



# 3M™ Liqui-Cel™ EXF-6×28 Series Membrane Contactor

## Typical Properties

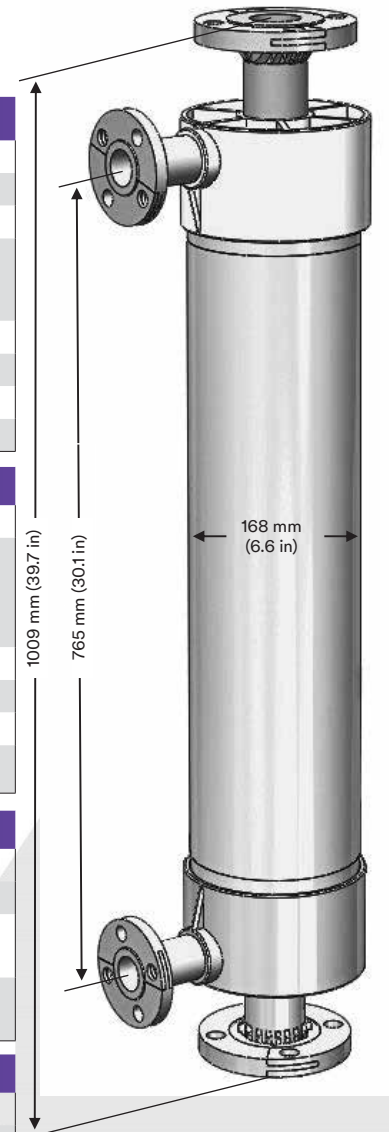
Membrane Characteristics		
Cartridge Configuration	Extra-Flow with Center Baffle	
Liquid Flow Guidelines	1 – 11 m <sup>3</sup> /hr (5 – 50 gpm)	
Membrane Type	X50 Fiber	X40 Fiber
	Recommended for CO <sub>2</sub> removal from liquid and other gas transfer applications	Recommended for O <sub>2</sub> removal from liquid and other gas transfer applications
Membrane/Potting Material	Polypropylene/Epoxy	
Priming Volume (approximate)	X50 Fiber	X40 Fiber
Shellside	6.7 L (1.8 gal)	6.7 L (1.8 gal)
Lumenside	2.6 L (0.7 gal)	2.3 L (0.6 gal)

Pressure Guidelines*		
	X50 Fiber	X40 Fiber
Maximum Shellside LIQUID Working Temperature/ Pressure	5-25°C, 7.2 barg (41-77°F, 105 psig) 60°C, 2.1 barg (140°F, 30 psig)	5-25°C 7.2 barg (41-77°F, 105 psig) 70°C, 2.1 barg (158°F, 30 psig)
If no vacuum is used, 1 barg (15 psig) can be added to pressures above.		
Maximum Applied Gas Pressure	4.1 barg at 25°C (60 psig at 77°F)	
Maximum applied gas pressure is for integrity testing at ambient temperatures. Normal operating pressures are typically lower.		
* See Operating Guide for complete temp/pressure limits for housings and membrane. <b>Note:</b> Liquid pressure should always exceed gas pressure.		

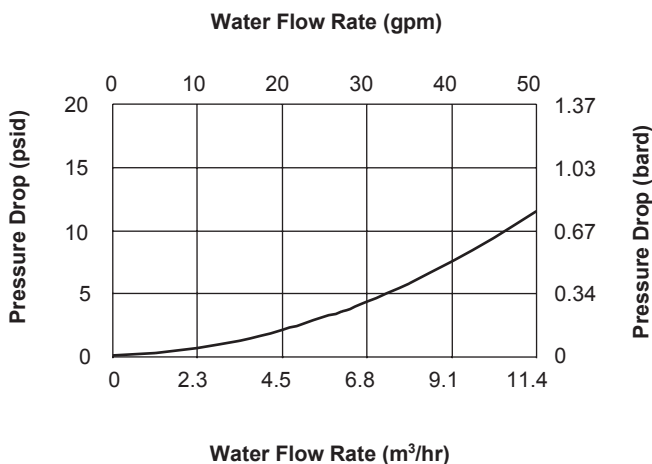
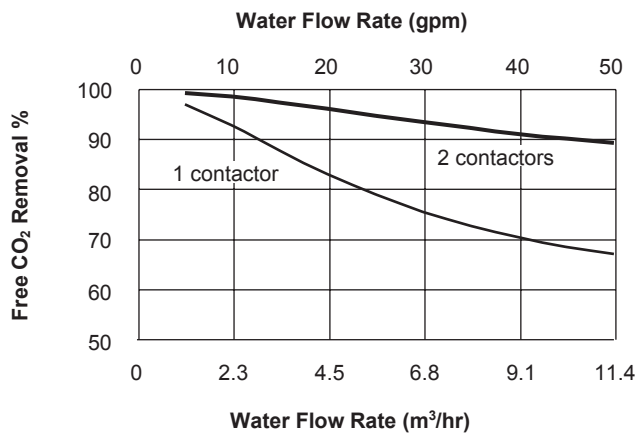
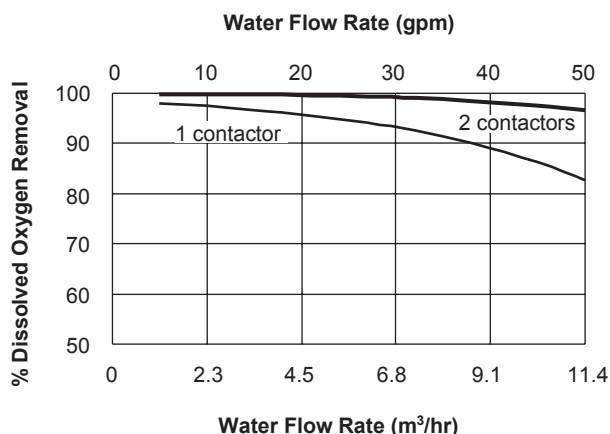
Housing Options and Characteristics	
Material	ABS
Flange Connections	
Shellside (Wetted surface)	2 inch class 150 raised face flange per ANSI B16.5 50A at 10K flat face flange per JIS B2238
Lumenside	1 inch class 150 raised face flange per ANSI B16.5 25A at 10K flat face flange per JIS B2238

Weight (approximate)	
Dry	10 kg (23 lbs)
Water-filled (shellside)	17 kg (38 lbs)

Regulatory	
Complies with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC. Constructed of FDA CFR title 21 compliant materials for wetted parts only with non alcoholic liquids at ambient temperatures.	



All dimensions are nominal values. See full housing drawing on [3M.com/Liqui-Cel](http://3M.com/Liqui-Cel) for additional details.



Curves represent nominal values. Characteristics may change under different operating conditions.

Test condition O<sub>2</sub> Removal with X40 membrane at 20°C (68°F):  
N<sub>2</sub> Combo mode, vacuum 75 mm Hg, N<sub>2</sub> sweep: 1.4 L/min (0.05 scfm).

Test condition CO<sub>2</sub> Removal with X50 membrane at 20°C (68°F):  
Air Combo mode, air sweep: 0.25 G/L, vacuum: 150 torr

**Technical Information:** The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

**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. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

**Warranty, Limited Remedy, and Disclaimer:** Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 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 OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 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 where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

3M and Liqui-Cel are trademarks of 3M Company. All other trademarks are the property of their respective owners. © 2017 3M Company. All rights reserved.



ISO 9001



Separation and Purification  
Sciences Division  
13840 South Lakes Drive  
Charlotte, North Carolina  
28273 USA  
Phone: +1 908 859 5400

3M Deutschland GmbH  
Separation and Purification  
Sciences Division  
Öhder Straße 28  
42289 Wuppertal Germany  
Phone: +49 202 6099 - 0  
Fax: +49 202 6099 - 241