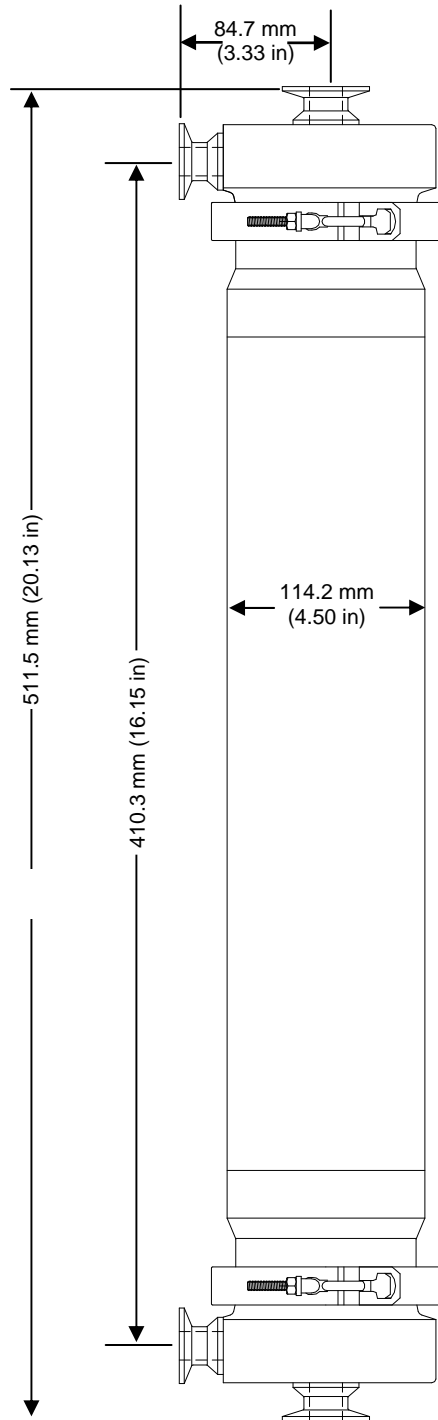


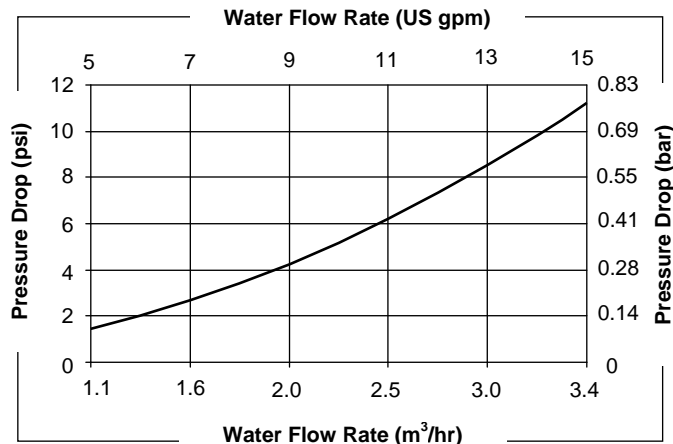
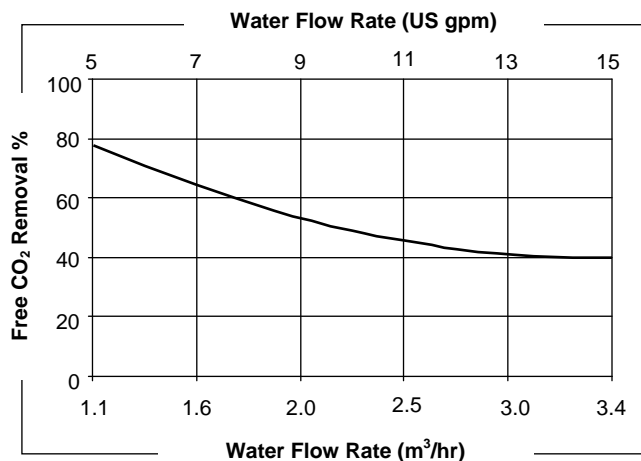
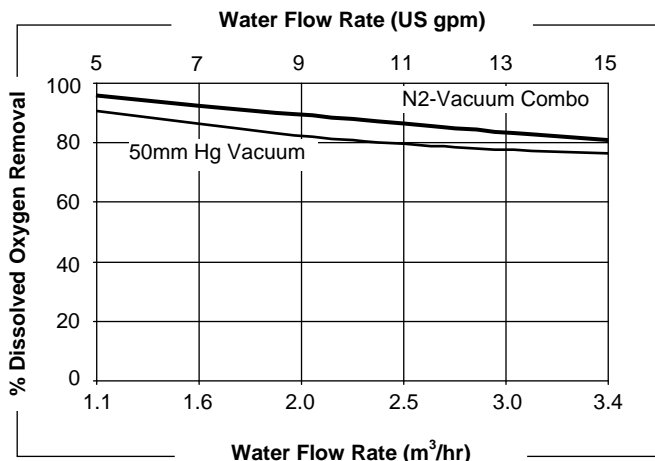
## 4 x 13 EXTRA-FLOW PRODUCT DATA SHEET



Membrane Characteristics			
<b>Cartridge Configuration</b>	Extra-Flow with Center Baffle		
<b>Liquid Flow Guidelines</b>	0.7 – 3.41 m <sup>3</sup> /hr (3 – 15 gpm)		
<b>Membrane Type</b>	<b>X50</b>	<b>X40</b>	
	Recommended for CO <sub>2</sub> removal from water	Recommended for all other gas transfer applications	
<b>Membrane/Potting Material</b>	Polypropylene / Polyethylene		
<b>Typical Membrane Surface Area</b>	8.1 m <sup>2</sup> ( 87 ft <sup>2</sup> )		
<b>Priming Volume (approximate)</b>			
Shellside	1.26 liters (0.33 gal.)		
Lumenside	0.61 liters (0.16 gal.)		
Pressure Guidelines*			
	<b>PP X50 or X40</b>	<b>316L SS X50</b>	<b>316L SS X40</b>
<b>Maximum Shellside LIQUID Working Temperature/ Pressure</b>	5-30° C, 7.2 bar (41-86° F, 105 psig) 40° C, 5.2 bar (104° F, 75 psig)	5-50° C, 7.2 bar (41-122° F, 105 psig) 70° C, 2.1 bar (158° F, 30 psig)	5-50° C, 9.3 bar (41-122° F, 135 psig) 70° C, 2.1 bar (158° F, 30 psig)
If no vacuum is used, 1.05 bar (15 psig) can be added to pressures above.			
<b>Maximum Applied Gas Pressure</b>	6.2 bar (90 psig)		
Max applied gas pressure is for integrity testing at ambient temperatures. Normal operating pressures are typically lower.			
*Pressures are based on non-dangerous liquids and gasses per the European Union Pressure Equipment Directive /97/23/EC. See Operating Guide for pressure limits in the European Union with dangerous liquids and gasses. Also, see Operating Guide for complete temp/pressure limits for housings and membrane. Note: Liquid pressure should always exceed gas pressure.			
Housing Options & Characteristics			
<b>Material</b>	<b>Polypropylene</b>	<b>316L SS</b>	
<b>Flange Connections</b>			
Shellside (Liquid Inlet/Outlet)	<ul style="list-style-type: none"> <li>• 1 inch Sanitary</li> <li>• ¾ inch NPT Female</li> <li>• 1 inch GF</li> <li>• Rc ¾ per JIS B0203</li> </ul>	<ul style="list-style-type: none"> <li>• 1 inch Sanitary (316L SS)</li> <li>• ¾ inch NPT Female (304 SS)</li> </ul>	
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>	<ul style="list-style-type: none"> <li>• 1 inch 90° Sanitary (316L SS)</li> <li>• ¾ inch 90° NPT Female (304 SS)</li> </ul>	
Seal Options			
<b>Material</b>	<b>Applications</b>		
Viton	General Purpose		
K-UPW	Ultra Pure Water		
K-EXT	Chemical Extraction		
Buna-N	Beverage		
<b>Weight</b>	<b>PP</b>	<b>316L SS</b>	
Dry weight	2.6 kg. (5.8 lbs.)	4.9 kg (10.7 lbs.)	
Liquid full (shellside)	3.7 kg. (8.2 lbs.)	7.4 kg (16.4 lbs.)	
Shipping Weight	3.3 kg. (7.3 lbs.)	6.4 kg (14.0 lbs.)	
Regulatory			
Meets RoHS threshold limits. Complies with the PED 97/23/EC. CFR Title 21 compliant.			

**Note:** All dimensions are nominal values.  
This represents PP housing. All housing options are located on [www.Liqui-Cel.com](http://www.Liqui-Cel.com).

## 4 x 13 EXTRA-FLOW PRODUCT DATA SHEET



Cartridge Specifications		
Characteristics	Test Conditions	Specifications
Performance O <sub>2</sub> Removal	Shellside water flow: 12 gpm 20°C (68°F) Lumenside N <sub>2</sub> Flow: 1 ft <sup>3</sup> /min, 1.0 atm at 20°C	77% minimum
Pressure Drop	Shellside water flow: 12 gpm, 20°C (68°F)	8.5 psi maximum

Curves represent nominal values, generated using water at 20°C. Characteristics may change under different operating conditions.

Test condition O<sub>2</sub> Removal with X40 membrane: N<sub>2</sub>-vacuum combo mode, vacuum: 50 mm Hg N<sub>2</sub> sweep: 0.05 scfm at 20°C. Vacuum mode, vacuum: 50 mm Hg at 20°C.

Test condition CO<sub>2</sub> Removal with X50 membrane: N<sub>2</sub>-vacuum combo mode, vacuum: 150 mm Hg, N<sub>2</sub> sweep 0.1 scfm at 20°C.

All components of the Liqui-Cel® Extra-Flow Membrane Contactor, when used in accordance with recommendations given in our product literature for treatment or processing of water, alcoholic and non-alcoholic beverages, and aqueous, acid and non-acid food products at and below ambient temperatures, are in compliance with all relevant FDA regulations as specified in Title 21 of the Code of Federal Regulations.

This product is to be used only by persons familiar with its use. It must be maintained within the stated limitations. All sales are subject to Seller's terms and conditions. Purchaser assumes all responsibility for the suitability and fitness for use as well as for the protection of the environment and for health and safety involving this product. Seller reserves the right to modify this document without prior notice. Check with your representative to verify the latest update. To the best of our knowledge the information contained herein is accurate. However, neither Seller nor any of its affiliates assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of the suitability of any material and whether there is any infringement of patents, trademarks, or copyrights is the sole responsibility of the user. Users of any substance should satisfy themselves by independent investigation that the material can be used safely. We may have described certain hazards, but we cannot guarantee that these are the only hazards that exist.

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