

# 8" Reverse Osmosis Membrane



ECO PRO-400 Brackish Water

High rejection - High flow rate - Low energy



## REVERSE OSMOSIS COMPONENTS

### 8" REVERSE OSMOSIS MEMBRANE

#### ECO PRO-400 BRACKISH WATER

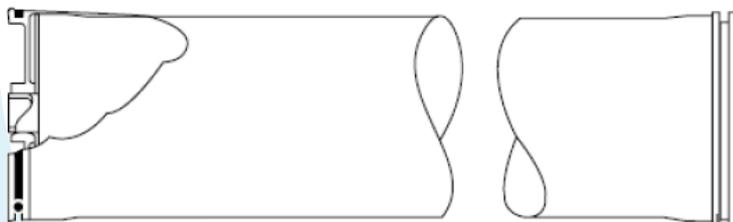
|                    |  |
|--------------------|--|
| Permeate flow rate | 43 m <sup>3</sup> /day (11 500 gpd)      |
| Salt rejection     | 99.7 % (Min. 99.4%)                      |
| Applied pressure   | 10.3 bar (150 psig)                      |
| Active area        | 37 m <sup>2</sup> (400 ft <sup>2</sup> ) |

\* Permeate flow rate and salt (NaCl) rejection based on the following standard test conditions : 2000 ppm NaCl, 10.3 bar (150 psi), 25°C (77°F), pH 8, 15% recovery.

\* Permeate flow rates for individual elements may vary but will be no more than +/-15%.

\* Sales specifications may vary as design revisions take place.

\* Active area guaranteed +/-3%. Active area as stated is not comparable to nominal membrane area often stated by some manufacturers.



## APPLICATIONS

The **ECO PRO** range elements offer exceptional rejection and flow performance for the industrial water needs, enabling lower energy usage and reduced regeneration costs in downstream polishing units.

With a new industry-leading performance of 99.7% rejection at 10.3 bar (150 psi), the **ECO PRO** range elements provide robust performance over a longer element life. At high quality, the elements can deliver 40% lower salt passage at 30% less energy, when compared to standard RO elements – an **ECO**logic and **ECO**nomonic win.

# ECO PRO-400 Reverse osmosis membrane

## SPECIFICATIONS

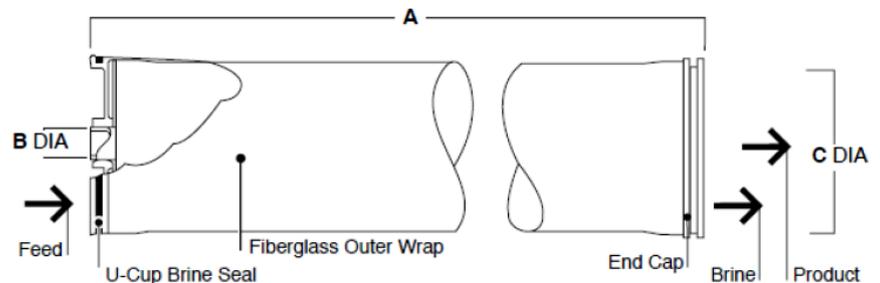
|                                     |  |
|-------------------------------------|--|
| Membrane type                       | Spiral wound polyamide thin-film composite |
| Feed spacer (mil)                   | 34-LDP                                     |
| Maximum operating temperature       | 45°C - 113°F                               |
| Maximum operating pressure          | 41 bar – 600 psig                          |
| Maximum pressure drop               | 1.0 bar – 15 psig                          |
| pH range continuous operation       | 2 to 11 (if pH > 10 temp.max = 35°C/95°F)  |
| pH range short term cleaning 30 min | 1 to 13                                    |
| Maximum feed Silt Density Index     | SDI 5                                      |
| Free chlorine tolerance*            | < 0.1 ppm                                  |

\* Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, it is recommended to remove residual free chlorine by pretreatment prior to membrane exposure.

## DIMENSIONS

|          | mm    | inches   |
|----------|-------|----------|
| <b>A</b> | 1016  | 40.0     |
| <b>B</b> | 29 ID | 1.125 ID |
| <b>C</b> | 201   | 7.9      |

"Coupling" delivered with each element (ref 313198) :



\* Element to fit nominal 8-inch (203 mm) I.D. pressure vessel.

## RECOMMENDATIONS

Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system operating parameters conform to design specifications so that system water quality and productivity goals can be achieved. Before initiating system start-up procedures, membrane pre-treatment, loading of the membrane elements, instrument calibration and other system checks should be completed.

Avoid any abrupt pressure or cross-flow variations on the spiral elements during start-up, shutdown, cleaning or other sequences to prevent possible membrane damage. During start-up, a gradual change from a standstill to operating state is recommended as follows: Feed pressure should be increased gradually over a 30-60 second time frame. Cross-flow velocity at set operating point should be achieved gradually over 15-20 seconds. Permeate obtained from first hour of operation should be discarded.

Keep elements moist at all times after initial wetting. If operating limits and guidelines given are not strictly followed, the limited warranty will be null and void. To prevent biological growth during prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution. The customer is fully responsible for the effects of incompatible chemicals and lubricants on elements. Maximum pressure drop across an entire pressure vessel (housing) is 50 psi (3.4 bar). Avoid static permeate-side back pressure at all times.

The use of this product in and of itself does not necessarily guarantee the removal of cysts and pathogens from water. Effective cyst and pathogen reduction is dependent on the complete system design and on the operation and maintenance of the system.



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