



Doctor Blade Coating Machine

(Wire Rod & Blade Film Coater - No Vacuum Heated)

Part Number: SL002548

Operation Manual

(Please read the instruction carefully before you use the machine)

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1. Preface

Thank you for choosing our product. We are committed not only to providing you with high-quality equipment, but also to offering reliable after-sales service.

To ensure user safety and maintain the integrity of the instrument, please read this operation manual thoroughly before use and pay close attention to the safety precautions and operational guidelines.

This manual provides detailed information on the design principles, structure, operating procedures, calibration, and maintenance of the instrument. Any "test specifications" or standards mentioned in this manual are provided for reference only. If you have any concerns, please consult the relevant standards or data independently.

2. Working Principle and System Structure

This product is carefully designed to meet the requirements of small-scale coating experiments, with an emphasis on reliable operation and ease of use.

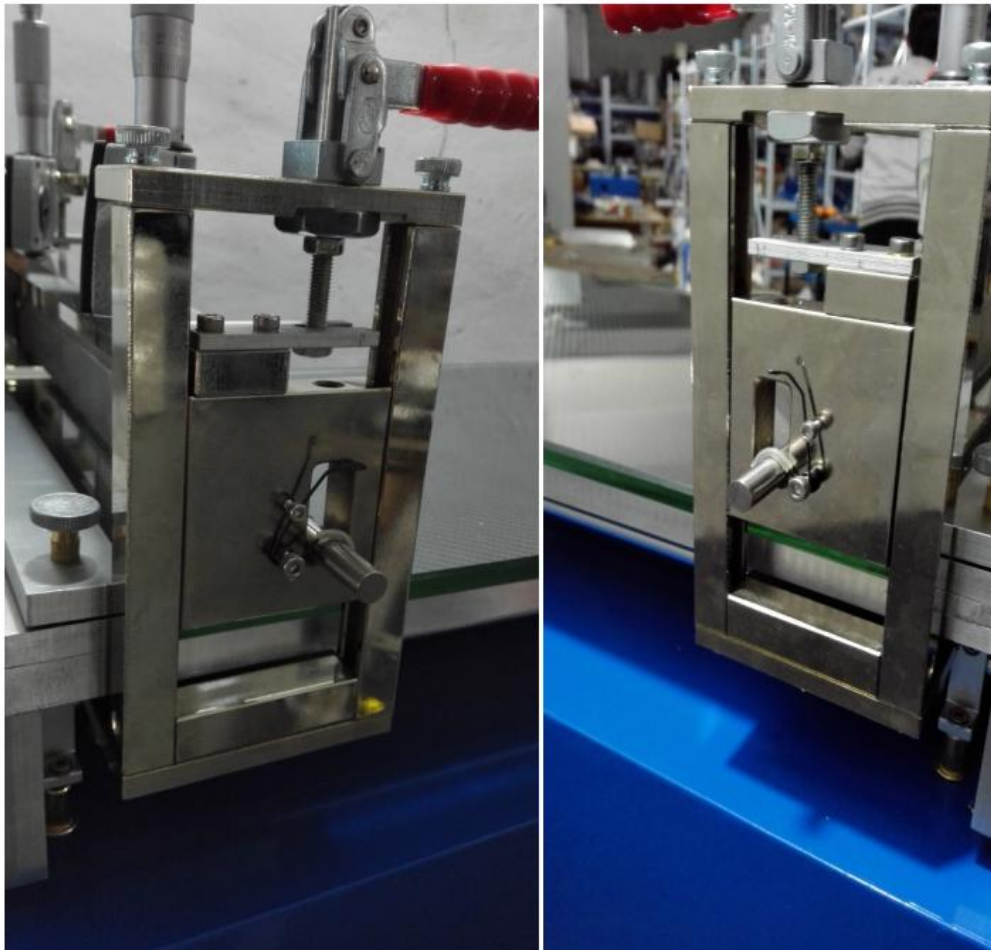
Its basic coating principle is as follows: the coating system primarily consists of a variable-speed motor, lead screw, sliding shaft, handle, doctor blade, and thickness gauge.

The coating thickness can be adjusted using the fine-tuning mechanism, and the coating speed is set via the speed control knob to achieve uniform coating.

3. Technical Specifications

- 1) Doctor Blade Material: Stainless Steel
- 2) Machine Dimensions (L × W × H): 6220 × 500 × 450 mm
- 3) Coating Speed: 5–180 mm/s
- 4) Coating Area: 30 cm width × 40 cm length
- 5) Doctor Blade Specification: Accuracy ± 0.003 mm, effective coating width 30 cm
- 6) Wire Rod Specification: Accuracy ± 0.001 mm, effective coating width 30 cm (coating thickness determined by wire rod model)
- 7) Main Unit Power Supply: 220V/50Hz
- 8) Main Unit Power: 60W – 1600W
- 9) Weight: 42 kg

4. Installation



- 1) It is recommended to unpack the machine on-site. Before unpacking, check the packaging for any damage. After unpacking, inspect the equipment condition and verify the items against the packing list. If any damage or shortages are found, analyze the situation and report it to us in writing immediately.
- 2) The machine should be installed in a location free from vibration sources.
- 3) The machine must be installed on a flat and solid foundation, and checked for levelness using a spirit level.
- 4) Before powering on, turn off the main power switch and check that the power connections are correct. Only after verifying correctness should the power be turned on.
- 5) Ensure that the machine's bottom corners are securely placed on a solid surface; do not allow any corners to be suspended.
- 6) Connect the power and turn on the switch.

5. Debugging and Operation

When the machine starts up, the screen will display the Welcome Interface. Click the Start button to enter the Operation Interface.

5.1 Set Corresponding Parameters for Experimentation

5.1.1 Heating Operation (Note: The standard model does not include a heating unit; temperature settings are not required.)



A. Temperature Setting

- Tap the Set Temperature button on the screen.
- Enter the desired temperature value.
- Tap OK to confirm the setting.

B. Heating Up

- Tap the Heating button on the screen.
- The Actual Temperature display will begin to fluctuate, indicating that the instrument is heating.
- Once the temperature reaches the set point, you can tap the Heating button again to stop heating.
- When the temperature drops below the set value, tap the Heating button again to restart automatic heating.

C. Stopping Heating

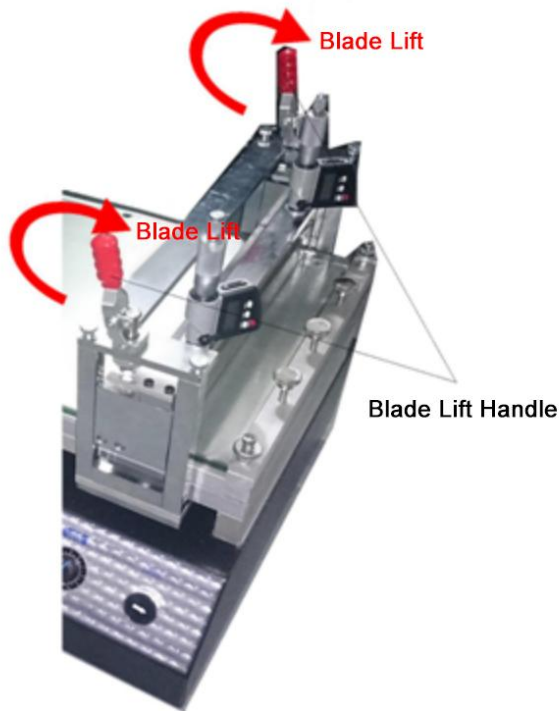
- You can stop heating at any time by tapping the Heating button again.
- The Actual Temperature display will stop fluctuating, indicating that heating has stopped.
- Tap the Start button to begin the coating test.



Attention:

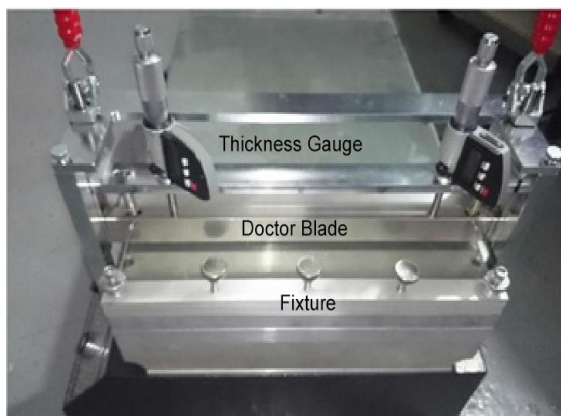
Do not touch the working surface during the heating process to avoid burns. Residual heat may cause the temperature to exceed the set value. The device will automatically stop heating and begin cooling. Once the temperature has stabilized at the set point for 5 minutes, you may begin the experiment.

5.1.2 Doctor Blade Coating Method



Lift the handle (approximately 90 degrees) and place the coating paper onto the platform. Then, lower the handle (do not press down); the blade will fall onto the surface by its own weight.

Note: When operating the handle, lift or lower both sides simultaneously and evenly to maintain balance.



Clamp the coating material securely using the fixtures.

Adjust the blade so it makes contact with the material (ensure both sides are parallel).

Turn on the digital gauge. Zero the display first, then adjust to the desired coating thickness.

A. Zero Adjustment

- Place the material to be coated in the clamps and tighten both ends securely. Lower the handle to let the doctor blade rest on the material.
- Turn the fine-tuning knob to lower the doctor blade to the bottom (a clicking sound will be heard), then press the Zero button on the micrometer to set the

zero point.

B. Setting Coating Thickness

- After zeroing, rotate the fine-tuning knob in the opposite direction to set the desired coating thickness.

C. Coating Operation

- Power on the machine; the Welcome Interface will be displayed. Tap anywhere on the screen to enter the Experiment Interface.
- Click the input box next to Set Speed, enter the desired coating speed, and press Confirm to save.
- Place the coating liquid in front of the doctor blade, then tap the Start button on the screen. The doctor blade will complete the coating at the set speed.

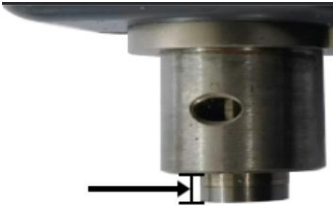

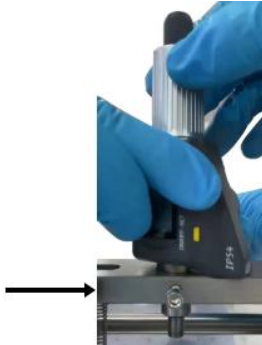
D. Return and Cleaning

- After coating is complete, lift the doctor blade handle and tap Reset.
- Clean the doctor blade to prepare for the next coating operation.



Special Attention:

- Do not excessively retract the extension rod when measuring with the micrometer. The external length must remain greater than 3.5 mm. Excessive retraction of the extension rod may cause damage to the micrometer!!!
- When installing the micrometer, do not overtighten the set screw. It should secure the micrometer in place without restricting the movement of the probe extension rod during retraction and extension.

		
The extended rod must protrude more than 3.5 mm.	Do not push the set screw into the hole during installation.	Over-tightening may cause deformation or damage to the rod!

5.1.3 Wire Rod Coating Test

A. Preparation and Start

- Lift the red upper handle to raise the scraper.
- Place the substrate onto the platform and lower the handle so that the wire rod rests on the substrate.
- Apply the coating liquid in front of the wire rod.
- Use the touchscreen to set the coating distance and speed, then tap [Start] to begin the experiment.

B. After Coating

- Lift the red handle to raise the wire rod.
- Tap [Reset] on the screen to return the wire rod to its initial position.

C. Cleaning

- Remove the wire rod and clean it thoroughly for future use.

6. Maintenance

- 1) Keep the machine clean regularly.
- 2) Do not use toxic chemicals, organic solvents, or similar substances to clean the equipment surface.
- 3) Disassembly of the machine should be performed by qualified professionals using proper tools and equipment.
- 4) Electronic components such as the frequency converter are pre-installed at the factory and must not be modified or replaced by the user.
- 5) Take precautions to prevent moisture damage.

7. Warranty

Warranty is effective from the date of purchase and is non-transferable.

For more details about the warranty, please refer to the link below:

stonylab.com/pages/warranty

For any inquiries or assistance, feel free to contact us:

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This instruction manual is subject to change without prior notice.