# Spin Coater

## KW-4A



## Owner's Manual

# LIMITATION OF LIABILITY

In no event shall CHEMAT TECHNOLOGY INC. be held responsible nor liable for any direct, indirect, incidental, special or consequential damages or costs whatsoever resulting from or related to the use or misuse of the Spin Coater KW-4A, even if CHEMAT TECHNOLOGY INC. has been advised, know, or should be aware of the possibility of such damages.

CHETMAT TECHNOLOGY INC. emphasizes the importance of consulting experienced and qualified professionals to assure the best results of using the Spin Coater KW-4A.

# I. Features

1. Dual speed controls with continuous speed adjustment and individual timers. Initially, spinner rotates at a low speed (Speed I) for a pre-set cycle time (Timer I) and automatically switches to a high speed (Speed II) for a pre-set cycle of time (Timer II)

| FEATURE | MINIMUM | MAXIMUM |
|---|---|---|
| **Speed I in rmp** | 500 | 2,500 |
| **Speed II in rmp** | 1,000 | 8,000 |
| **Timer I in seconds** | 2 | 18 |
| **Timer II** | 3 | 60 |

*Refer to Figure 1 for location of feature*

2. LED speed indicator with speed stability ± 1% and coating uniformity ± 3%.

3. Power:
    - Model KW-4A-1: 110 V, 50/60 Hz, 40 W
    - Model KW-4A-2: 220 V, 50/60 Hz, 40 W

4. Can be used to coat substrate with diameter range from 5 ~ 100 mm

## II. Safety Precautions

1. DO NOT touch or hold the shaft or chuck while rotating. Severe injury may result.

2. Substrate may fly off rotating chuck. Precautions should be taken to protect operator and others from injury while operating spin coater equipment.

3. Dangerous electrical potentials are present inside the cabinet. Be sure to unplug the line cord before opening the cabinet.

4. Motor brushes and switch contacts may produce sparks. DO NO use the laboratory spinner in the presence of any explosive atmosphere.

# WARNING

**Early Terminations of Pre-Set cycle may result in machine reverting to maximum revolutions when restarting.**

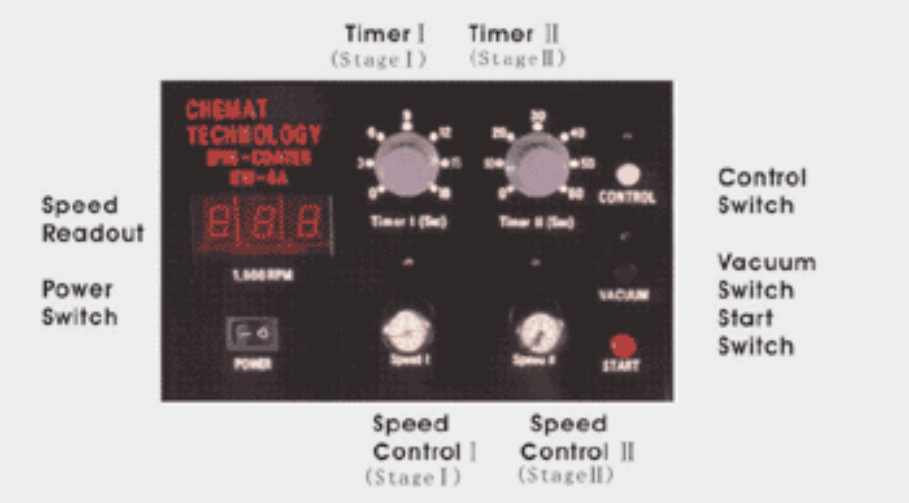
**Please shut off machine before resetting.**

## III. Controls and Functions

A schematic of the control panel is shown in Figure 1.
The function of each switch is described as follows:

1. Power: Turns spin coater power on and off.
2. Speed I: Adjusts the spinning operation speed in lower range.
   2500 rpm is the maximum for Speed I.
   Speed II: Adjusts the spinning operation speed in higher range.
   8000 rpm is maximum for Speed II.
3. Control: This button should be pressed before any spinning operations begin. This button should be pressed again whenever any spinning operation to stop.
4. Vacuum: Control vacuum to the vacuum chuck. The motor will not operate if this button is not pressed. Re-pressing this button during spinning will cause the spinning operation to stop.
5. Start: Starts the spinning operation cycle. Spinning operation will start only when both the “Control” and “Vacuum” buttons are pressed.
6. Timer I: Sets the spinning operation cycle time for the Speed I range or lower speed range.
   Timer I can be adjusted between 1 ~ 18 seconds.
7. Timer II: Sets the spinning operation cycle time for the Speed II range or lower speed range.
   Timer II can be adjusted between 3 ~ 60 seconds.

Figure1.




## IV. Operations

*Note: Determine the spinning speeds and spin cycle time required by your coating materials and substrate accordingly*

1. Select and install a sample chuck (optional accessory, not included) which fits the size of substrate to be coated. Match the notch at bottom of the chuck with the pin on the center shaft, and mount the chuck firmly on the spinning shaft.

2. Turn the “Power” switch on.
   Press the “Control” Button one time only.

3. Set spin cycle time and speeds accordingly.

   Speed I is the low speed and the spin cycle time for this speed range should be set with Timer I.

   Speed II is for high speed and the spin cycle time for the speed range should be set with Timer II.

4. Place the substrate on the sample chuck and make sure the substrate is centered before spinning operation begins.

5. Press “Vacuum” Button one time only to turn on the vacuum.

*Coating material must be ready for substrate before “Start” button is pressed since coating material must be applied at the low speed or Speed I during the time of spin cycle period set by Timer I.*

6. Push the “Start” button to start spinning operation. The substrate will spin at the low speed or Speed I for the time period pre-set by Timer I.
   The Substrate will spin at high speed or Speed II for the time period pre-set by Timer II.

7. Coating material applied to the substrate must be applied at the low speed or Speed I, not at the high speed or Speed II.

8. Place the bowl cover over the bowl.

9. When cycle ends, press “Vacuum” button to turn the vacuum off.

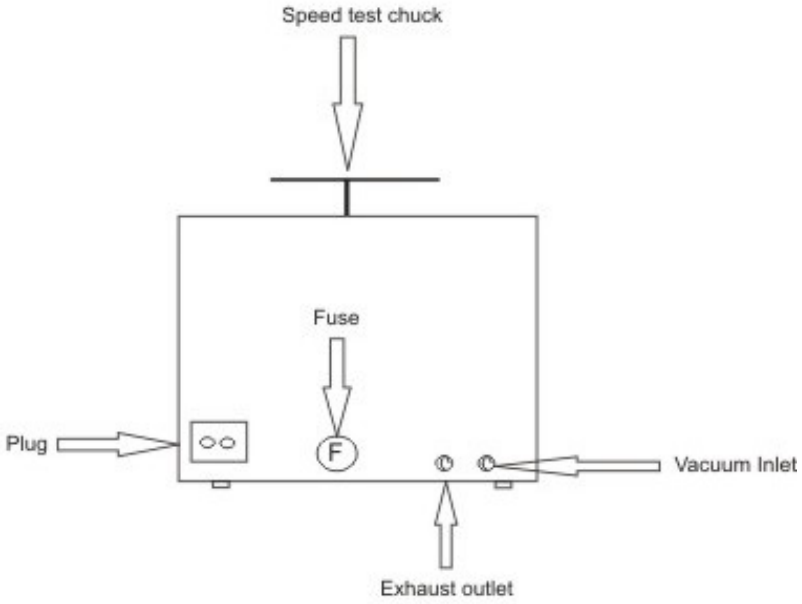
10. Remove the bowl cover.

11. Remove the substrate. *Note: make sure that “Vacuum” button is off in order to remove substrate.*

12. Repeat steps 3 ~ 11 for more samples.

13. Turn “Power” switch off when all spinning operations are finished.

## Diagram I




This equipment has been modified and can be connected to an external exhaust system. During the coating operation it can reduce harmful vapor getting into the air.

Fasten the bowl with the two screws supplied and connect an exhaust system to the exhaust outlet. (see sketch)

## NOTICE:

The Substrate size should always be bigger than the size of the chuck which you are using. (Recommended ¼ inch bigger than the chuck's size). If not, the coating solution will easily be sucked into the vacuum system.

# LIMITED ONE YEAR GUARANTEE

KW-4A Spin Coater

Chemat Technology Inc. warrants the KW-4A Spin Coater against defects in materials and workmanship, under normal use from the confirmed date of purchase, by the original purchaser. Upon written notice of any defects, Chemat Technology Inc. will either repair or replace the faulty product or components thereof. Any warranty stated hereunder is extended to the original purchases and is not transferable.

Chemat Technology Inc. does not assume liability for consequential damages or liability as a result of our product's use. Chemat Technology Inc. liability extends, but does not exceed, the original selling price of the equipment. In addition, there is no assumption, in the following:

1. Shipment to or from the customer or Chemat Technology Inc.
2. Improper environment, temperature extremes, electrical power surges or failure or other misuse or negligence.
3. Adjustment or repair by personnel not authorized by Chemat Technology Inc.
4. Improper installation or failure to follow installation instructions
5. Forces beyond the control of Chemat Technology Inc. including but not limited to an act of God, war, insurrection, civil disturbance, natural disasters, labor disputes or government regulations.

In order to obtain service under this guarantee, you must first call Chemat Technology Inc. Mechanical Engineering department and obtain a Return Authorization number before shipping the product to Chemat Technology Inc.

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