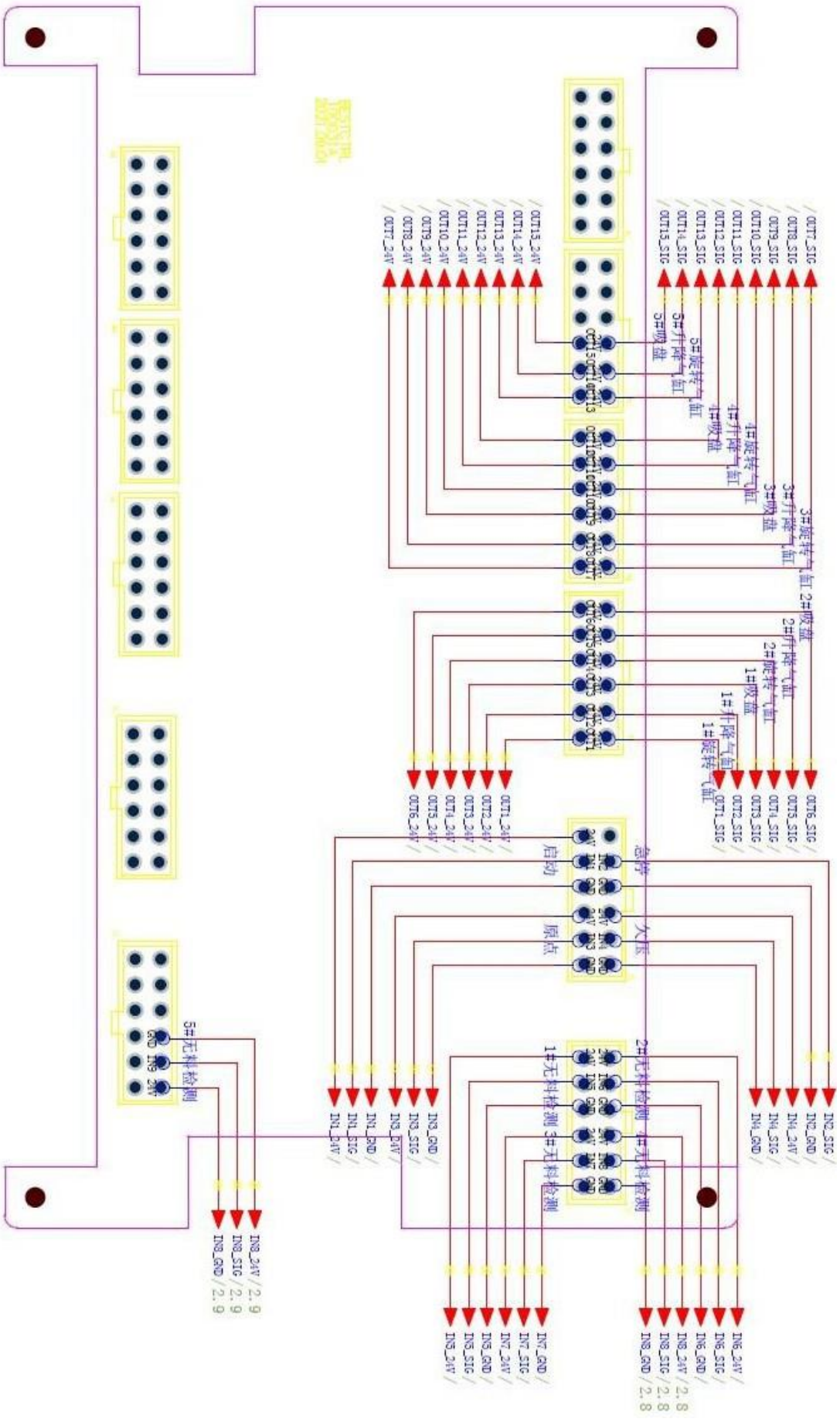
c

7. Electrical Wiring

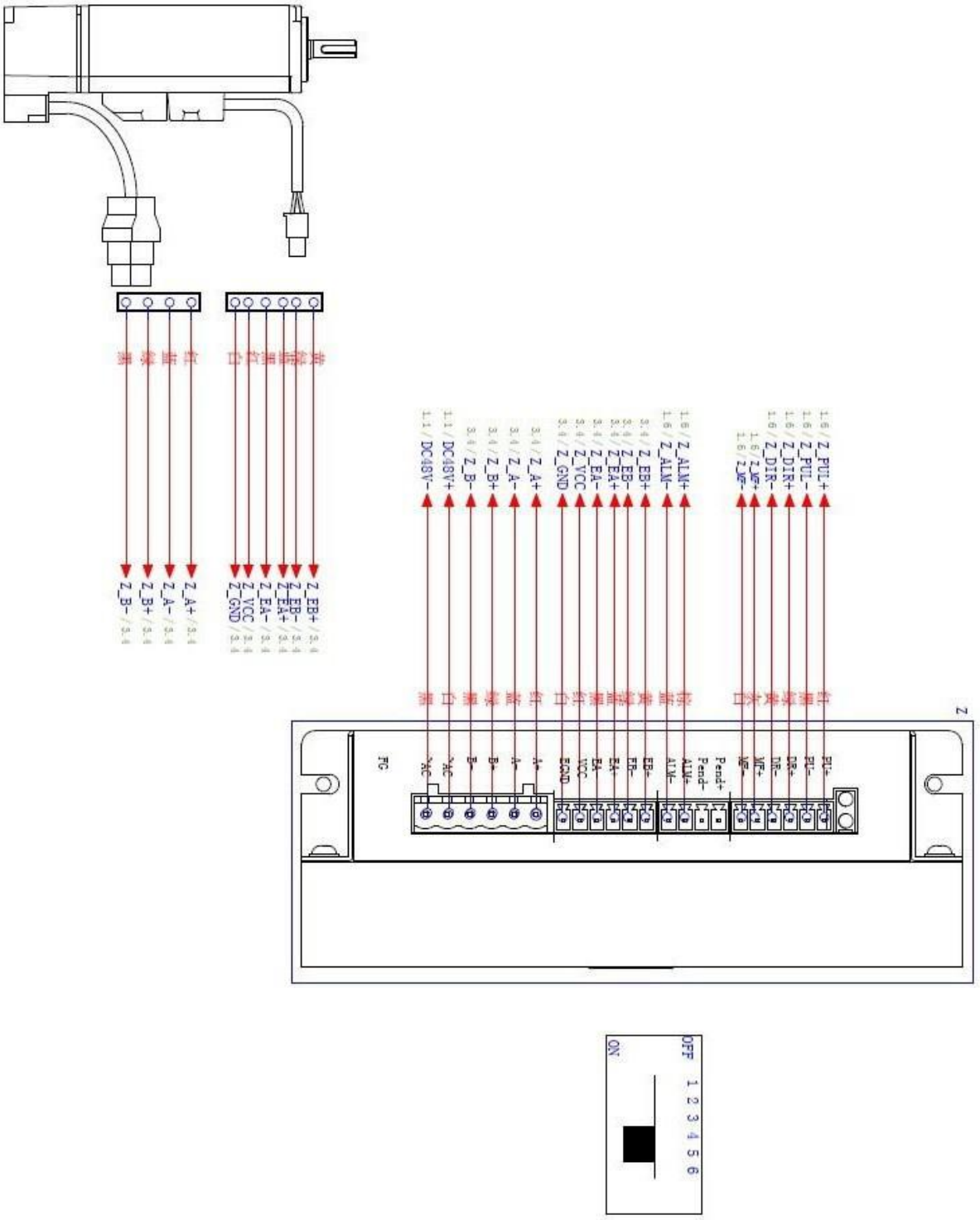
7.1. Main board:



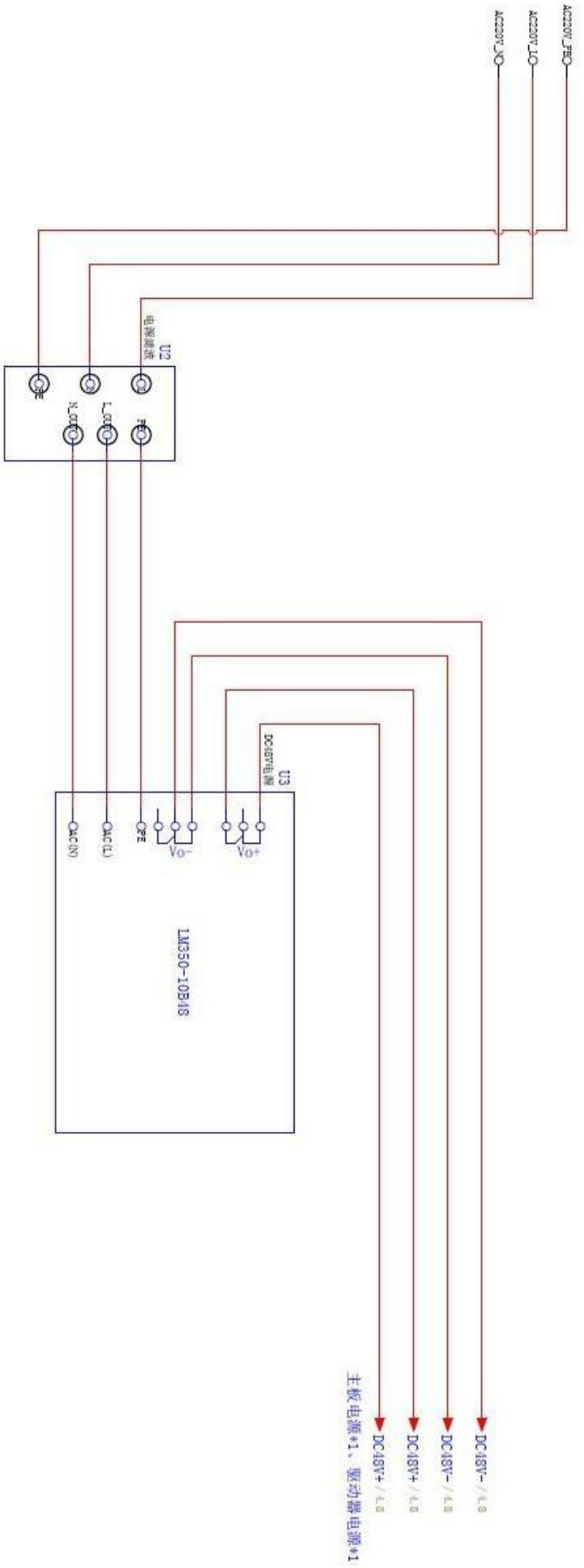
7.2. Extension board:



7.3. Z-axis motor:



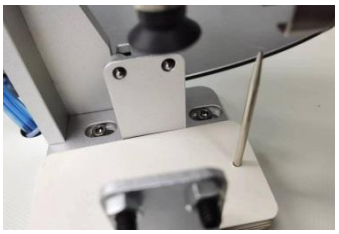
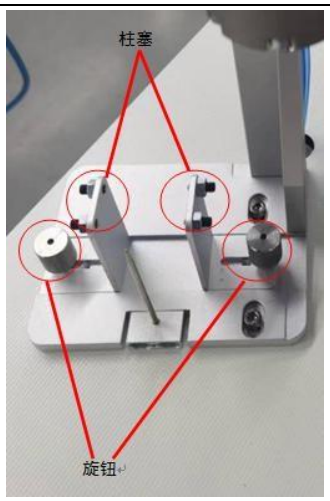
7.4. External power supply:



8. Common Problems and Solutions

8.1. For common problems and solutions, see the table below.

8.2. For other touch screen issues, please refer to "MB6010A - Touch Screen Interface Operation Instructions".

Symptom	Photo	Cause Analysis	Solution
Hangtag holes cannot be aligned		1. The rotating cylinder does not rotate fully into position 2. The positioning holes of the suction unit are offset 3. The positioning pins of the rotating mechanism are offset	1. Adjust the hydraulic buffer 2. Adjust the positioning pins of the suction unit 3. Adjust the positioning pins of the rotating mechanism
Other hangtags are pulled out when picking up a hangtag		1. The ball plungers in the side guides are not adjusted into place	1. Adjust the ball plungers in the side guides
Hangtag cannot be picked up		1. The ball plungers in the side guides are not adjusted into place 2. Insufficient suction force	1. Adjust the ball plungers in the side guides 2. Adjust the suction regulating valve to increase the suction force
Hangtag collides with the positioning pins during transfer		1. Low air pressure of the suction press-down cylinder 2. Low air pressure of the rotating cylinder 3. Incorrect delay settings of the suction press-down cylinder and the rotating cylinder	1. Adjust the air pressure of the suction press-down cylinder 2. Adjust the air pressure of the rotating cylinder 3. Reset the delay settings of the suction press-down cylinder and the rotating cylinder

The rotating mechanism does not move after the hangtag is removed		1. The sensing distance of the sensor under the hangtag is not adjusted properly	1. Adjust the sensing distance of the sensor

9. Routine Maintenance Requirements

9.1. See the table below for the maintenance checklist and requirements.

No.	Item	Time				Description
		Daily	Weekly	Monthly	Semi-annually	
1	Dust removal	√				Remove dust from the machine surface and parts
2	Air hose connections			√		Air hose connections are tight and leak-free
3	Sensors				√	Check whether the sensitivity is accurate and whether the positions have changed
4	Hydraulic buffers				√	Check whether the hydraulic buffers operate normally; replace them if necessary
5	Electric control box				√	The cooling fans run normally; clean off dust promptly

10. Intellectual Property Protection Statement

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