Science.
Applied to Life.™

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 m³/hr (22 – 90 gpm)
Lumen Side Liquid Flow Guideline	2 – 9.1 m³/hr (9 – 40 gpm)
Membrane Type	X50
	Recommended for Transmembrane Chemisorption (TMCS) process
Membrane/Potting Material	Polypropylene/Epoxy
Priming Volume (approximate)	
Shell Side	35.4 L (9.3 gal.)
Lumen Side	23.8 L (6.3 gal.)

Pressure Guidelines	X50 Fibre
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 Molded Compound)
Flange Connections	
Shell Side (Inlet/Outlet)	• 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)	• 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	54 kg (118 lb)
Water-Filled (Shell Side and Lumen Side)	113 kg (249 lb)

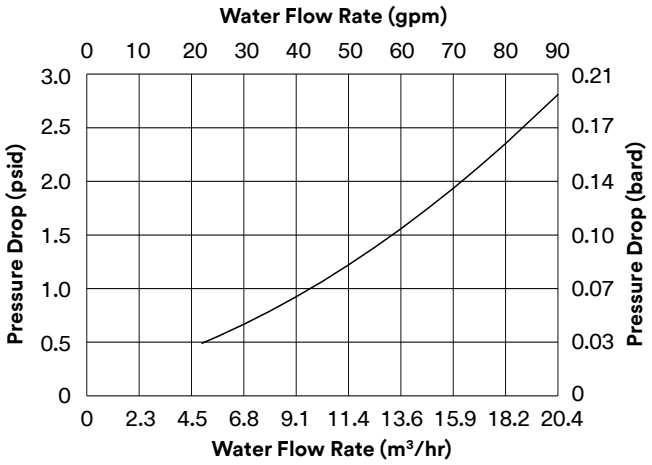
Regulatory
Complies with the limits as set by (EU) 2015/863 amending Annex II to the Restriction on Hazardous Substances (RoHS) Directive (2011/65/EU).

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

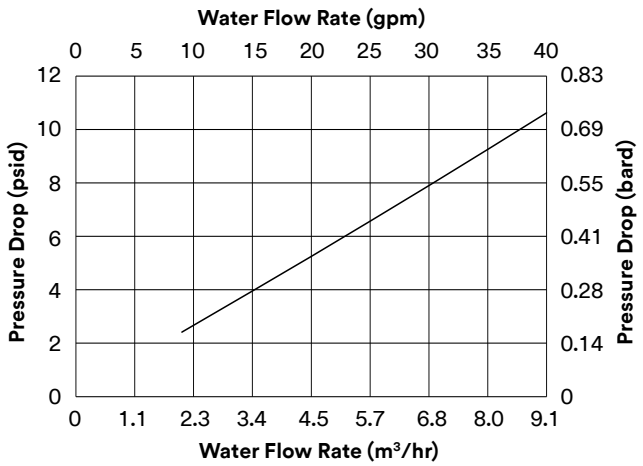
Not for consumer sale or use.

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

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.

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is expressly identified on the applicable 3M product literature or packaging (in which case such express warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability

 2212-225349c E

3M Separation and Purification Sciences Division
3M Canada
300 Tartan Drive
London, Ontario N5V 4M9
Canada
1-800-443-1661

LC-1206
Rev. 12/2022

3M.ca/Liqui-Cel