

# NANO9

## Ultra-low energy, excellent ion selective - nanofiltration element



Certified to  
NSF/ANSI/CAN 61

Oltremare NANO9 nanofiltration elements are high productivity elements designed to remove a high percentage of salts, nitrates, and organic like pesticides. They are ideal when a good rejection of hardness and salt is required.

### MEMBRANE CHARACTERISTICS

Membrane	NF
Membrane Type	Polyamide
Stabilized Salt Rejection (%)	>97 <sup>(a)</sup> - 89 - 95 <sup>(b)</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 NANO9 - 2540	2.6 (680) <sup>(a)</sup> - 3.2 (850) <sup>(b)</sup>	1.38 (6)	2.6 (28)	28	-
Oltremare NANO9 - 4021	3.2 (840) <sup>(a)</sup> - 4.1 (1060) <sup>(b)</sup>	2.72 (12)	3.2 (35)	28	YES
Oltremare NANO9 - 4040	7.6 (2000) <sup>(a)</sup> - 9.5 (2500) <sup>(b)</sup>	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>(c)</sup>
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: 2000 ppm MgSO<sub>4</sub>, 4.8 bar (70 psi), 25°C (77°F), 15% recovery, pH 6.5 - 7, 30 minutes operation. Flow rates may vary +35 or - 20 percent. Product specifications may change without notice as design revisions occur.

b. Test conditions: 500 ppm NaCl, 4.8 bar (70 psi), 25°C (77°F), 15% recovery, pH 6.5 - 7, 30 minutes operation. Flow rates may vary +35 or - 20 percent. Product specifications may change without notice as design revisions occur.

c. Models can be both fibreglassed and tape wrapped.

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)

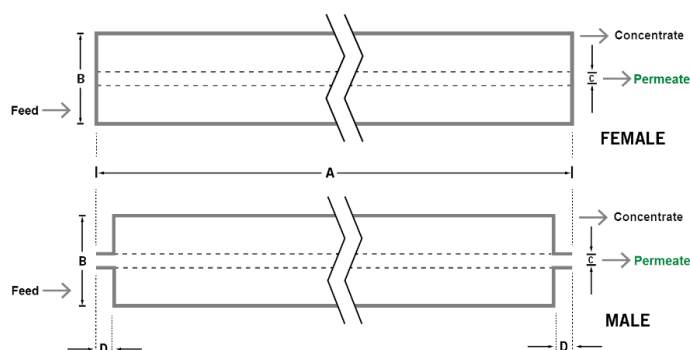
PHYSICAL DIMENSIONS	Element Weight kg (lb) <sup>(f)</sup>	Dim. A mm (inches)	Dim. B mm (inches)	Dim. C <sup>(g)</sup> mm (inches)	Permeate Tube <sup>(h)</sup>
Oltremare NANO9 - 2540	1.8 (4)	1016 (40)	61 (2.4)	19.1 (0.75)	Male
Oltremare NANO9 - 4021	1.8 (4)	533.4 (21)	100.3 (3.95)	19.1 (0.75)	Male
Oltremare NANO9 - 4040	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 2540 and 4021. For 4040 module is 26.7 mm (1.05 in).



### 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.

## 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).

## Contact

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