

KW-4B User Manual



SETCAS LLC

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MISSION

Create high-end equipment Provide satisfied services

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Company profile:

SETCAS LLC is a new high-tech enterprise, mainly engaged in the research and development of semiconductor devices and electronic products.

The company specializes in mechanical design, software development, automatic control , and industrial design technologies.

Packing List

No.	Name	Amount	
1	Oil-less Pump	Pump	1
		Pump Silencer	1
		Φ8 hose	1
		Pump Power Cord	1
		User manual	1
		Qualification Certificate	1
		Warranty card	1
		Company Product Brochure	1
2	KW-4B Spin Coater	Spin Coater	1
		Spin Coater Power Cord	1
		Spin Bowl	1
		Spin Chuck	3
		User manual	1
		Qualification Certificate	1
		Warranty Card	1
		Company Product Brochure	1
		Use Attention	1



Attentions

- The product is intended for use in a clean and low- humidity room environment. temperature: 0-40°C; humidity: < 85%;
- Always wear the proper personal protective equipment (PPE) for the job, including safety glasses, gloves, and other equipment as needed to protect from mechanical and chemical hazards.;
- This machine has components capable of very-high-speed rotation. Ensure all lids and panels are in place before activating the rotational features;
- High voltage is present in the machine. Disconnect the power before servicing.
- The unit is very heavy, and proper precautions should be taken when handling or moving the machine to minimize risk of injury.



Services and Maintenance

- 1-year full warranty on parts and labor;
- Free remote technical support (phone, email, fax) for the life of the product;
- Application process assistance for the life of the product;
- Maintain on-site or in the factory.



Feedback

If you have any comments and suggestions, please let us know.

- Tel: **+1 858-537-7743**;
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- Email : **paw@live.com**.

Product Feature

- Prevent the cleaners and solvents travelling down the motor;
- Set speed and time with the keypad, convenient and accurate;
- Single button control motor start, pause, reset, automatic control vacuum on and off;
- The whole body is made of SUS304 stainless steel, which is resistant to acid, alkali and salt spray.

Performance parameters

- Spin-coater power: 100w, spin-coating uniformity: $\pm 1\%$, pump power: 350w, pumping speed: $\geq 60\text{L}/\text{MIN}$;
- The motor is closed-loop control, there are two speed sections: high-speed range: 1000-9990rpm, low-speed range: 50-9990rpm;
- Set time of each speed section separately, time range of high-speed: 0-999s, time range of high-speed: 0-999s;
- Motor speed stability: $\pm 0.5\%$, timing accuracy: $\pm 20\text{ppm}$;
- Speed indicator range: 0-9990rpm, precision: $\pm 10\text{rpm}$; Time indicator range 0-999s, precision: $\pm 1\text{s}$;
- Voltage: AC100-240V, single phase;
- Dimensions: 215mm (W) \times 240mm (D) \times 220mm (H) ;
- Product weight: spin coater, 9 kg; pump, 8.5kg;
- Substrate sizes: 5mm to 100mm round, 72mm \times 72mm square.

Intallation

✚ Pump Installation

Place the pump horizontal, and install the silencer on the pump as the fig.1 below.

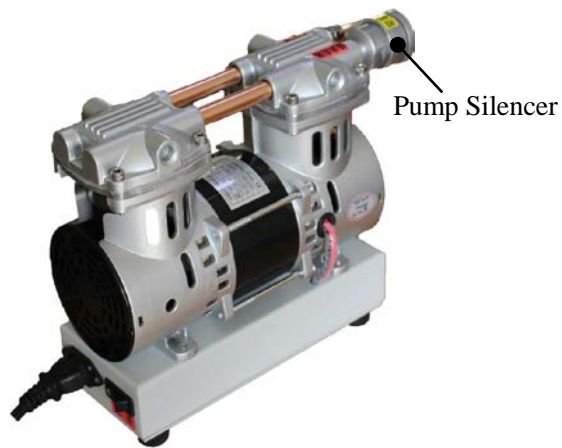


Fig.1 Pump Installation Diagram

✚ Spin Coater Installation

Place the spin coater horizontal, complete its installation by following the steps below:

1. Spin bowl: place the spin bowl on the top of the spin coater ;
2. Spin chuck: place chuck of the right size on the encoder, as shown in fig.5.



Fig.2 Spin Coater Installation Diagram

✚ Connection of spin coater and pump

The connection spin coater and pump mainly includes three items. Please follow fig3 to complete the connection.

Note: please make sure the power is off before the connection.

- Spin coater power cord and socket connection, ③ ;
- Pump power cord and socket connection, ② ;
- Pipe connection of Spin coater and pump, ①-① .

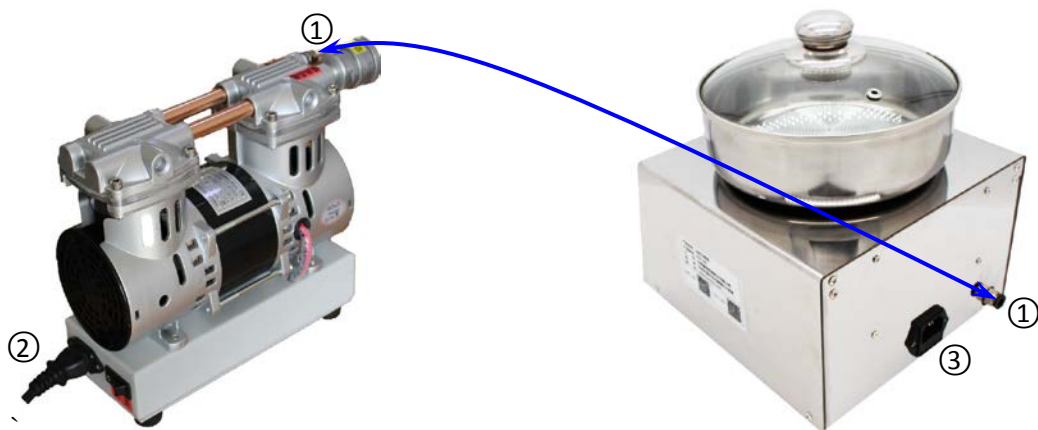


Fig.3 Connection Diagram of Pump and Spin coater

①Pipe, ②Pump power cord, ③Spin coater power cord.

Product Operation Procedure

Operation panel introduction

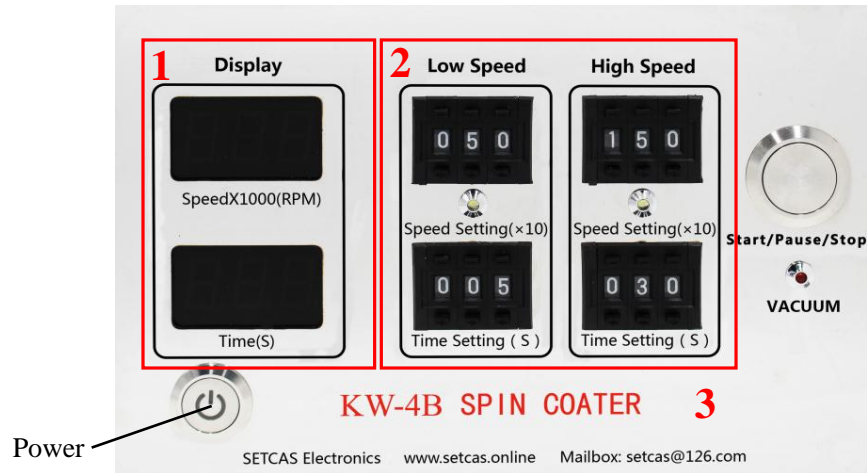


Fig.4 Operation panel

1、 Display

- **Speed indicator (×1000rpm):** shows the current speed of the spindle spinning, the current speed = the display speed × 1000;
- **Time indicator:** shows the time remaining on the current process step;

2、 Speed

➤ Low-speed

- **Speed setting (×10) :** set the speed of the spindle spinning at the low-speed section, the spinning speed = the setting speed×10;
- **Time setting (S) :** set the time of the spindle spinning at the low-speed section.
- **Low-speed lamp:** show the motor is running at the low speed section currently.

➤ High-speed

- **Speed setting (×10) :** set the speed of the spindle spinning at the high-speed section, the spinning speed = the setting speed×10;
- **Time setting (S) :** set the time of the spindle spinning at the high-speed section.
- **High-speed lamp:** show the motor is running at the high speed section currently.

3、 Buttons

- **Power:** press the power button, connect or cut off the electricity supply, then turn on or turn off the machine
- **Start/Pause/Stop**
 - a. **Start:** click this button to start the spindle spinning using the entered velocity and time;
 - b. **Pause:** click this button to pause the spindle spinning
 - c. **Stop:** press this button more than 2s to stop the spindle.
- **Vacuum lamp:** Show the vacuum supply state of the spin chuck.

Spin-coating procedure

After finishing the installation and connection of the pump and spin coater, please follow the following steps below to complete the spin coating:

- 1、 Power connection: turn on the power switch of the spin coater and pump successively;
- 2、 Inspection: after step1,if the lamp of the power button and the LED of display are on, you can continue the next steps;
- 3、 Parameter setting: set the parameters using the keypad on the operation panel;
- 4、 Substrate placing: place the substrate on the right size spin chuck, as shown in fig.5;
- 5、 Spindle spinning: click the start/pause/stop button, the spindle spins using the entered velocity and time.
- 6、 Solvents spraying:
 - Spraying motionless
If you need spray motionless, please do it during step 4 and 5.
 - Spray at a low speed
If you need spray at a low speed, please do it at this step.
- 7、 Substrate lifting
 - Lift during a spin-coating process
If you want lift the substrate, please press the start/pause/stop button more than 2s, after the spindle stopped, you can take away or replace the substrate.
 - Lift after a spin-coating process
Lift (take away or replace) the substrate after a spin-coating process finished and the spindle stopped.

✚ Use attentions

1、Substrate Placing

- The round hole on the spin chuck must be covered by the substrate;
- Spin chucks with vacuum holes only apply to substrates with a thickness of 0.3mm to 2mm, special spin chuck need be customized for substrates of other thickness;
- Substrate diameter must be 2mm to 4mm lager than the spin chuck diameter, as shown in fig.5: $a \geq 1 \sim 2\text{mm}$

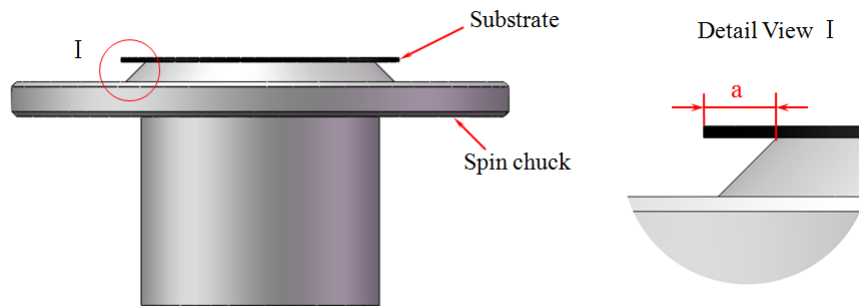


Fig.5 Substrate Placing diagram

2、Cleaning

Any of the following situation occurs, please clean the vacuum chamber:

- Normal use for more than 3 months;
- The spindle spinning is unstable or stuck;
- The substrate flying out during a spin-coating process without enough vacuum adsorption.
- The cleaners or solvents go down the spindle vacuum hole or the vacuum chamber;

Date	Version	Updates
13-8-2018	V2.0	Update error, etc.