

Technical specification for three cell cross flow NF/RO membrane testing system

1. Delrin Acetal Crossflow Cell

Item	: Delrin Crossflow Cell
Make	: Sterlitech, USA or Similar
Active Membrane Area	: 42 cm ² (6.5 in ²)
Maximum Pressure	: 69 bar (1000 psig)
Maximum Temperature	: 80 °C (180 °F)
Connections	
Feed	: ¼" FNPT (base of cell)
Concentrate	: ¼" FNPT (base of cell)
Filtrate	: 1/8" FNPT
Cell Body	: Delrin
"O" - Ring	: Buna-N
Outer Dimensions	: 12.7 cm x 10 cm x 8.3 cm (5" x 4" x 3¼")
Active Area Dimensions	: 9.207 cm x 4.572 cm (3.625" x 1.800")
Slot depth	: 0.09" (0.23 cm)
Support Membrane	: 20µm sintered stainless steel
Quantity	: 2 Nos

2. SS316 Tank with lid, cooling jacket & drain valve:

Capacity	: 6 Liters
Description	: Tank with lid and jacket with coil for refrigerant along with drain valve
MOC	: SS316
Operating pressure	: open to atmosphere
Quantity	: 1 Nos

3. Refrigeration/Cooling System:

Surface	: SS316 Tank
Compressor Make	: Cruise/Multi/Similar
Capacity	: 0.25 ton
Type	: Air Cooled standalone chiller unit
Coil	: Copper
Refrigerant	: R-22 or Similar
Control	: ± 2 deg C
Quantity	: 1Nos

4. Diaphragm Pump:

Item	: Diaphragm Pump
Pump Type	: Motor driven seal less diaphragm pump
Type	: Hydra-Cell series
Make	: Wanner Int. UK
Coupling	: Mechanical
Flow rate	: upto 9.3 LPM, 2 -9.3 LPM with VFD
Pressure	: upto 69 bar
Temperature	: upto 60Deg C
MOC	: SS316 Pump head, Buna N XS diaphragm, SS316 Valves & Valve seats
Quantity	: 1 Nos

5. Motor:

Motor	: 0.5 HP / 0.37 KW
Motor Speed	: (max) 1440 rpm
Mounting	: Direct through coupling
Motor Details	: TEFC Squirrel cage induction motor suitable for 3 phase, 415 + 10%-6% & 50 Hz +3% with VFD

Motor Make : Bharat Bijlee/ Siemens/Crompton/Similar
Quantity : 1 Nos

6. Variable Frequency Drive (VFD):

Item : VFD for 0.5 HP/0.37 kW 3 Phase Motor
Make : ABB or similar
Quantity : 1 Nos

7. Pressure Regulation Valve/Safety Valve:

Item : PRV/safety valve
Operation : Liquid recycled backed in to tank
Size : ½ inch
Pressure : 40-60 bar
Make : Metachem/Wanner/Similar
Quantity : 1 Nos

8. Flow Control Valve:

Item : Flow control Valve
Pressure Rating : 10- 100 bar
MOC : Contact Parts SS316
Valve Head - Gun metal/SS
Make : Prova/Similar
Quantity : 1 Nos

9. Bypass Control Valve:

Item : Needle Valve
Pressure Rating : 0-60 bar
Size : ¼" inch
Quantity : 1 Nos

10. Pressure Gauges:

Item : Pressure Gauge
Rating : 0 - 100 bar
Dial Size : 2.5 inch dial glycerin filled
Make : FGB/Similar
Quantity : 2 Nos

11. Temperature Gauge:

Item : Temperature Gauge
Type : RTD
Rating : 0 - 100° C
Dial Size : 2.5 inch
Make : Broiltech/ Similar
Quantity : 1 Nos

12. Flowmeter:

Item : Rotameter type flowmeter
Range : 200 to 1000 LPH
Make : Asia Process/Similar
Quantity : 1 Nos

13. Weighing Scale:

Item : Weighing Scale/Balance
Range : 0 - 1 kg
Readability : Less than or equal to 0.5 gm
Make : Pride / Aristron/Similar

Quantity : 2 Nos

14. Piping:

Item : All required Piping
MOC : SS316/SS316 Braided Hose pipe
Quantity : As required

15. Skid: Skid assembly consist of Pump with motor, VFD, Cross flow cell with series arrangement, Valves, Gauges, SS Tank, Cu coils, Chiller, SS316 interconnecting piping etc. on SS frame

16. Warranty Terms: Two year warranty from the date of installation.

17. Operational and service manual: The operation and service manual of the flat sheet R.O. membrane testing must be furnished.

18. Training : A detailed training for research student must be carried out at our lab the time of installation

Flow Diagram RO Flat Sheet Membrane Testing Unit



