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Thanks for purchasing MTI’s product, avoiding any misuse and damage, please carefully read this manual before using this machine.

NOTE: The specification data in this manual may be different from the one on our website since MTI keeps upgrading the product, please visit www.mtixtl.com for the latest information.
MTI Corporation

1. Introduction:
TL0.01 Desktop Dip Coater is designed specially for preparing various epitaxial films from liquid solutions. It features with precision speed controller and extra height frame for 50 to 150 mm samples.

2. Structure overview:

3. Technical Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Power</td>
<td>V</td>
<td>110 / 220 AC selective</td>
</tr>
<tr>
<td>DC motor</td>
<td>V/W</td>
<td>110 / 6</td>
</tr>
<tr>
<td>Decelerated Ratio</td>
<td></td>
<td>1296: 1</td>
</tr>
<tr>
<td>Speed Display</td>
<td></td>
<td>Digital</td>
</tr>
<tr>
<td>Pulling Rate</td>
<td>mm/min</td>
<td>1 - 180</td>
</tr>
<tr>
<td>Effect Diameter of Roller</td>
<td>mm</td>
<td>38</td>
</tr>
<tr>
<td>Effective Pulling Height</td>
<td>mm</td>
<td>225</td>
</tr>
<tr>
<td>Maximum Sample size</td>
<td>mm</td>
<td>150 (H) x 100 (W) x 2.5 (T)</td>
</tr>
<tr>
<td>Minimum Pulling Load</td>
<td>g</td>
<td>250</td>
</tr>
</tbody>
</table>
4. Installation

4.1 Coater should be installed on a stable desk.
4.2 Machine should be well grounded.
4.3 Machine structure and all parts see Fig. 1
4.4 Sample loading and holding see Fig. 2-1, 2-2 and 2-3. There are two kinds of sample holder provided. Sample holder 1 please see Fig. 2-1 and 2-2. It is a screw sample holder. Two samples could be loaded once. Sample holder 2 please see Fig. 2-3. It is a clip to hold the sample. Press the two long screws by hand to open the clip. Put the sample into the slot of the holding plate. Release the two long screws. The clip is closed and holds the sample.

Fig. 2-1

Fig. 2-2: Sample Holder 1.
4.5 Fix the position of pulling cable on the roller: put one end of the pulling cable into a M2 screw and tighten it.
4.6 Wind 3 – 4 loops of the pulling cable on the roller (no overlapping) as an original state of pulling cable.

5. **Operation:**

5.1 Check the 110/220 V voltage switch on the back. Make sure it matches the voltage of the external power

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**Fig. 2-3: Sample Holder 2.**

**Fig. 3**
5.2 Turn the power ON.
5.3 Put sample into Sample Holder. See detail in Installation to know how to load the sample.
5.4 Move and fix the position limit sensor on the height by pulling request.
5.5 Determine the pulling speed by the coating requirement.
5.6 Get the number of the speed display from the curve of Speed vs. the number of the speed display provided and set it into the speed display window.
5.7 Put down the Sample Holder to the bottom position by turning the handle wheel manually.
5.8. Close the clutch. The coater will be operated automatically following the setup
5.9 The coater will be turned off automatically when the position limit sensor is touched.

6. **Safety and Maintenance**

6.1 The machine should be installed stable.
6.2 Follow the instruction for a safe operation for electrical appliance.

7. **MTI Support**

7.1 MTI Corporation provides one year limited warranty from date that we shipped the goods. If you find any defective part caused by manufacturer please feel free to contact us. We will replace detective part and instruct you how to change the part by yourselves during warranty period. However, MTI Corp is not responsible for any damage or consequence damage caused by misuse. After warranty, MTI will continue to provide technical support and spare parts at a reasonable cost.

7.2 If you have any question, please contact us at [info@mticrystal.com](mailto:info@mticrystal.com) or call us at 1-888-5253070. MTI Engineers will instruct you how to use and maintain the machine.
Introduction

Since MTI’s effort on keeping upgrading the product, we now introduce an additive coating system of TL-0.01 to the customer, which not only reserves the original pulling method, but also breaks through the limitation of the size of solution container as well as sample.

Figure 1

Installation

1. Take out the pulling block with two beams; match the screw holes on the block and pulling system platform together, then tighten the two hex screws to connect the block onto platform (as shown in figure 2).
2. Pull out the position limit block.

Then install it on the right beam of pulling block, freely adjust its position, and then
tighten the screw set.

3. Install the pulling cable.
   3.1 Pull out the pulling cable by rotating the hand wheel. Wind the cable as the pictures shown below:
4. Let the beams get through the slide block, and hook it with the pulling cable.
5. Unscrew the two screws besides the sensor with cable to remove it from the original coating system, and then install the sensor with cable to the right side of the slide block with two screw-holes.
6. Plug another end of cable to the socket of the controller.
7. Installation is done.

Operation
The operation of additive coating system is the same as the original one, please consult the manual of TL-0.01 for details.
**Pulling Rate Calibration**

Digital number displays at front panel are not real pulling rate, but motor rating rate. In order to get accurate speed, you need calibrate speed and know the relationship between digital number and real pulling rate as the follows:

1. Calibration Tools: Ruler (measuring range over 200mm) & stopwatch
2. Follow the picture below:
   a. Revolve the pulling block travel to the bottom.
   b. Vertically set up the ruler and choose reference point as start which the ruler could easily measure.
   c. Simultaneously startup the pulling system and begin to count the time using the meter.
   d. Simultaneously turn off the pulling rate by shutting down the “clutch” button and pause the stopwatch; write down the travel distance and elapsed time.
   e. Calculate the exact pulling rate corresponding to the number displayed on the screen, for example, we assume:
      Travel Distance: 10 mm
      Elapsed Time: 60 seconds
      Number displayed on the screen: 200
      Here, we have:
      
      \[
      200 \text{ Stands for 10mm/min}
      \]
   f. Set different target pulling rate, repeat a-e, and make your own calibration plot for your machine like below:

   ![Diagram](image)

   g. Now, you can easily find exact pulling rate corresponding to any number.