



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

Powai, Mumbai 400076.

Ref. PR No. 1000045653

RFx. No. 6100002201

Item Description: Flat Sheet Casting Roll to Roll and Testing Facility

Sr. No	Item Description	Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
1	General technical specifications for Flat Sheet Membrane Manufacturing Systems	Flat sheet membrane manufacturing systems, coupled with module-making setups, are designed to produce high-performance membranes and assemble them into modules for water treatment, gas separation, and filtration applications. These systems integrate precise casting, phase inversion, and drying processes to ensure membrane quality, followed by module fabrication, including membrane stacking, sealing, and housing. The combined process ensures reliable, scalable, and application-ready membrane modules with consistent performance and durability.		
2		Technical Specifications for Casting System		
2.1	Dope Storage Tank	Capacity: (should be able to handle from 500mL to 10L), Material: Stainless steel 304, Temperature Control: RT ~ 80°C with proper insulation jacket		

2.2	Slot-Die Polymer Casting Unit	For Manual Polymer Pouring.		
2.3	Unwinder Unit	(Minimum 10 m roll bearing capacity) Fabric Diameter: Max. 150 mm D, Roll Core Chuckling: Manual, Overload Weight: Max. 7 kg		
2.4	Casting Device:	Appropriate and precise thickness and speed controller, Type: Doctor knife, Thickness Control: 10 ~ 8,000 μm , Casting Width: Max. 330 mm		
2.5	Coagulation Bath	Material: Stainless steel 304, Temp. Control: RT ~ 70°C		
2.6	Washing Bath	Material: Stainless steel 304, Temp. Control: RT ~ 70°C		
2.7	Rewinder	Casting support diameter: 150 mm D (max) Unwinder core diameter: 3 inches, air shaft Roll core chuckling with manual operation Tension controller		
2.8	Control and Display	PLC and HMI control having: 1. Speed 2. Total length produced 3. Constant speed correction Recording data for temperature, humidity and speed		
2.9	Power	220V/380V, 3Phase		
3		Technical Specifications for Coating System		
3.1	Coating Process	Dip Coating, Fabric Width: 300 mm, Coating Bath Capacity: 1.5 ~ 5L		

		TFC film thickness: 10 – 25 nm		
3.2	Slot-Die Polymer Casting Unit	For Manual Polymer Pouring.		
3.3	Dry Oven	Temp. RT ~ 180 ± 5°C, Coating Speed: 0.5 ~ 3m/min		
3.4	Rolling	Membrane Tension Control		
3.5	Power	220V/380V, 3Phase		
4		Technical Specifications for Spiral Wound Element Rolling and Trimming System		
4.1	Application	1812-3013 membrane size		
4.2	Membrane, Tricot, Feed Spacer Cutting Unit	Roller Cutter Wooden folding table with a ruler to support		
4.3	Unwinder Unit	Fabric Diameter: Max. 150 mm D, Roll Core Chucking: Manual, Overload Weight: Max. 7 kg		
4.4	Membrane Rolling Unit	Roll Diameter: Max. 80 mm,		
4.5	Glue Application Robot	Robotic (automatic)		
4.6	Module Trimming Unit	Roll Diameter: Max. 100 mm, Servo Motor Operation		
4.7	Fiber glass rolling and drying	<u>Rolling Machine:</u> It should cater for both UF and RO elements of 1812-3013 sizes Cutting speed control: 0 -35 m/min 80 spindle with chuck and pneumatic tailstock Automatic left-right positioning sensor and glue dispensing system with safety stopper arrangement.		

		<u>Rotating Drying Machine:</u> Aluminum frame with easy access stack up supporter design for element holding Elements should be dried by rotating supporter Adjustable rotating speed		
4.8	Production speed	Minimum 1 piece per minute		
4.9	Power	220V/380V, 3Phase		
5		Technical Specifications for Module testing		
5.1	Application	1812-3013 module sizes		
5.2	Tests	Leakage, permeability, max pressure, rejection, vacuum,		
6		Raw material		
6.1		Flat Sheet Membrane Related Raw Materials including RO central tube (12 inches Ivory color), Tube tape, Tricot, Feed Spacer, Brine Seal-Y tape, O-ring, Outwrap, Seal tape Rolls, Glue (Polyurethane A+B) Rolls, non-woven paper		
7		A) Terms and Conditions:		
		<ol style="list-style-type: none"> 1. System performance should be demonstrated with necessary standards and calibration kits, which will be provided by the vendor as part of standard delivery. 2. All the system components supplied should have a warranty for 3 years from the date of installation. 3. Warranty should include a preventive maintenance kit and calibration kit. 4. No conditional warranty will be 		

		<p>accepted.</p> <ol style="list-style-type: none"> 5. Basic training for a period of one week after installation & commissioning of the equipment to technical personnel to be provided at our site. 6. As required on-site training of staff and students (at least twice a year for 7 days each) during the first 3 years. 7. Good technical support should be provided after the installation of the Instrument and the service engineer should be able to attend unlimited breakdown calls and should visit the installation site within 24 hours without fail. 8. Service support should be available for 6 days a week. 9. Training on troubleshooting the issues associated with instrumentation or the application should be provided free of cost whenever required by the user. 10. Manufacturer should provide the service support details in Mumbai and India. Details of the service engineers and application specialists should be provided along with their experience with these kinds of systems. 11. Details of at least three users (name, phone number and email ID) from IITs, NITs, CSIR Labs or similar important institutes/organizations in last 3 years in India for the quoted instrument in the bid should be provided. Relevant documents like PO, Installation certificate to be enclosed. 12. Instrument performance, quality of service and application support certificates from at least three existing users should be provided. 13. Evaluation will be done on the basis of technical specifications as per our tender notice. 14. Maximum educational discounts should be applied. 15. The delivery period should be 		
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		<p>specifically stated. Earlier delivery may be preferred.</p> <p>16. The indenter reserves the right to withhold placement of the final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.</p> <p>17. We may provide unknown samples to the vendors for analysis on the quoted models to verify their claims on technical specifications and reserve the right to reject any or all quotations based on the results.</p> <p>18. Institute will not accept the goods unless accompanied by delivery challans giving full details such as Purchase Order No., Description of the items, Quantity, Make, Unit, Gross Weight or Tare Weight. In the absence of any of the above requirement Institute will not take the delivery of the goods.</p>		
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