

# LOW1 XL

## Extra area, low energy, high rejection - brackish water RO elements



Certified to  
NSF/ANSI/CAN 61

The Oltremare XL series of brackish water RO membranes delivers consistent and continuous high performance for the highest quality water. The XL family comes from the idea and exclusive production capability of our company: combine the low energy and high flow element performances to an active surface never reached by a 4" element before, using the same spacer of standard 4".

### MEMBRANE CHARACTERISTICS

Membrane	RO
Membrane Type	Polyamide
Stabilized Salt Rejection (%)	99,0 <sup>(b)</sup> - 99,3 <sup>(c)</sup>
Minimum Salt Rejection (%)	98,0 <sup>(b)</sup> - 99,0 <sup>(c)</sup>

### DESIGN INFORMATION<sup>(b) (c)</sup>

	Permeate Flow m <sup>3</sup> /day (gpd) <sup>(a)</sup>	Maximum Feed Flow m <sup>3</sup> /h (gpm)	Membrane Area m <sup>2</sup> (ft <sup>2</sup> )	Feed Spacer Thickness (mil)
Oltremare LOW1 - 4014 - XL	3.03 (800)	2.72 (12)	2.3 (25)	28
Oltremare LOW1 - 4021 - XL	5.5 (1450)	2.72 (12)	4.2 (45)	28
Oltremare LOW1 - 4040 - XL	12.5 (3300)	3.6 (16)	9.8 (105)	28

### OPERATING PARAMETERS

Maximum Operating Pressure	20.7 bar (300 psi)
Maximum Operating Temperature	45 °C (113 °F)
Cleaning pH Range <sup>(d)</sup>	1.0 - 12.0
Chlorine Tolerance <sup>(e)</sup>	< 0.1 ppm
Maximum Pressure Drop	0.7 bar (10 psi) per element; 4 bar (60 psi) per housing
Maximum SDI <sub>15</sub>	5.0
Maximum Turbidity	1 NTU

a. Test conditions: 1,500 ppm NaCl, 10.3 bar (150 psi), 25°C (77°F), 15% recovery, pH 6.5 - 7, 30 minutes operation. Flow rates will be no more than 15% below the values shown. Product specifications may change without notice as design revisions occur.

b. Minimum and stabilized salt rejection for modules 4014XL and 4021XL.

c. Minimum and stabilized salt rejection for modules 4040XL.

d. Refer to temperature and pH limits in Membrane Cleaning Guide - Water Application Elements (TSG-C-001).

e. Pretreatment is recommended for the removal of free chlorine and other oxidizing agents to prevent damage to membranes. Oxidizing agents, such as free chlorine, in contact with polyamide membranes may result in shortened operating life or membrane failure. Such oxidation damage is excluded from warranty. Refer to Membrane Operating Guide - Recommendations for Water Purification (TSG-O-012).

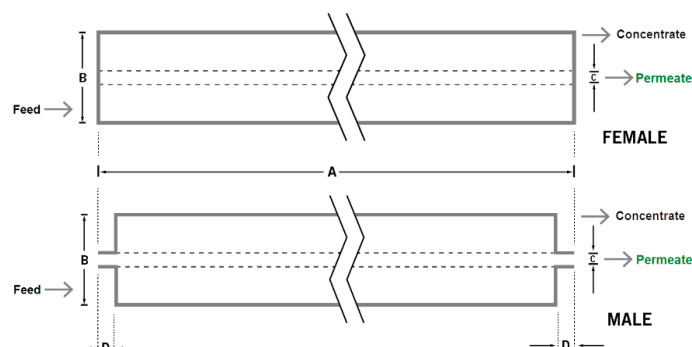
PHYSICAL DIMENSIONS	Element Weight kg (lb) <sup>(f)</sup>	Dim. A mm (inches)	Dim. B mm (inches)	Dim. C <sup>(g)</sup> mm (inches)	Permeate Tube <sup>(h)</sup>
Oltremare LOW1 - 4014 - XL	1.4 (3)	355.6 (14)	100.3 (3,95)	19.1 (0.75)	Male
Oltremare LOW1 - 4021 - XL	1.8 (4)	533.4 (21)	100.3 (3,95)	19.1 (0.75)	Male
Oltremare LOW1 - 4040 - XL	3.6 (8)	1016 (40)	100.3 (3,95)	19.1 (0.75)	Male

f. Shipping weight is dependent on packaging material and quantity shipped.

g. For female elements, "C" is the inner diameter; For male elements, "C" is the outer diameter.

h. Male elements have a protruding permeate tube, indicated as "D" in the diagram.

Dimension "D" is 30.5 mm (1.2 in) for modules 4014-XL and 4021-XL. For 4040-XL module is 26.7 mm (1.05 in).



## IMPORTANT INFORMATION

**Start-up:** We recommend flushing elements for 30 minutes at low pressure and discarding permeate during the flush prior to operation. For further information, please see Element Start-Up Guide - System Start-Up (TSG-O-005).

**Cleaning:** Oltremare membrane elements must be cleaned periodically to ensure proper operation and to prevent membrane damage. Please see Membrane Cleaning Guide - Water Application Elements (TSG-C-001).

**Storage:** Oltremare membrane elements must be stored appropriately to ensure proper operation and to prevent membrane damage. Please see Element Storage Guides (TSG-O-009 & TSG-O-010)

### Customizable specialty elements

MANN+HUMMEL offers a full range of membranes and element designs for challenging water and process applications. Technologies include low-fouling RO, submerged UF, continuous high temperature, ultra-high pressure, unique sanitary designs and more. Contact us to customize a product that satisfies your specific requirements.

## Contact

### Americas

USA: +1 805 964 8003  
customerservicemus@mann-hummel.com

### Asia

APAC: +65 658 68181  
info.wfs@mann-hummel.com  
China: +86 512 88931188  
waterchina@mann-hummel.com

### Europe

Germany: +49 611 7118 7480  
Italy: +39 0721 1796201  
info.wfs@mann-hummel.com

**MANN+  
HUMMEL**