

# 3M™ Liqui-Cel™ SP-4×13 Series Membrane Contactor

## Typical Properties

Membrane Characteristics		
Cartridge Configuration	Extra-Flow with Center Baffle	
Liquid Flow Guidelines	0.2 – 3.4 m <sup>3</sup> /hr (1–15 gpm) Liquid must flow on the shellside	
Membrane/Potting Material	Polyolefin / Polyethylene	
Priming Volume (approximate)	<b>Polypropylene</b>	<b>316L SS</b>
Shellside	1.3 L (0.3 gal)	1.3 L (0.3 gal)
Lumenside	0.5 L (0.1 gal)	0.4 L (0.1 gal)

Pressure Guidelines*		
	<b>Polypropylene</b>	<b>316L SS</b>
Maximum Shellside LIQUID Working Temperature/ Pressure	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, 2.0 barg (122°F, 30 psig)
If no vacuum is used, 1.0 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 listing of temp/pressure limits for housings and membrane.  
**Note:** Liquid pressure should always exceed gas pressure.

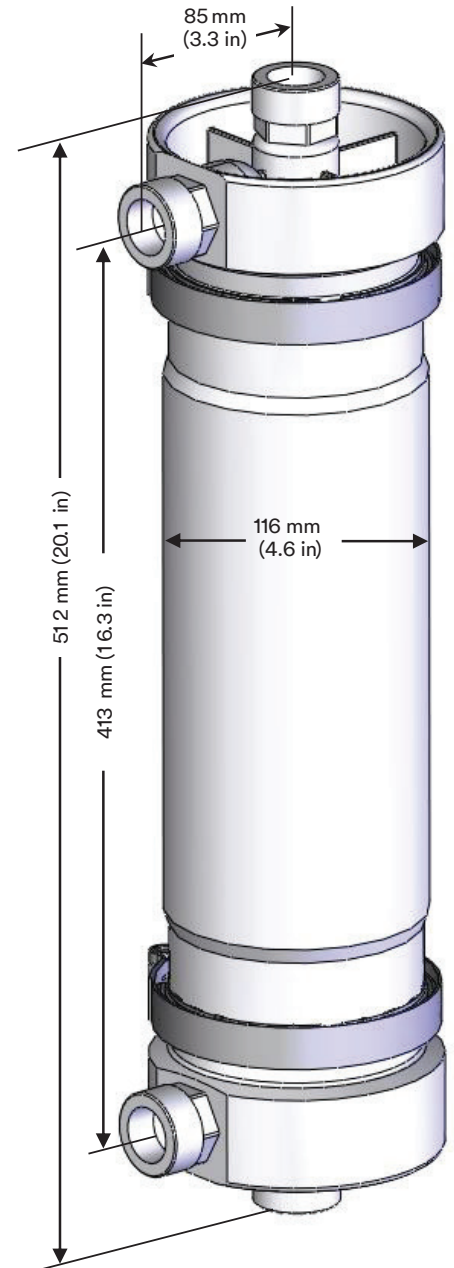
Housing Characteristics		
Material	<b>Polypropylene</b>	<b>316L SS</b>
Flange Connections		
Shellside (Wetted surface)	1 inch Sanitary ¾ inch NPT Female 1 inch George Fisher Rc ¾ inch per JIS B0203	1 inch Sanitary
Lumenside (Gas/Vacuum)	1 inch Sanitary ¾ inch NPT Female Rc ¾ inch per JIS B0203	1 inch Sanitary

Seal Options	
Material	Applications
FKM	General Purpose
FFKM (K-UPW)**	Ultra Pure Water

\*\* Only available in PP housing with NPT connections.

Weight (approximate)		
	<b>Polypropylene</b>	<b>316L SS</b>
Dry	3 kg (7 lbs.)	7 kg (15 lbs.)
Water-Filled (shellside)	4 kg (9 lbs.)	8 kg (18 lbs.)

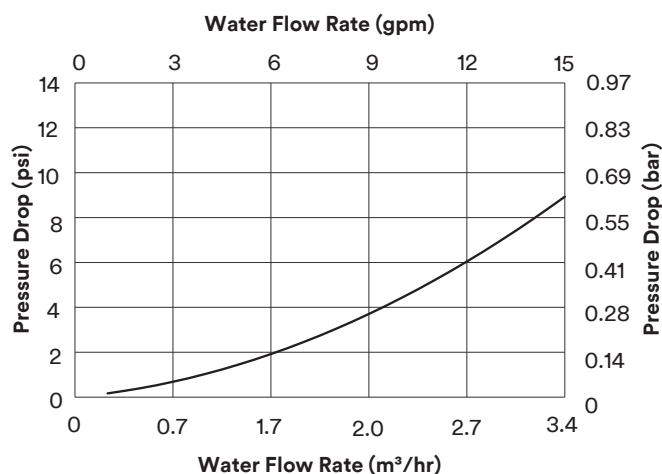
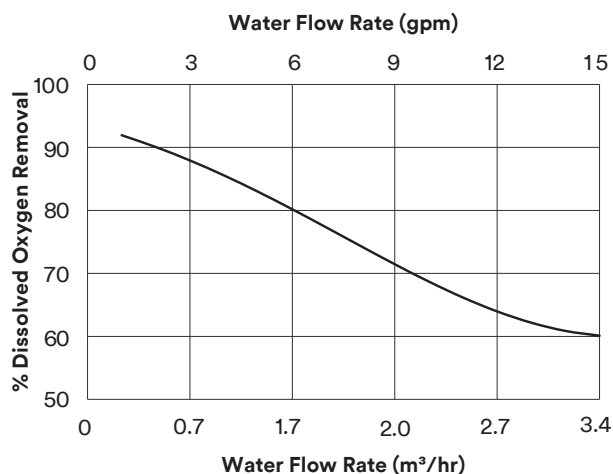
Regulatory
Complies with the limits as set by (EU) 2015/863 amending Annex II to the Restriction on Hazardous Substances (RoHS) Directive (2011/65/EU). 3M™ Liqui-Cel™ SP-4×13 Series Membrane Contactors with FKM seals are constructed of FDA Title 21 CFR § 174-186 compliant materials for wetted parts only at ambient temperatures. 3M™ Liqui-Cel™ SP-4×13 Series Membrane Contactors with FFKM (K-UPW) seals are not constructed of FDA Title 21 CFR § 174-186 compliant materials and are not for use in food contact applications.



All dimensions are nominal values for the polypropylene housing with NPT connections. See full housing drawing on [3M.com/Liqui-Cel](http://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.

## Product Selection and 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.

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