

3M™ Liqui-Cel™ EXF-14×28 Series Membrane Contactor for TransMembrane ChemiSorption

All operating parameters listed in this data sheet are based on a sulfuric acid stripping solution on the lumen side. Refer to Operating Guide for other acids. Usual operation is semi-batch mode with feedwater running in single pass through membrane contactor with acid in recirculation mode.

Typical Properties

Membrane Characteristics	
Cartridge Configuration	Extra-Flow with Center Baffle
Shell Side Liquid Flow Guideline	5 – 20.4 m ³ /hr (22 – 90 gpm)
Lumen Side Liquid Flow Guideline	2 – 9.1 m ³ /hr (9 – 40 gpm)
Membrane Type	X50
	Recommended for Transmembrane Chemisorption (TMCS) process
Membrane/Potting Material	Polypropylene/Epoxy
Priming Volume (approximate)	
Shell Side	36.5 L (9.6 gal.)
Lumen Side	25.5 L (6.7 gal.)

Pressure Guidelines		X50 Fiber
Maximum Shell Side Liquid Operating Temperature/Pressure	5-50°C, 3.1 barg (41-122°F, 45 psig)	
Maximum Lumen Side Liquid Operating Temperature/Pressure*	5-50°C, 3.1 barg (41-122°F, 45 psig)	

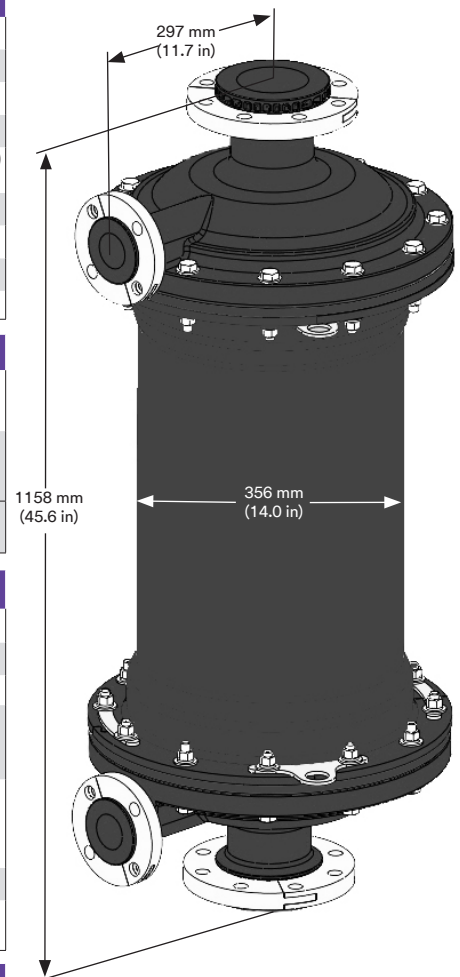
* Maximum 50% acid concentration. Lumen side pressure may require derating depending on acid type. See User Guide for TransMembrane ChemiSorption (TMCS) for details.

Housing Options and Characteristics	
Material	PVC vessel with Engineered Thermoplastic End Caps
Flange Backing Rings	SMC (Sheet Molding Compound)
Flange Connections	
Shell Side (Inlet/Outlet)	<ul style="list-style-type: none"> SMC 4 inch class 150 raised face flange per ANSI B16.5 SMC 100A at 10K raised face flange per JIS B2238
Lumen Side (Inlet/Outlet)	<ul style="list-style-type: none"> SMC 2 inch class 150 raised face flange per ANSI B16.5 SMC 50A at 10K flat face flange per JIS B2238
Mounting Kit	
A Mounting Kit with 2 cradles and 2 straps is available and sold separately. It is recommended that the contactor be mounted vertically with shellside and lumenside flows in opposite directions.	

Seal Material	
FKM	

Weight (approximate)	
Dry	57 kg. (125 lbs.)
Water-Filled (Shell Side and Lumen Side)	119 kg. (262 lbs.)

Regulatory	
Complies with the limits as set by (EU) 2015/863 amending Annex II to the Restriction on Hazardous Substances (RoHS) Directive (2011/65/EU).	

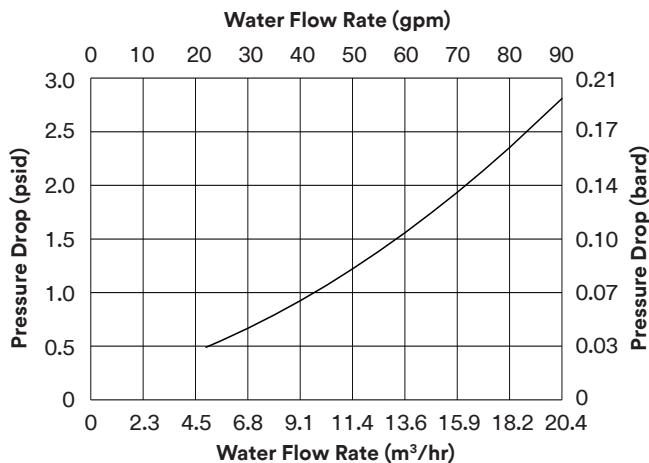


All dimensions are nominal values. See full housing drawing on 3M.com/Liqui-Cel for additional details.

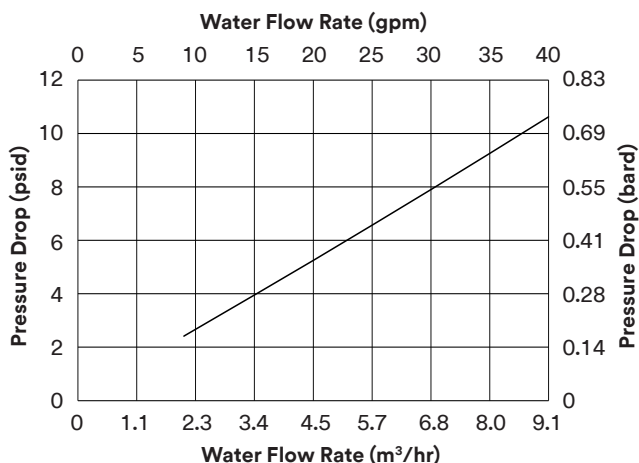
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Shell Side Pressure Drop (dP)



Lumen Side Pressure Drop (dP)



Pressure drop (dP) curves represent nominal values using water. Characteristics may change under different operating conditions. These charts should not be used to design systems.

Test conditions
 One membrane contactor in series
 Water temperature: 25 °C (77 °F)
 Viscosity: 1 cP (1 mPa-s)

Viscosity has a strong influence on dP and is a function of liquid type, concentration, and temperature.

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