



Sepa CF Additional Information

Sepa CF II Membrane Cell System is a lab scale cross-flow membrane filtration unit that provides fast and accurate performance data with minimal amounts of membrane, product, expense, and time. It's unique patented* design simulates the flow dynamics of larger, commercially available membrane elements. Users can vary the operating conditions and fluid dynamics over broad ranges. Whether used as a membrane evaluation device, process development tool, or for small-scale production, the Sepa CF II Membrane Cell System from Sterlitech has the features and benefits that today's user's demand.



*Patent #4,846,970

The Sepa CF Cross-flow membrane holder is recommended for water studies, paint, biotechnology, cell harvesting, plasma concentration, separations, food and beverage applications and membrane studies for just a few of the versatile uses for this small-scale industrial unit. It provides fast and accurate performance data for production scale-up of any reverse osmosis, nanofiltration, and ultrafiltration or microfiltration crossflow application.

This system is also ideal for testing membranes. The unit accepts any flat 19 cm x 14 cm (7.5 inch x 5.5 inch) membrane for a full 155 cm² (24 in²) of effective membrane area. The hold up volume is 70 mL.

The holder can be operated in laminar flow to minimize denaturation of sensitive solutions, or in turbulent flow to maximize membrane life. A stainless steel concentrate flow control valve mounted on the concentrate outlet of the cell provides accurate control of pressure and flow over the membrane surface.

The cells are available in 316 stainless steel for use with high temperature and aggressive chemicals. We offer wastewater, processes, or a low foulant unit for pure water. The medium/high foulant unit is for wastewater and viscous solutions. The pressure rating (maximum) is 69 bar (1000 psi).

A pneumatic or hydraulic operated mechanism quickly closes and seals the cell. This provides uniform pressure on the membrane to assure a perfect seal. Compare this to ordinary time-consuming multiple bolt closures with their inherently uneven torque and leak problems.

Special feed flow pumps are not required. Most standard laboratory-scale peristaltic, diaphragm, or centrifugal pumps are suitable for use.

The connections are 1/4-inch FNPT to the Feed (Concentrate) and Pneumatic/Hydraulic

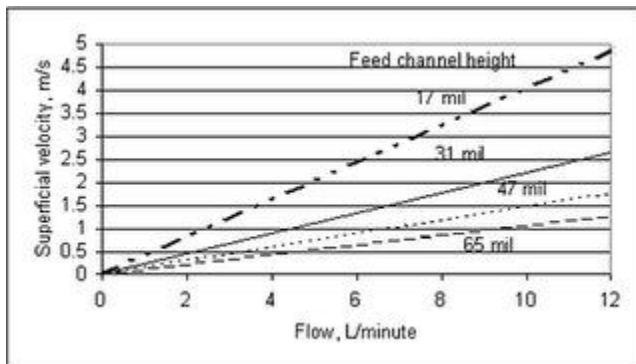


Port for the Piston. The permeate hose fittings has 1/8-inch FNPT connection.

Sterlitech Corporation also offers ready-made, individually wrapped membrane in single or assortment packs, for your needs. Please call Sterlitech customer service (1-877-544-4420) for additional information on this product and the membranes.

Operating Parameters

- Effective Membrane Area: 24 inch² (155 cm²)
- Hold-Up Volume: 2.4 oz (70 mL)
- Maximum Pressure:
 - 316SS Cell Body Only 1,000 psig (69 Bar);
 - Polypropylene and Acrylic Cell Bodies 100 psig (6.9 Bar)
- Maximum Temperature:
 - 316SS Cell Body 350°F (177°C);
 - Polypropylene Cell Body 180°F (82°C);
 - Clear Acrylic Cell Body 150°F (66°C)
- pH Range: Membrane Dependent
- Crossflow Velocity: Variable (See graph)



$$\text{Superficial velocity} = Q/(W*T)$$

Q is the flow rate

W is the width of the flow channel

T is the feed channel height

Connections

- Feed, Concentrate: 1/4 inch FNPT
- Permeate: 1/8 inch FNPT
- Hydraulic Port for Piston: 1/4 inch FNPT

Pumps

- Most lab scale pumps including piston-driven, diaphragm, peristaltic, centrifugal and gear, are acceptable. Contact Sterlitech for further recommendations.

Fluid Transfer

- Depending on pressure, standard tubing or hose can be used for connecting cells to



pumps and vessels. High-pressure hose should be used where the pressure is elevated. Contact Sterlitech if additional help is required.

Material of Construction

- Cell Body (316SS): 69 bar (1000 psig) max. operation
- Holder: Anodized Aluminum
- Concentrate Flow Control Valve: 316 Stainless Steel
- O-Rings: Viton*
- Concentrate Pressure Gauge: 316 Stainless Steel

Connections

- Cell Body: 16.51 x 21.3 x 5.0 cm (6.50 x 8.38 x 2.04 in)
- Holder: 20.0 x 28.0 x 20.0 cm (7.9 x 11.0 x 7.9 in)
- Shim: 14.6 x 9.5 cm (5.74 x 3.74 in)
- Feed Spacer: 14.6 x 9.5 cm (5.74 x 3.74 in)
- Membrane: 19.1 x 14.0 cm (7.5 x 5.5 in)
- Permeate Carrier: 14.6 x 9.5 cm (5.74 x 3.74 in)

Membrane Packs

- Sterlitech manufactures a complete line of Sepa membrane types for reverse osmosis, nanofiltration, ultrafiltration, and microfiltration separations. For the Sepa-CF II system, Sterlitech offers precut, individually wrapped membrane inserts in single membrane type or membrane assortment packs.