TECH INC
Incubating Technologies

32, 3rd main road, Indian bank colony, Ambattur,
Chennai-600 053, Tamil Nadu, India
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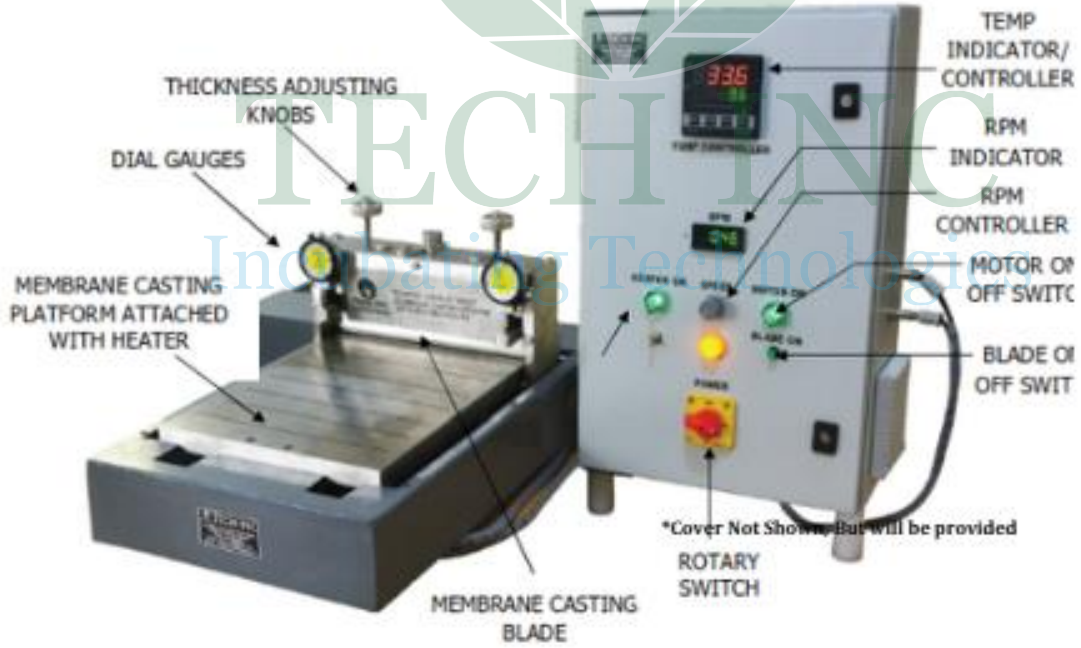
TECHNICAL DATASHEET FOR FLAT SHEET MEMBRANE CASTING MACHINE

Film Applicator / Membrane Coating Machine | Model: TI-FSMCM-AUTO

1. PRODUCT OVERVIEW

The TECHINC Automatic Flat Sheet Membrane Casting Machine (Model TI-FSMCM-AUTO) is a fully automatic, digitally controlled film applicator designed for the preparation of flat sheet membranes used in research and industrial applications including microfiltration, ultrafiltration, nanofiltration, reverse osmosis, forward osmosis, pervaporation, gas separation, fuel cell, and battery coating. The machine is constructed from corrosion-resistant SS304 and features an integrated heating platform, vacuum chuck, brushless motor drive, and a standalone electrical control panel with digital speed and temperature control.



(* Picture Shown for representation purpose only, Actual product may vary in size appearance, etc.)

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2. TECHNICAL SPECIFICATIONS

S. No	Parameter / Description	Specification
(a) Machine Body & Construction		
1	Material of Construction (MOC) – Machine Frame	SS304, Corrosion-free
2	MOC – Coating Platform	SS304 / Stainless Steel & Teflon coated coating bed
3	Thickness of Coating Plate	20 mm Minimum
4	Coating Bed Type	Glass plate with foam backing; SS slurry collection tray
5	Drive Mechanism	Brushless motor with belt drive (PU belt) and timer pulley; gear reduction motor
6	Power Supply	230 V AC, 50 Hz, Single Phase
(b) Coating & Film Applicator		
7	Maximum Coating Area	450 mm (L) × 300 mm (W) or better
8	Coating Speed Range	10 – 300 mm/s (Variable, continuously adjustable)
9	Film Thickness Range	1 – 15,000 µm (digitally adjustable micrometer film applicator)
10	Head / Gap Control Accuracy	10 Microns
11	MOC of Casting Blade	SS316
12	Blade Thickness	5 mm Minimum
13	Blade Width Capacity	300 mm or better
14	Thickness Adjusting Mechanism MOC	SS304
15	Rollers for Thickness Adjustment	2 Nos. provided
16	Dial Gauges	2 Nos. – Yamayo or equivalent make
17	Vibration-Resistant Springs & Adaptors	Provided
18	Blade Lifting Rod	Provided
19	Side Roller Mechanism for Precision Movement	Provided
(c) Stroke, Vacuum & Substrate Holding		
20	Stroke Length Control	Provided; Control Range: 10 mm to 250 mm
21	Vacuum Chuck	Included; Size: ~365 mm L × ~200 mm W × ~30 mm H
22	Vacuum Pump	2 Nos. – Oilless pump (oil-free)
(d) Heating System		
23	Type of Heating	Plate PID – Heater integrated below casting plate; uniform surface heating
24	Temperature Range	28°C – 200°C (Platform operating range; 100°C rated platform)
25	Temperature Sensor	RTD (SS MOC), Cable Length 2 Mtrs; Make: Delta or equivalent
26	Temperature Controller	Digital PID Controller
27	Heater Protecting Cover	Provided (FRP MOC)

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S. No	Parameter / Description	Specification
28	Top Cover with Exhaust for Drying	Provided (with heating up to 100°C and exhaust ventilation)
(e) Electrical & Control Panel		
29	Panel Location	Remote standalone; electrically isolated from casting machine body
30	Panel MOC	MS Powder Coated
31	Make of Panel Components (MCB, switches)	Schneider / BCH / Reputed Make
32	Motor Speed Control (Digital RPM Indicator)	Provided – digital RPM display with RPM controlling knob
33	Heater ON/OFF Switch	Provided
34	Motor ON/OFF Switch	Provided
35	Blade ON/OFF Switch	Provided
36	Toggle Switch – Forward / Backward Movement	Provided
37	Rotary Switch	Provided
38	Make of Cables	Polycab / Reputed Make
39	Power Cable Length	2 Mtrs Minimum
40	Panel-to-Motor Cable Length	2 Mtrs Minimum
(f) Accessories & Standard Supply		
41	Motor Protecting Cover	Provided (FRP MOC)
42	Standard Coating Accessories	Supplied as standard
43	Operating Manual	Supplied in English
44	Warranty	Minimum 2 Years; includes installation, commissioning, and user training

3. COMPLIANCE WITH BUYER TECHNICAL SPECIFICATIONS

The table below cross-references each requirement stated in the buyer's tender specification against the offered product's compliance.

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S.No	Buyer Tender Requirement	TECHINC Compliance
1	Fully automatic digitally controlled film applicator/coating machine	**Complies – Brushless motor drive with digital speed control panel**
2	Coating area: Minimum 450 × 300 mm	**Complies – Maximum coating area 450 mm × 300 mm**
3	Variable coating speed: 10–300 mm/s or better	**Complies – Speed range 10–300 mm/s, continuously adjustable**
4	Brushless motor-driven system with digital speed control	**Complies – Brushless motor with RPM controller and digital display**
5	Glass coating bed with foam backing and SS slurry collection tray	**Complies – Glass plate coating bed with foam backing; SS slurry tray provided**
6	Digitally adjustable micrometer film applicator: 1–15000 µm, width ≥300 mm	**Complies – Thickness range 1–15,000 µm; blade width 300 mm or better**
7	Stainless steel/Teflon coating bed for automatic film/membrane applicator	**Complies – SS304 platform; Teflon-coated bed option provided**
8	Heating, vacuum coating bed, oil-free vacuum pump, digital temp. control	**Complies – PID heating system, vacuum chuck, 2 oilless vacuum pumps, digital PID controller**
9	Top cover with heating 100°C or higher and exhaust for drying	**Complies – Top cover with integrated heater (100°C rated) and exhaust ventilation**
10	Standard coating accessories, operating manual, all necessary fittings	**Complies – Standard accessories, English operating manual, and fittings supplied**
11	Operates on 230 V AC, 50 Hz power supply	**230 V AC, 50 Hz, Single Phase – Complies**
12	Minimum two-year warranty including installation, commissioning, training	**Complies – 2-Year warranty with installation, commissioning, and user training included**

4. APPLICATION AREAS

Flat Sheet Membrane Preparation	**Battery & Fuel Cell Electrode Coating**
MF / UF / NF / RO / FO / MD membranes; Gas separation; Pervaporation membranes	Battery electrode slurry coating; catalyst layer coating for PEMFC / SOFC
Thin-Film Coatings	**Research & Academia**
Polymer thin films; Graphene Oxide / composite coatings; interfacial polymerisation substrates	University / National Lab R&D; IIT / NIT / CSIR / DRDO membrane research programs

5. MANUFACTURER CREDENTIALS

Manufacturer	Tech Inc. – Incubating Technologies
Established	1993 – 30+ years in filtration, separation, and membrane equipment manufacturing

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Factory	SIDCO Industrial Estate & Indian Bank Colony, Ambattur, Chennai – 600053, India | Factory footprint > 65,000 Sq.ft
International Office	28 Christina Ciccolini Ct, Vaughan, Ontario L4H 3E5, Canada
Key Clients	Saudi Aramco, Los Alamos National Laboratory, Shell, Unilever, Reliance Industries, Stanford University, KU Leuven, NUS Singapore, IITs & NITs (India), IOCL, DRDO/HEMRL, Purity ReSource Inc. (USA) and 200+ global institutions
Scope of Supply	Design | Supply | Installation | Commissioning | User Training | Service | Maintenance
Dispatch	7-Day dispatch on standard products; custom configurations as per agreed schedule
Contact	techincmail@gmail.com | mail@techincresearch.com | www.TechincResearch.com

DISCLAIMER: Specifications are subject to change without prior notice as part of continuous product improvement. The actual product may vary slightly from pictures shown. TECHINC reserves the right to substitute equivalent makes/brands without compromising performance.