

Dip Coating Machine
For Sol-Gel Process
Model **DM 100**

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 Dip Master 200 (DM 200). Even if CHEMAT TECHNOLOGY, INC. has been advised, knows or should be aware of the possibility of such damages.

CHEMAT TECHNOLOGY, INC. emphasizes the importance of consulting experienced and qualified professionals to assure the best results from the use of DIP MASTER 200 (DM200).

IMPORTANT SAFETY INSTRUCTIONS

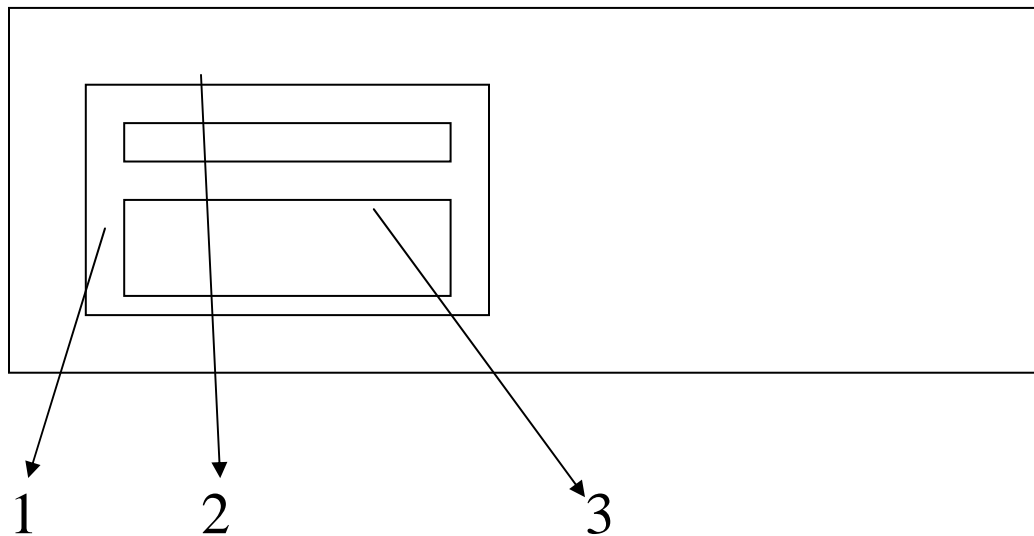
WARNING: When using this equipment, always exercise basic safety precautions, including the following:

1. Read all instructions before using this equipment.
2. Use this equipment only for its intended purpose as described in this booklet.
3. This equipment must be properly installed in accordance with the Installation Instructions before it is used.
4. Do not operate this machine if it has a damaged cord or plug. If it does not operate, or malfunctions, contact your local representative.
5. Do not leave heavy objects on top of the machine.
6. This equipment is designed to operate at a temperature of 370 °C. We suggest not to operate the furnace above the specified temperature of 350 °C for an extended period of time, in order to extend its operational life time.
7. Keep this machine out and away of water.
8. Keep the cords away from heated surfaces.
9. If necessary, this equipment should be serviced only by qualified personnel. Any questions and uncertainties should be directed to the manufacturer for a prompt answer.
10. During the service period, all the power to the machine should be turned off.
11. Beware, and avoid contact with any hot surfaces.

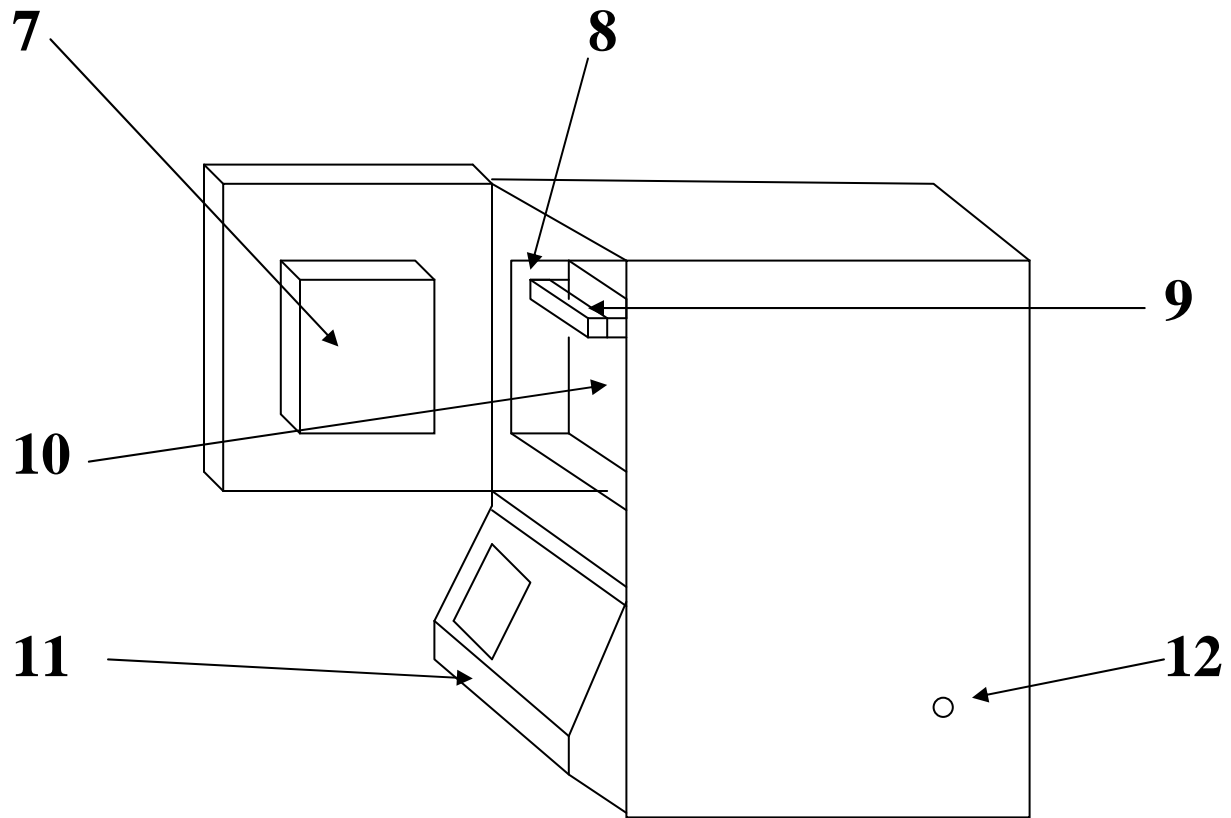
INSTALLATION

1. **LOCATION:** The equipment should be installed in a well ventilated area
2. **POWER:** The power supply for this machine is 110 VAC, 8 A.
3. **CLEARANCE:** Leave enough space at the two sides and back to allow for air circulation, and vacuum connections.
4. **LEVELING:** This machine is equipped with adjustable leveling legs. In the event of ground irregularities, adjust the legs accordingly.

Control panel



1. Z- WORLD PK 2100 Microcontroller
2. PK 2100 display.
3. PK 2100 keypad.



7. Heating panel

8. Insulating panel. This panel are manufactured to add extra insulation to the heating chamber.

9. Hanger.

10. Dipping tank compartment. Region of space where substrate hanger is allocated.

11. Control Panel

12. Vacuum port.

OPERATION

1. Substrate Loading: The DM 201 comes with a hanger to which the user's substrate hanger will mount. CHEMAT TECHNOLOGY provides a number of substrate holders, and customized holders for glass, wafer, and ceramic substrates. To order, contact the sales office.
Mount the substrate hanger evenly for better load distribution
2. Once the hanger is properly placed, close the door, and turn the equipment on. The display screen should temporarily display an introductory message stating the model's name and number, and the name of the company. If the hanger happens to be at any location other than home position (upper most position when the limit switch in the back is reached), the screen will display the message **RESETTING SYSTEM** and the hanger will move upward and return home.
3. The unit will automatically go to the **MAIN MENU**. The screen should display the following: **F1: SET UP, F2: MANUAL, F3: AUTO**.
4. The controller can operate the system in two different ways, manually or automatically.
5. If F2 is selected, pressing the arrow keys will move the fixture up or down, accordingly. The **MENU** key should be pressed to access the **MAIN MENU** again.
6. If F3 is pressed, the system will automatically commence the dipping cycle using the last recipe entered.
7. F1 allows the user to edit the recipe and to select the recipe to be used. In either case, the user needs to go through the entire F1 selection sequence. This is purposely done to remind the user of all the parameters pertaining to the recipe being selected.
8. To edit a recipe, do the following:
 1. From the **MAIN MENU** access the **SET UP** mode by pressing F1 on the keypad.
 2. Select a recipe to **EDIT** using the arrow keys. Recipe 0 does not save, only 1 to 4 do. Note: the screen always shows two numbers. The first one is the old selection or previously saved parameter, the second one is the selection or parameter that will be saved after the **SET UP** mode is completed.

3. Press the MODE key on the keypad to access the next step, Please enter COATING SPEED X.X X.X. Using the arrow keys select the coating speed. The maximum speed is 12 in/min.
4. Press the MENU key for the next step. Please enter TANK TIME X.X X.X. Using the arrow keys, select the dwell time in seconds the substrate will remain in the tank.
5. Press MENU to go to the next step, Please enter CURE TEMP X.X X.X. Use the arrow keys to select the temperature in Celsius.
6. Press MENU to advance to the next step. Please enter CURE TIME X.X X.X. Using the arrow keys, select the curing time in minutes and fractions of minutes.
7. Disregard the address # for serial address. This selection is used only if more than one microcontroller is used at the same time.
8. Press MENU to advance to the next step. SAVE NUMBER PERMENT ADD Y/DELETE N. If the user desires to save the recipe permanently in the memory of the microcontroller, press the ADD key; if not, press the DEL key. In either case, the machine is ready to operate under the selected parameters.

Note: At all times before starting the automatic mode by pressing F3, first access the manual mode by pressing F2. Wait for the tank compartment and insulation to recede (this is done right away). Press the MENU key to access the main menu, and then press F3 to start the automatic cycle.

9. Substrate Cooling and Unloading. Once the dipping cycle is over, the furnace cools naturally. Access the substrate holder with extreme caution since all internal surfaces are very hot. The microcontroller should return to its MAIN MENU screen.