

2.0 x 12 INCH NANOFILTRATION ELEMENTS

MODEL TR60-2012

Membrane Type	Crosslinked Aromatic Polyamide, Negative Charge
Element Configuration	Spiral Wound, Tape Wrap

Performance Specification

	TR60-2012
	Normal Flux
Salt Rejection avg. ^{1,2}	55%
Product Flow Rate ^{1,2}	390 l/d 103 gpd

Notes:

¹ Test Conditions

Temperature	25	°C
Feed Solution, Concentration	500	ppm NaCl
Feed Pressure	4.5	bar
Brine : Permeate ratio	5 : 1	
Feed pH	6.5 - 7.5	

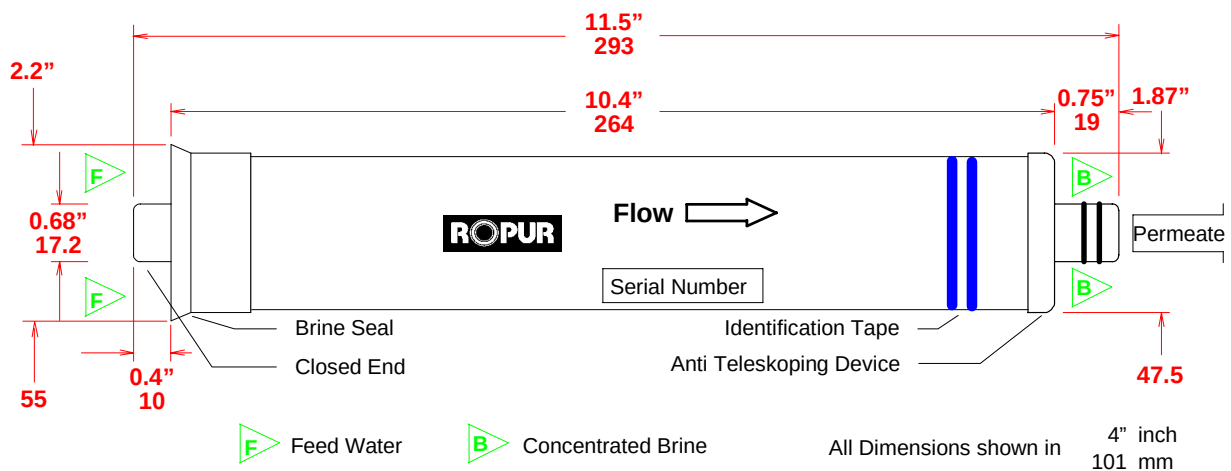
² Average value for 100 elements after 1 hour operation

Product Flow Rate +/- 15%

Salt Rejection minimum 45 %

³ Minimum Performance data are for any single element

Dimensions:



Design Conditions

Recommended ¹

Operating Pressure ^{2,3}	< 15.0 kg/cm² (216 psi)
Operating Temperature ⁴	< 35 °C (95 °F)
Feedwater Turbidity (SDI ₁₅) ^{2,5}	< 5
Feedwater Chlorine Concentration ¹¹	< 1 ppm
pH Range, Continuous Operation ⁶	3 - 11
pH Range, Chemical Cleaning ⁷	2 - 11
Feed Flow Rate per Vessel	< 650 l/h (3 gpm)
Brine Flow Rate per Vessel ⁹	> 250 l/h (1 gpm)
Brine/Permeate Flow Ratio ⁸	5 : 1
Pressure Drop (per Element) ¹⁰	0.5 kg/cm² (7 psi)
Pressure Drop (per Vessel) ¹⁰	1.0 kg/cm² (14 psi)

Notes:

- ¹ The recommended design range means safe operational and design conditions under not so much fouling and scaling. If the TR-series elements are operated outside of the recommended design range, the effective membrane life may be reduced.
- ² High flux operation (operation under high permeate flow rate per single element) on feedwater turbidity greater than 3 or 4 SDI₁₅ generally results in frequent cleaning requirements. Operating pressure should be selected to maintain the flux rate, or permeate flow rate per single element.
- ³ Maximum 20 kg/cm² (288 psi)
- ⁴ Maximum 35 °C (95 °F)
- ⁵ SDI₁₅ = Silt Density Index measured according to ASTM D4189
- ⁶ Both feed and brine water must meet this range.
- ⁷ Cleaning and sterilization must meet the recommendations in the Technical Bulletin.
- ⁸ Flow ratio of brine to permeate for each single element
- ⁹ This figure may be reduced when there is low possibility of fouling and scaling
- ¹⁰ Element(s) must be cleaned when pressure drop increases to 1.5 times of the initial value.
- ¹¹ < 1'000 ppm·h at < 0.1 ppm Cl₂ in absence of heavy metals in the water. Heavy metals may act as catalyst and increase the oxidizing potential of chlorine.