

# LOW1

## Low energy, high rejection brackish water RO elements



Certified to  
NSF/ANSI/CAN 61

The Oltremare LOW1 series of brackish water RO membranes delivers consistent and continuous high performance for the highest quality water. Because of its high-performance rate and chemical resistance, it can be used for a variety of purposes. It is used in producing drinking water, industrial water, pharmaceutical water, wastewater treatment, and concentration of food and/or medicine. Oltremare LOW1 elements are available in standard 2.5", 4", and 8" spiral-wound designs to meet all your new equipment and direct replacement needs.

### 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	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)	NSF Certified
Oltremare LOW1 - 2514	0.7 (185)	1.38 (6)	0.6 (6)	28	-
Oltremare LOW1 - 2521	1.4 (370)	1.38 (6)	1.1 (12)	28	-
Oltremare LOW1 - 2540	3.03 (800)	1.38 (6)	2.6 (28)	28	-
Oltremare LOW1 - 4014	2.3 (525)	2.72 (12)	1.8 (19)	28	YES
Oltremare LOW1 - 4021	4.4 (1150)	2.72 (12)	3.2 (35)	28	YES
Oltremare LOW1 - 4040	9.8 (2600)	3.6 (16)	7.9 (85)	28	YES

### OPERATING PARAMETERS

Maximum Operating Pressure	41 bar (600 psi) for fibreglassed, 20.7 bar (300 psi) for tape wrapped <sup>(d)</sup>
Maximum Operating Temperature	45 °C (113 °F)
Cleaning pH Range <sup>(e)</sup>	1.0 - 12.0
Chlorine Tolerance <sup>(f)</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: 1500 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 from 2514 to 4021.
- c. Minimum and stabilized salt rejection for modules 4040.
- d. Models from 2514 to 4040 can be both fibreglassed and tape wrapped.

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

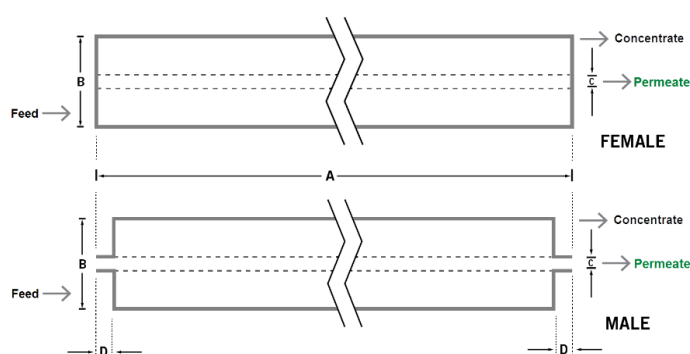
PHYSICAL DIMENSIONS	Element Weight kg (lb) <sup>(g)</sup>	Dim. A mm (inches)	Dim. B mm (inches)	Dim. C <sup>(h)</sup> mm (inches)	Permeate Tube <sup>(i)</sup>
Oltremare LOW1 - 2514	0.45 (1)	355.6 (14)	61 (2,4)	19.1 (0.75)	Male
Oltremare LOW1 - 2521	0.9 (2)	533.4 (21)	61 (2,4)	19.1 (0.75)	Male
Oltremare LOW1 - 2540	1.8 (4)	1016 (40)	61 (2,4)	19.1 (0.75)	Male
Oltremare LOW1 - 4014	1.4 (3)	355.6 (14)	100.3 (3,95)	19.1 (0.75)	Male
Oltremare LOW1 - 4021	1.8 (4)	533.4 (21)	100.3 (3,95)	19.1 (0.75)	Male
Oltremare LOW1 - 4040	3.6 (8)	1016 (40)	100.3 (3,95)	19.1 (0.75)	Male

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

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

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

Dimension "D" is 30.5 mm (1.2 in) for modules from 2514 to 4021. For 4040 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.

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