

# 3M™ Liqui-Cel™ SP-4×28 Series Membrane Contactor

## Typical Properties

Membrane Characteristics		
Cartridge Configuration	Extra-Flow with Center Baffle	
Liquid Flow Guidelines	1.1-6.8 m <sup>3</sup> /hr (5-30 gpm) Liquid must flow on the shellside	
Membrane/Potting Material	Polyolefin / Polyethylene	
Priming Volume (approximate)	<b>Polypropylene</b>	<b>316L SS</b>
Shellside	2.9 L (0.8 gal)	2.9 L (0.8 gal)
Lumenside	0.9 L (0.2 gal)	0.7 L (0.2 gal)

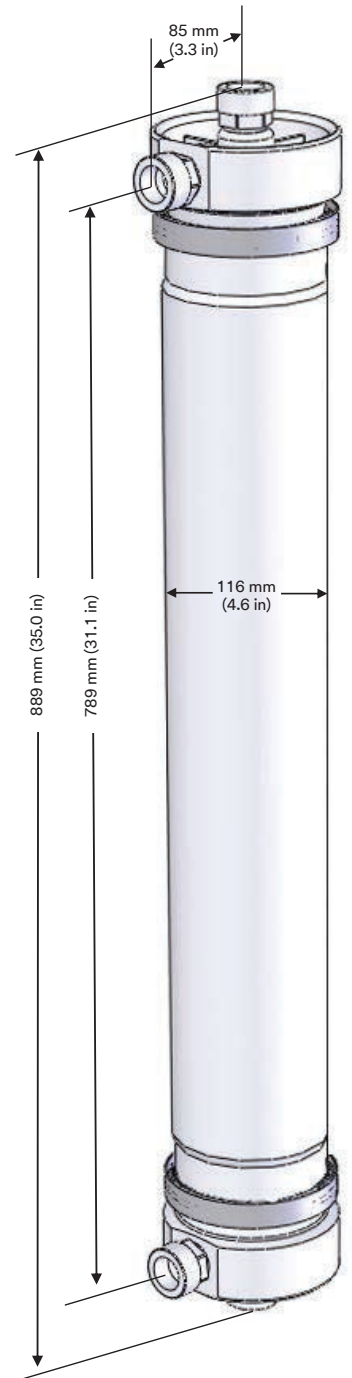
Pressure Guidelines*		
Maximum Shellside LIQUID Working Temperature/Pressure	<b>Polypropylene</b>	<b>316L SS</b>
	5-25°C, 4.1 barg (41-77°F, 60 psig) 40°C, 1.0 barg (104°F, 15 psig)	5-25°C, 4.1 barg (41-77°F, 60 psig) 50°C, 1.0 barg (122°F, 15 psig)
If no vacuum is used, 1 barg (15 psig) can be added to pressures above.		
Maximum Applied Gas Pressure	4.1 barg at 25°C (60 psig at 77°F)	
* See Operating Guide for complete temp/pressure limits for housings and membrane. Note: Liquid pressure should always exceed gas pressure.		

Housing Characteristics		
Material	<b>Polypropylene</b>	<b>316L SS</b>
Flange Connections		
Shellside (Wetted surface)	<ul style="list-style-type: none"> <li>• 1 inch Sanitary</li> <li>• ¾ inch NPT Female</li> <li>• Rc ¾ per JIS B0203</li> </ul>	• 1 inch Sanitary
Lumenside (Gas/Vacuum)	<ul style="list-style-type: none"> <li>• 1 inch 90° Sanitary</li> <li>• ¾ inch 90° NPT Female</li> <li>• Rc ¾ per JIS B0203</li> </ul>	• 1 inch Sanitary

Seal Material Options	Applications
FKM	General Purpose
FFKM (K - UPW)**	Ultra Pure Water
**Only available in PP housing with NPT connections.	

Weight (approximate)	Polypropylene	316L SS
Dry	4 kg (9 lbs)	7 kg (16 lbs)
Water-filled	7 kg (16 lbs)	10 kg (22 lbs)

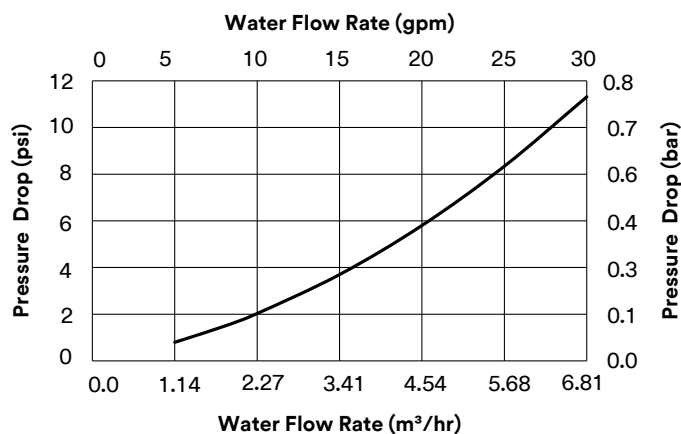
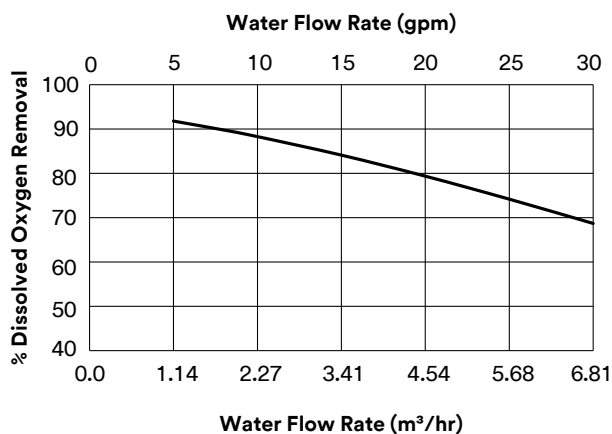
Regulatory
Complies with the limits as set by (EU) 2015/863 amending Annex II to the Restriction on Hazardous Substances (RoHS) Directive (2011/65/EU). 3M™ Liqui-Cel™ SP-4×28 Series Membrane Contactors with FKM seals are constructed of FDA Title 21 CFR § 177-190 compliant materials for wetted parts only at ambient temperatures. 3M™ Liqui-Cel™ SP-4×28 Series Membrane Contactors with FFKM (K-UPW) seals <b>are not</b> constructed of FDA Title 21 CFR § 177-190 compliant materials.



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

**Not for consumer sale or use.**

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Curves represent nominal values, generated using water at 25°C (77°F).

Test condition: O<sub>2</sub> Removal with 50 torr abs vacuum.

Characteristics may change under different operating conditions.

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