



**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY**  
**MATERIALS MANAGEMENT DIVISION**  
**Powai, Mumbai 400076**

**Technical Specification of Thin Film Coating Unit (RFx No.6100000097)**

**Short Description:**

Thin film coating unit, capable of handling Slot-die and Knife coating. The system should be inside the inert ambient glove box.

**Coating unit specification**

Substrate specifications:

- Coating area: max. 80 mm x 80 mm
- Fluid coating materials, water or solvent based (not highly acidic,  $\text{pH} > 5$ ), for thin coating layer. PC/PLC based control system. Possibly handling both slot-die and knife-edge coating.
- Slot die made of stainless steel, preferably with corrosion resistive coated, consisting of the following components:
  - Capable of handling both rigid and flexible PET substrates, preferably porous chuck.
  - Accuracy of the slot die lips less than +/- ca. 4  $\mu\text{m}$
  - Dead volume should be less than 10 ml
  - Mask/shim for maximum working width 200 mm and 100  $\mu\text{m}$  thickness
  - Alternative masks with individual coating width and thickness should be offered as per the user specification. Patch and stripped coating option should be provided.
- Capable of handling fluid with viscosity up to 10,000 cps
- Substrate heating from room temperature to ca. 50°C on a heated chuck.
- One coating head is needed but option for dual head should be there.



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- Arrangements for transporting the coating material to the die with a respective pump system

**Inert Gas Work Station integrated with slot die coater**

Box Dimensions 900-1000mm x 1800-2100mm x 700-900mm [H x L x D]

- 4 Polymer glove port with O-ring sealed and needed gloves should be provided,
- Oxygen and moisture should be less than one ppm
- Should include solid state oxygen and moisture sensors (0-500ppm)range
- Front panel should be of Polycarbonate material with chemical and scratch resistance required
- Three height adjustable, SS shelves to be included.
- Two cylindrical antechambers; One with 350-400mm diameter and the second should be relatively smaller. Doors and sliding trays should be provided.
- Automatic box pressure range should be from -15mbar to +15mbar
- System should include Additional Water proof foot-pedal
- Glove box should have 8 DN40 feed through including 4 electrical.
- Should include Oil Free based pressure relief valve, adequate pumping system (include Rotary vane pump with Oil mist filter) and PLC controlled regeneration unit.
- Circulation blower capacity should be greater than 80 m<sup>3</sup>/hour
- Solvent Adsorbent unit with 5 kg activated unit with inline and by pass modes
- Nitrogen gas flow for drying should be provided with flow control
- Glove box and Purifier should be from single manufacturer



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- Vendor should have local service center.

The machinery can possibly be inspected at the factory/workshop before shipping. Supplier should be able to provide needed support and local hospitality during the course of inspection.

During this inspection the plant should be able to run and demonstrate all its mechanical functions. (a) Check of completeness according to the order confirmation, (b) Visual inspection with regard to appropriate assembling, (c) Check of the mechanical functionality and safety regulations, and (d) Functional demonstration of the installation according to the technical parameters.

Upon satisfactory, the supplier should be responsible for transportation, installation and one year on-site maintenance for one year. On-site training for 5 personal can be quoted as optional.