Industrial filtration

Liqui-Cel EXF 4×13 membrane contactors

Thermo Scientific™ Liqui-Cel™ Membrane Contactors provide high-performance dissolved gas control in a compact design. Utilizing hollow fiber membrane technology, Thermo Scientific membrane contactors remove dissolved gases from or add gases to compatible liquid streams in-line and without chemicals to help facilities around the world improve operating efficiency and protect product quality in many industrial processes.

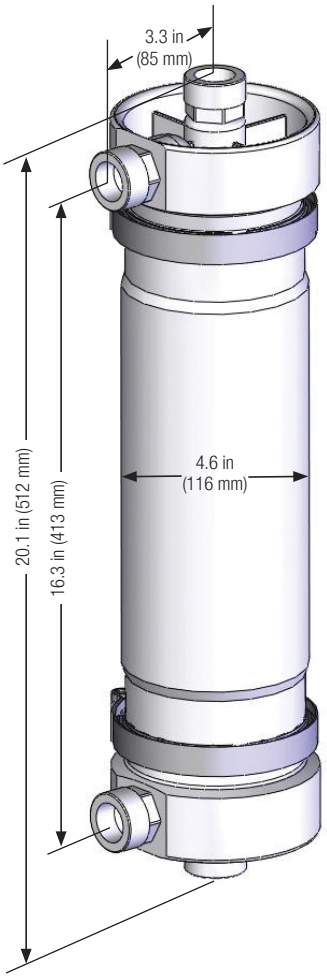
Typical properties

Membrane characteristics			
Cartridge configuration	Extra-flow with center baffle		
Liquid flow guidelines	2 - 15 gpm (0.5 - 3.4 m^3/hr)		
Membrane/potting material	Polypropylene/polyethylene		
Membrane type	X50 fiber	X40 fiber	
	Recommended for CO_2 removal from compatible liquid streams	Recommended for O_2 removal from compatible liquid streams	
Priming volume (approximate)			
Shell side	0.3 gal (1.3 L)		
Lumen side	0.2 gal (0.6 L)		
Operating parameters			
Pressure guidelines*			
Maximum shell side LIQUID operating temperature/pressure			
	PP X50 or X40	316L SS X50	316L SS X40
41 - 86°F (5 - 30°C)	120 psig (8.3 barg)		
41 - 122°F (5 - 50°C)		120 psig (8.3 barg)	150 psig (10.3 barg)
104°F (40°C)	90 psig (6.2 barg)		
158°F (70°C)		45 psig (3.1 barg)	45 psig (3.1 barg)
Maximum lumen side GAS operating temperature/pressure			
77ºF (25ºC)	60 psig (4.1 barg)	90 psig (6.2 barg)	

*Note: Liquid pressure should always exceed gas pressure in operation.

Housing characteristics		
Material	Polypropylene	316L SS vessel and end caps ≤ 0.8µm SI (32 RA)
Port connections		
Port connections	Polypropylene	316L SS
Shell side (liquid inlet/outlet)	• 1-inch sanitary • 0.75-inch NPT female • 1-inch GF • Rc 0.75 per JIS B0203	• 1-inch sanitary
Lumen side (inlet/outlet)	• 1-inch 90º sanitary • 1-inch sanitary • 0.75-inch 90º NPT female • Rc 0.75 per JIS B0203	• 1-inch sanitary

Not for consumer sale or use.



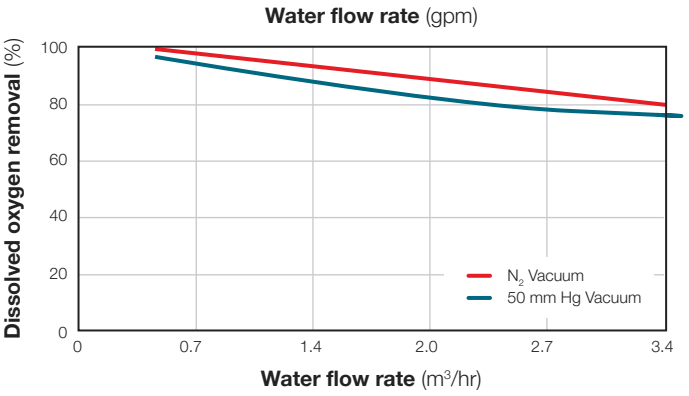
Note: All dimensions are nominal values for contactors with polypropylene housing and NPT connections. See housing drawings for additional dimensional details by housing and connection type.

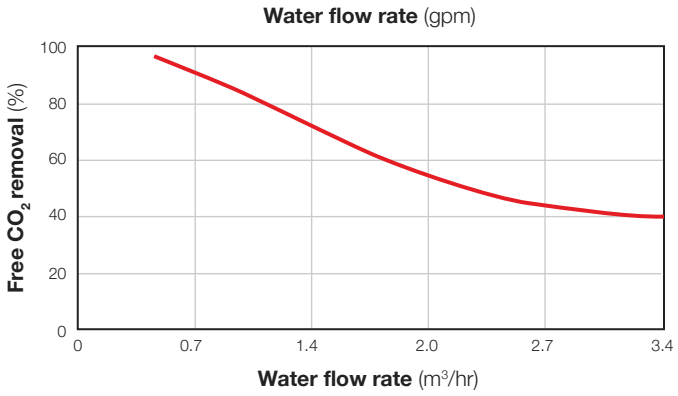
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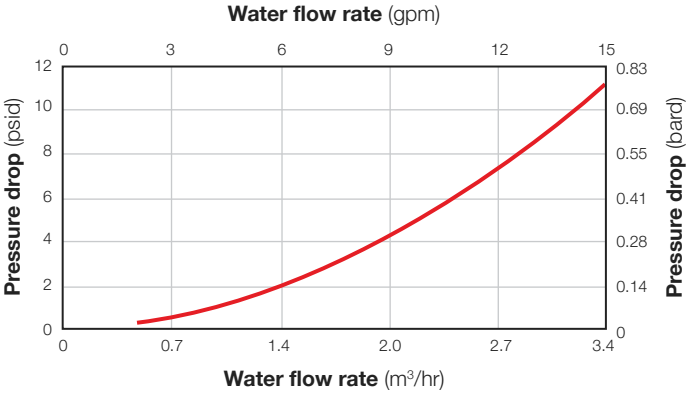
Typical properties

Seal material options for shell side wetted parts		
FKM		
FFKM (K-UPW)	Only available with X40 fiber in PP housing with JIS or NPT connections	
FFKM (K-EXT)	Only available with X40 fiber in SS housing with sanitary connections or with X40 fiber in PP housing with JIS connections	
Buna-N	Only available with X40 fiber in SS housing with sanitary connections or with X40 fiber in PP housing with JIS connections	
Weight (approximate)		
	PP	316L SS
Dry	7 lbs (3 kg)	12 lbs (6 kg)
Water-filled (shell side)	10 lbs (5 kg)	15 lbs (7 kg)
Regulatory		
Certain Thermo Scientific™ Liqui-Cel™ EXF 4×13 membrane contactor products with FKM seals are compliant with US FDA 21 CFR, EU Food Contact Regulation (EC) 1935/2004, EU Regulation 10/2011, Japan MHLW – Food Sanitization Act, and other food contact regulations. Liqui-Cel EXF 4×13 membrane contactor products with FFKM (K-UPW) or Buna-N seals are not for use in food contact applications. Contact your Thermo Fisher Scientific representative for detailed declaration of compliance information for food contact applications.		

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Notes

- Curves represent nominal values using water at 68ºF (20ºC). Characteristics may change under different operating conditions.
- Test condition O_2 removal with X40 membrane: N_2-vacuum combo mode: 50 mm Hg vacuum, N_2 sweep 0.05 SCFM (1.4 L/min). Vacuum mode: 50 mm Hg vacuum.
- Test condition CO_2 removal with X50 membrane: Air-vacuum combo mode: 150 mm Hg vacuum, air sweep 0.1 SCFM (2.8 L/min).
- These charts should not be used to design systems.

Intend Use: Liqui-Cel membrane contactors are intended to remove dissolved gases and bubbles from liquids or to add gases to a liquid stream. Liqui-Cel membrane contactors are for use in industrial separation applications of industrial fluids only, in accordance with the applicable product instructions, specifications, and where materials of construction are compatible. Liqui-Cel membrane contactors may further be used in the production of water for various pharmaceutical products upstream of the final water sterilization step.

Certain Liqui-Cel membrane contactors are compliant for use in Food and Beverage applications. For specific details regarding use or limitations for food contact applications please refer to the Liqui-Cel product's data sheet or contact your Thermo Fisher Scientific Inc. representative for more information.

Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the Thermo Scientific product is suitable and appropriate for the user's specific application, including user conducting an appropriate risk assessment and evaluating the Thermo Scientific product in user's application.

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