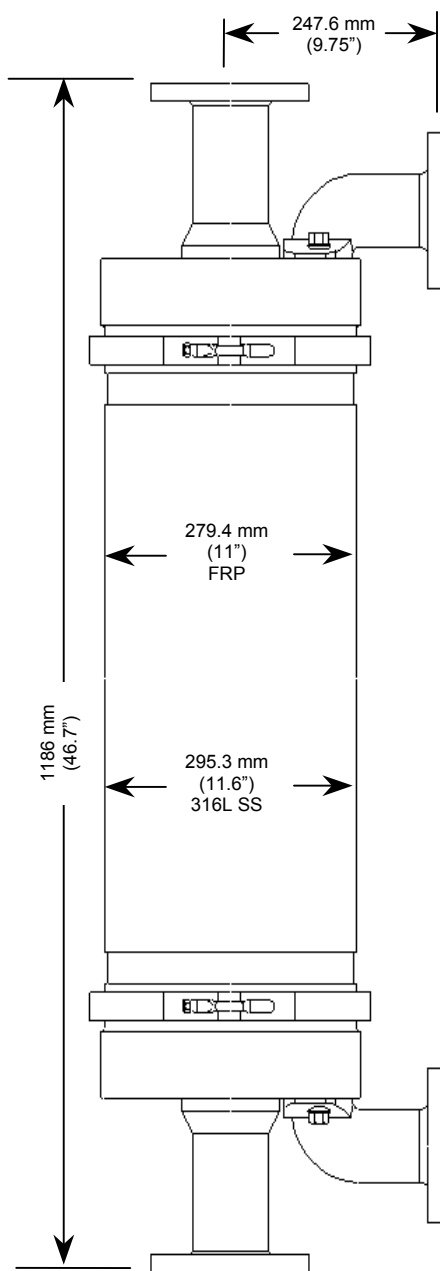


10x28 EXTRA-FLOW PRODUCT DATA SHEET



Liqui-Cel®

Membrane Contactors



NOTE: All dimensions are nominal values

Cartridge Characteristics

Cartridge Configuration	Extra-Flow with Center Baffle	
Liquid Flow Guidelines	X50: 10 – 48 m ³ /hr (44 – 210 gpm) X40: 10 – 57 m ³ /hr (44 – 250 gpm)	
Membrane Type	X50 Fiber	X40 Fiber
	Recommended for CO ₂ removal from water	Recommended for all other gas transfer applications
Porosity	~40%	~25%
OD / ID	300 / 220 micron	300 / 200 micron
Membrane/Potting Material	Polypropylene / Epoxy	
Typical Membrane Surface Area	1400 ft ² (130m ²)	
Maximum Shellside Working Temperature/Pressure of Fiber* [Using 50 mm vacuum on Lumenside. Add 1.05 kg/cm ² (15 psig) when vacuum is not used.]	X50 Fiber	X40 Fiber
	50°C, 7.4 kg/cm ² or 7.2 bar 70°C, 2.1 kg/cm ² or 2.0 bar	25°C, 9.5 kg/cm ² or 9.3 bar 50°C, 7.4 kg/cm ² or 7.2 bar 70°C, 2.1 kg/cm ² or 2.0 bar
	(122°F, 105 psig) (158°F, 30 psig)	(77°F, 135 psig) (122°F, 105 psig) (158°F, 30 psig)
Priming Volume (approximate)		
Shellside	26.1 liters (6.9 gal.)	23.4 liters (6.2 gal.)
Lumenside	10.6 liters (2.8 gal.)	9.0 liters (2.4 gal.)

Housing Options and Characteristics

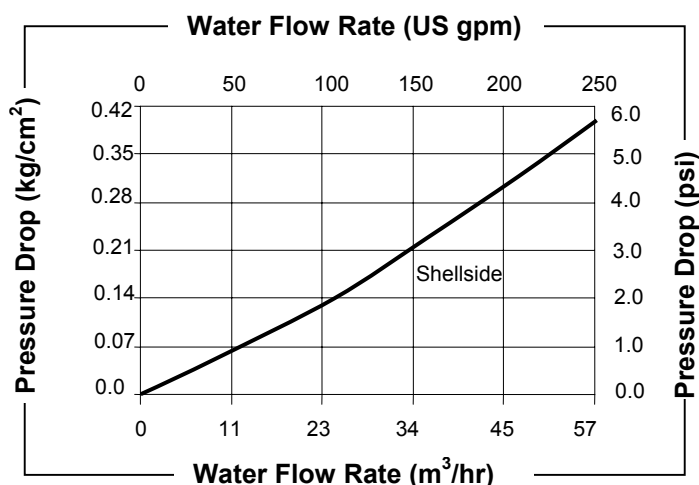
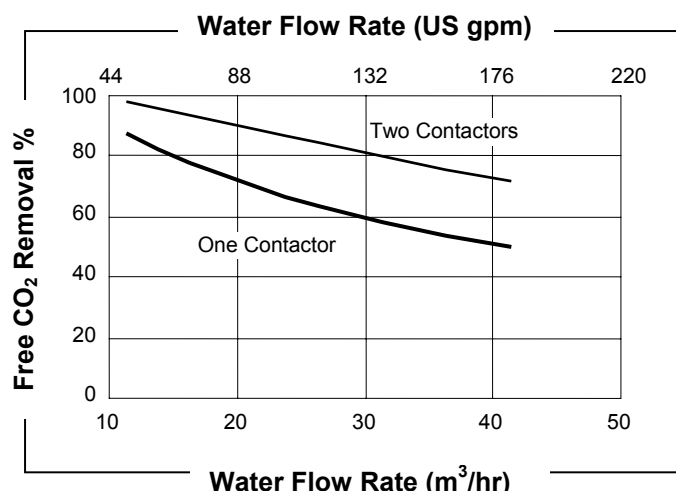
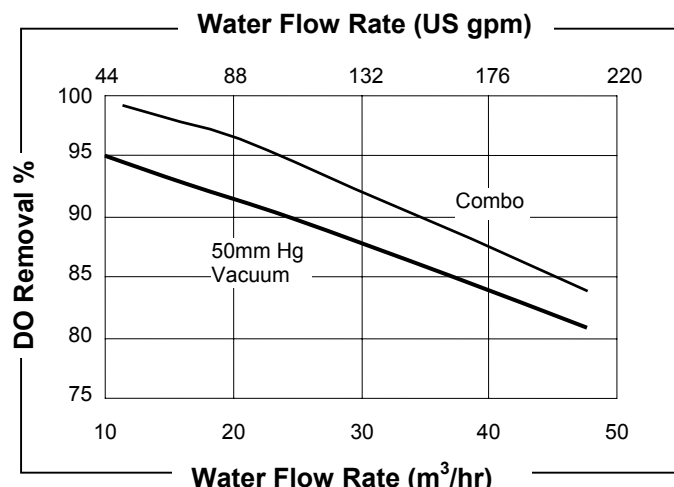
Material	316L Stainless Steel, mechanical finish or <25RA Electropolish	Fiber Reinforced Plastic (FRP) with PVDF for all wetted surfaces and FRP flanges
Flange Connections		
Shellside (Liquid Inlet/Outlet)	<ul style="list-style-type: none"> 3 inch class 150 raised face flange per ANSI B16.5 80A at 10K flat face flange per JIS B2238 	
Lumenside	<ul style="list-style-type: none"> 1 inch class 150 raised face flange per ANSI B16.5 50A at 10K flat face flange per JIS B2238 	
Max. Allowable Working Pressure of Vessel*	<ul style="list-style-type: none"> 10.6 Kg/cm² (10.3 bar or 150 psi) Shellside (Liquid Only) 9.1 Kg/cm² (9.0 bar or 130 psi) Lumenside 316 LSS 6.3 Kg/cm² (6.2 bar or 90 psi) Lumenside FRP <p>NOTE: Refer to Cartridge Characteristics for maximum operating conditions.</p>	

Seal Options

Material	Applications	
EPDM (ANSI / NSF 61, FDA CFR title 21 Compliant) [†]	General Purpose	
Weight	Stainless Steel Housing	FRP Housing
Dry	111 kg. (244 lbs.)	33 kg. (73 lbs.)
Liquid full (shellside)	137 kg. (302 lbs.)	57 kg. (125 lbs.)
Cartridge only – dry	10 kg. (23 lbs.)	10 kg. (23 lbs.)
Shipping weight	168 kg. (370 lbs.)	44 kg. (98 lbs.)

*Pressures are based on nondangerous 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 liquid and gasses.

[†]All wetted components of the Liqui-Cel® High Purity Extra Flow Membrane Contactor, when used in accordance with recommendations given in our product literature for treatment of processing 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.



Cartridge Specifications		
Characteristics	Test Conditions	Specifications
		X50 and X40
Performance O ₂ Removal	Shellside water flow: 160 gpm, 20°C (68°F) Lumenside N ₂ Flow: 3.5 ft ³ /min, 1.0 atm at 20°C	83.2% minimum
Pressure Drop	Shellside water flow: 160 gpm, 20°C (68°F)	6.0 psi maximum

Curves represent nominal values using water.

Test condition O₂ Removal: N₂-vacuum combo mode,
Vacuum: 50 mm Hg N₂ sweep: 0.25 SCFM. 20°C.

Test condition CO₂ Removal: Air vacuum combo mode,
vacuum: 75 mm Hg, air sweep 1 scfm. 25°C.

Characteristics may change under different operating conditions.

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