



Heating type spin coater Instruction manual





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Chapter 1 Overview

The heating homogenizer mainly uses the principle of centrifugal coating to coat liquid or colloidal materials on silicon, crystals, quartz, ceramics and other substrates to form a film, which has a wide range of applications in the field of material research. The instrument adopts advanced precision motor, the speed can reach 10000 RPM, effectively ensuring the uniformity of film formation. In addition to the basic spin coating function, this product is also equipped with a heating component, which can be heated to 160 °C, controlled by an intelligent temperature control meter, temperature determination is accurate, and the heating process is fully controllable. In addition, the instrument adopts touch screen control, and can preset the uniform curve, which greatly simplifies the use process and reduces the learning cost, and is very suitable for laboratory purchase.

Product features:

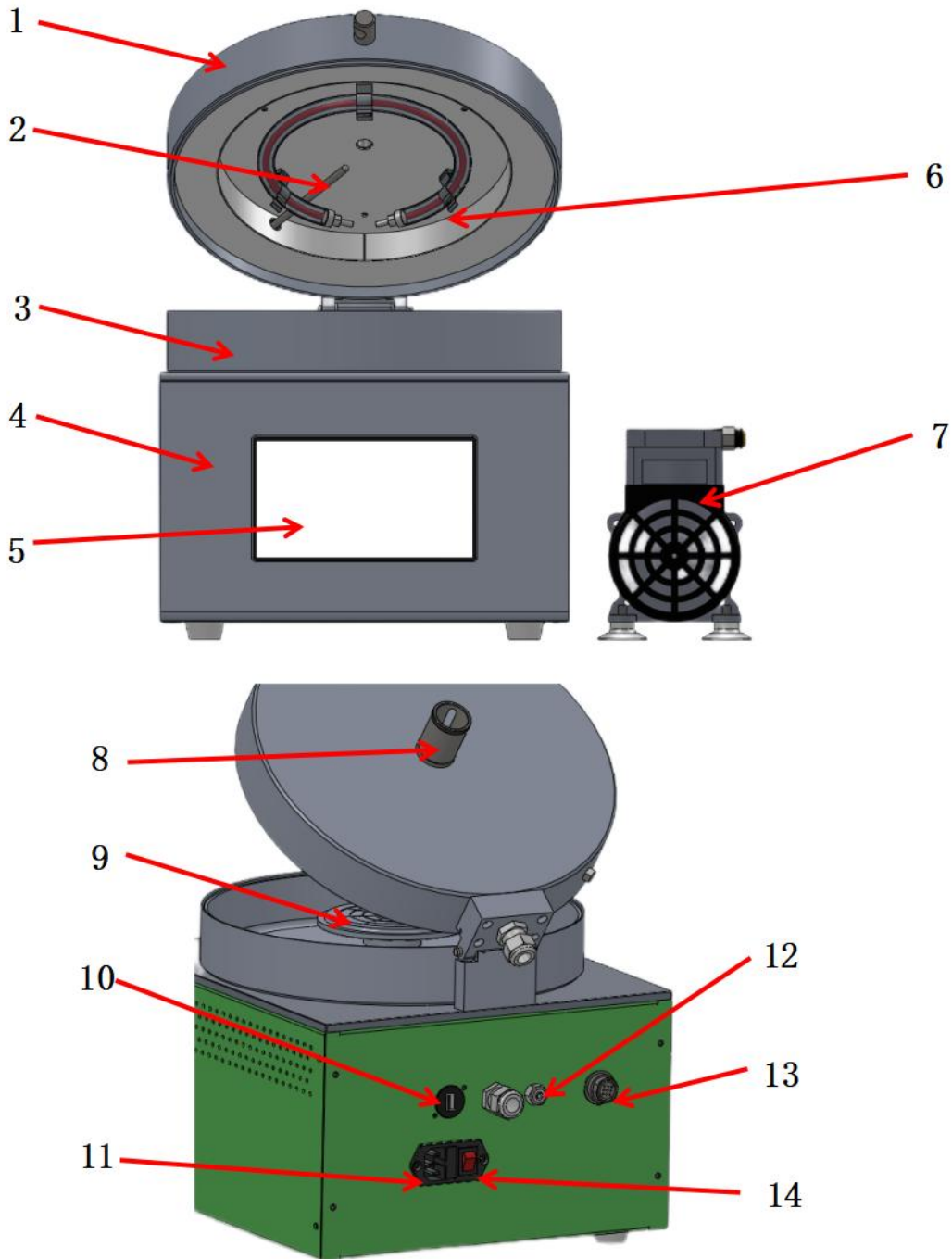
- 1.The coating surface can be heated at constant temperature, heating range: room temperature ~ 200°C, temperature control accuracy 1°C.
- 2.Can be used for uniform coating organic matter, film preparation.
- 3.You can first smooth glue, and then bake glue.
- 4.Can store a variety of different substrate rotating coating process parameters. Each coating process can be set to multiple steps of different rotation speeds.

Chapter 2 Technical parameters

Item	Details
Maximum speed	10000 RPM
Speed resolution	1 RPM
Maximum rotation time	3000 S
Rotation time resolution	1 S
Maximum acceleration	5000RPM/S
Heating temperature	RT-160°C
Heating power	1400W
Dimension	290mm(W)x380mm(D)x320mm(H)
Weight	20kg (Subject to actual conditions.)
Power input	630x510x550mm (Subject to actual conditions.)
Pumping rate	50L/min
Vacuum connection	Φ 6mm quick twist interface

Note: These technical specifications apply to Model CY-SPC8-CH.

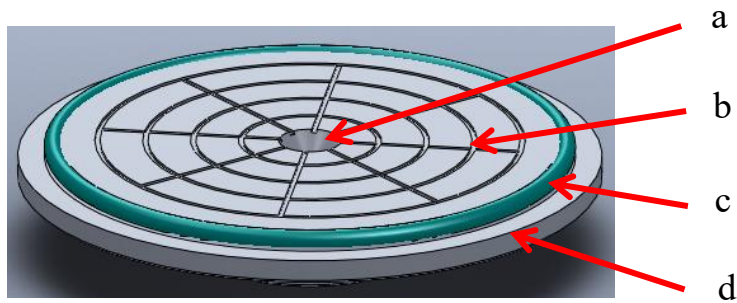
Chapter 3 Equipment composition



Overall structure:

1.Top cover	2.Thermocouple	3.Cavity	4.Host
5.Touch screen	6.Heating lamp	7.Vacuum pump	8.Drip hole
9.Suction plate	10.USB port	11.Power cable socket	12.Vacuum pump navigation socket
13.Vacuum pump navigation connector	14.Power socket switch interface		

Diagram inside the vacuum chamber:



A. Central vent	B.O-ring	c. Vacuum adsorption tank	d. Load tray
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 **Attention:**

There are a variety of sizes of the pallet can be customized, the specific replacement operation is described in the following instructions.

Chapter 4 Device Installation and connection

4.1 Installation position:

The installation position should be selected on a flat, stable, spacious, and well-ventilated plane. Otherwise, it may affect the blending effect. If you need to handle glue containing volatile or toxic solvents, be sure to place the equipment in a well-ventilated fume hood. The equipment should be installed away from direct sunlight or cold/heat sources and moisture. Do not install the device on the edge of the workbench to avoid the device slipping due to vibration during operation. 20cm should be marked around the equipment as a work hazard area.

4.2 Vacuum connection:

Device vacuum port Connects to the vacuum pump air inlet. The multi-core navigation plug of the vacuum pump is connected with the navigation socket behind the equipment.



The real air circuit uses a ϕ 6mm quick screw connector, which should be used with a hose with an outer diameter of 6mm. The installation of the quick screw joint is shown in the figure below:



1) Remove the nut and pass the hose through the nut;



2) Put the hose into the joint before the thread, pay attention to the need to use the hose to completely cover the joint;



3) Tighten the thread, and after tightening the nut, the hose can be

clamped to play a sealing role.

4.3 Circuit installation:

Connect the power cable of the vacuum pump to the vacuum pump control cable port at the back of the homogenizer. The male and female ports of the vacuum pump are marked with white dots. During installation, align the white dots, insert the male port tightly, tighten the outer nut, and secure the control cable connection.

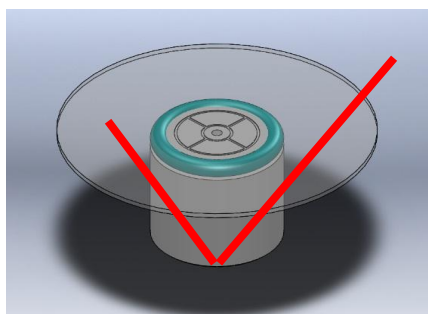


Finally, insert the power cord into the power interface behind the homogenizer, and then connect the plug to the socket (AC220V 50Hz) to ensure that the socket is reliably grounded.



4.4 Place sample:

Place the sample to be processed in the center of the sucker. Samples can be wafers, slides, small fragments, and other substrates suitable for blending.

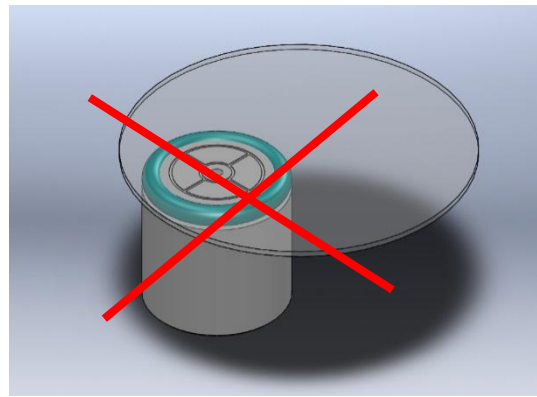
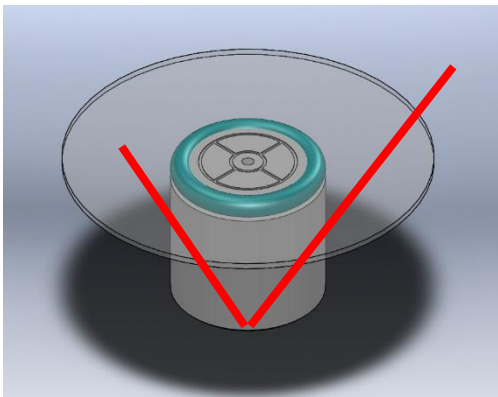


The sample must be larger than and completely cover the surface of the suction cup. If the selected

sample is smaller than the load tray, the glue will flow into the vacuum pipe of the device, which will block or corrode the internal pipe of the device.

4.5 Sample alignment:

The center of the sample is aligned with the center of the sucker. After the vacuum pump is opened to adsorb the substrate in the load tray, try to manually flip the load tray to observe whether there is eccentricity in the sample rotation. If there is eccentricity, it should be adjusted again until the substrate alignment is complete.



Attention:

The sample must be placed right in the center of the suction cup. Otherwise, in the process of high-speed rotation, there may be flying pieces, causing damage to personnel and equipment.

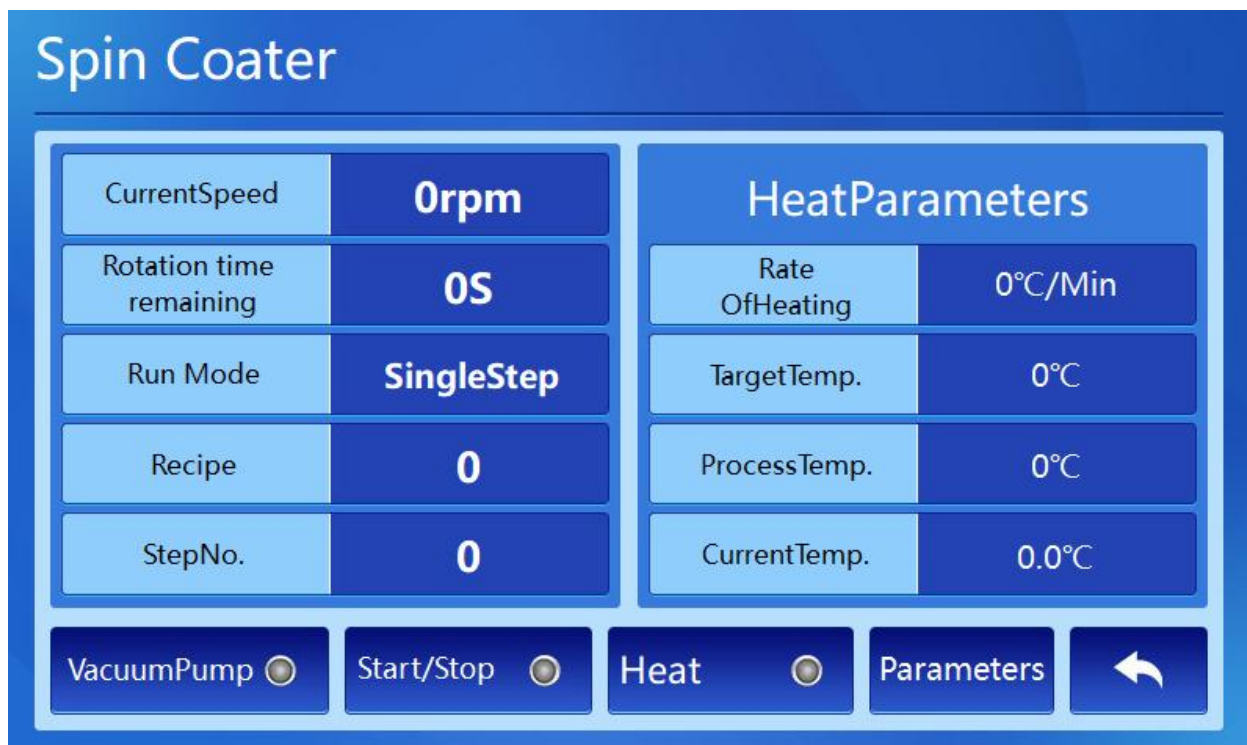
Chapter 5 Boot operation

5.1 Touch screen operation:

Power-on display interface



The main interface is shown below

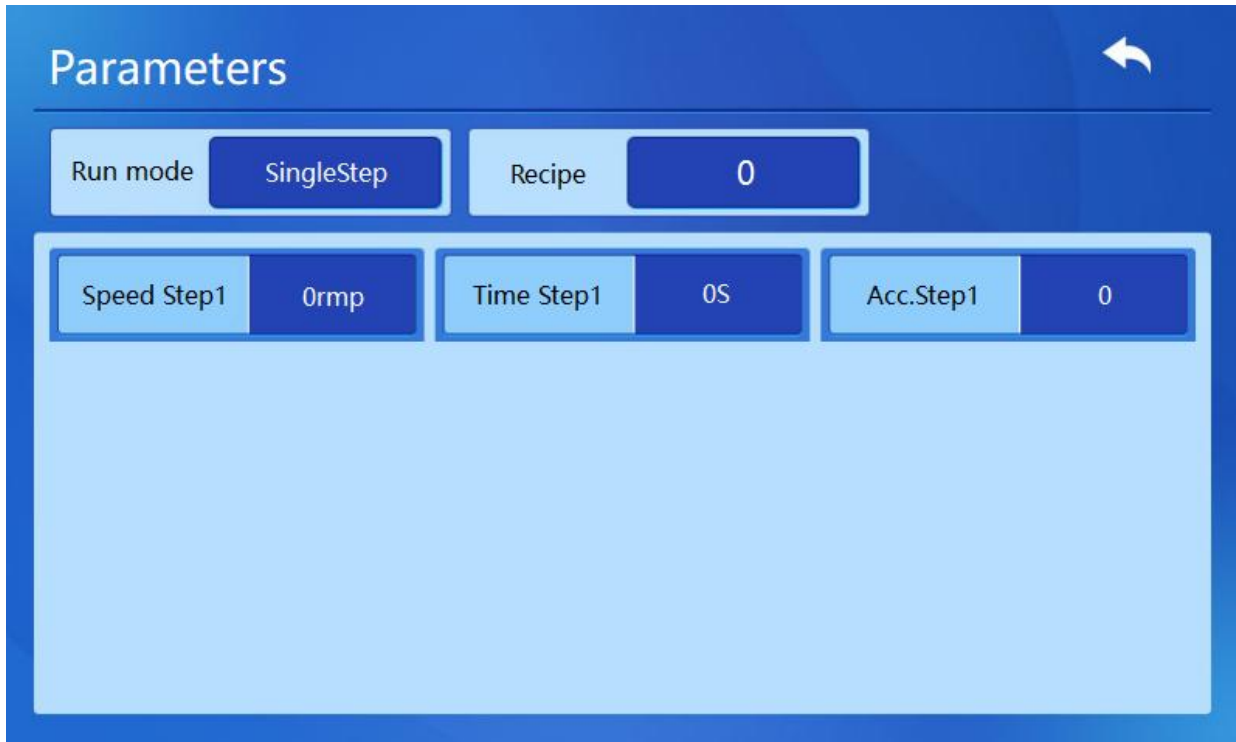


The upper left of the main interface shows the current speed of the stage and the remaining time of the current rotation

The working mode is divided into single step operation and multi-step operation

Single step operation: Only one speed, running time and acceleration

Click the lower right corner of the glue parameters interface is as follows:



Multi-step operation: Multiple speed, running time and acceleration can be set

Click the lower right corner of the glue parameters interface is as follows:



On the right is the heating setting:

Heating rate: The heating rate of the chamber heating, the setting parameter range is 1-20°C/min

Target temperature: Set the final heating temperature, the set parameter range is 0-200°C

Process temperature: The set temperature of the current temperature segment in the program

Measured temperature: The temperature actually measured in the heating zone

Vacuum pump start and stop: Control the start and stop of the vacuum pump

Start and stop: control the start and stop of the homogenizer (rotation)

Heating start and stop: Control the start and stop of the heating function

Homogenizing parameters: Set the speed, running time and acceleration parameters of the homogenizing machine under different working modes

5.2 Overall use process:

1. Connect the power supply, vacuum pump, and injection pump according to the instructions.
2. Press the power button to enter the operation interface, and set the homogenizing program, injection pump parameters, and heating parameters as required;
3. Open the lower heating cover, place the sample smoothly on the loading tray, complete the alignment, and then cover the heating cover;
4. Open the vacuum pump and adsorb the sample on the loading tray;
5. Click on the touch screen to start the injection and start the homogenization. After the homogenization is completed, click to start heating, bake the glue dry, and then stop heating;
6. After the load tray completely stops rotating and the room temperature is restored, turn off the power, open the heating cover, and take out the sample.

Chapter 6 Routine Maintenance

6.1 Cleaning the Device:

After daily use of the equipment, a small amount of solvent should be used to clean the inner cavity. When cleaning the vacuum tray, turn off the vacuum source and clean the surface of the tray with a paper towel or soft cloth. Do not use solvents or cleaning agents to clean the pallet when it is installed.

If a special solvent is needed to clean the tray, the tray should be pulled from the shaft and the residue on the surface of the tray should be removed with a paper towel or soft cloth dipped in an appropriate amount of cleaning agent. Do not scratch the surface to prevent damage to the contact surface between the substrate and the tray.

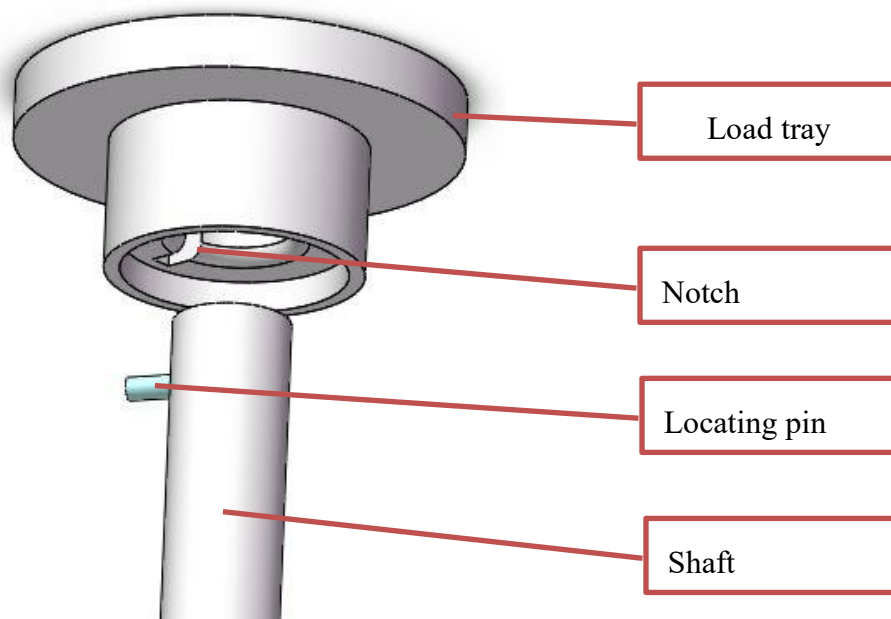


Attention:

It is strictly prohibited to spray liquid directly on the load tray, otherwise the liquid will enter the equipment and cause damage.

6.2 Sucker Replacement:

- 1) Close the external vacuum pump;
- 2) Unscrew the top fixing screw and pull out the loading tray;
- 3) If necessary, properly clean the shaft surface. And a small amount of Teflon grease;
- 4) Align the notch on the new load tray with the positioning pin on the shaft, and then install the load tray on the shaft and tighten the screws;
- 5) Make sure the load tray is pressed on the shaft and there is no gap.



6.3 Safety precautions



To ensure personal safety, please pay attention to the following precautions:

- SP8 is non-explosion-proof equipment, and it is strictly prohibited to operate in the area and space with explosion risk. And when the operating equipment is running, the personnel should be kept at a safe distance of 30cm around the homogenizer.
- It is strictly prohibited to use flammable, explosive and radioactive materials for homogenizing operation.
- Should be used under exhaust gas collector hood.
- The cover should be closed for homogenizing operation. It is strictly forbidden to open the cover when the motor is still running.



Safety protocol compliance requirements:

- Do not operate the homogenizer when the equipment is not properly installed.
- When mechanical or electrical equipment has been altered by non-professionals, it should not be used.
- Do not use the pallet and other related accessories that are not approved by the manufacturer.
- Do not use discs with obvious corrosion and mechanical damage for spin coating.
- Do not touch or grip the shaft or pallet during operation.
- Do not open the lid for operation, so as to avoid wafers or debris flying out and wounding people.
- Do not open the rear backplane to touch the internal parts of the device while the socket is still



connected. Disconnect the power supply from the socket before maintaining the device and wait 10 minutes.

- **In order to avoid leakage and electric shock, the homogenizer equipment should be connected to a grounded socket.**

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