Product specifications

Permeate Flow rate$^1$: 7 500 GPD (28.4 m$^3$/day)
Monovalent Ion Rejection (NaCl)$^1$: 85 ~ 95 %
Divalent Ion Rejection (MgSO$_4$)$^2$: 99.5 %
Effective Membrane Area: 400 pi$^2$ (37.2 m$^2$)

1. The stated performance is based on the following monovalent test conditions and the data collected after 30 minutes of operation:
   2,000 mg/L NaCl solution at 75 psig (0.5 MPa) applied pressure, 15 % recovery, 77 °F (25 °C) and pH 6.5~7.0.
2. Permeate flow rate for individual elements may vary but will be no more than 15 % below the value shown.
3. Minimum MgSO$_4$ rejection 99.0 %.
4. Effective membrane area may vary within 3 %.
5. All elements are vacuum sealed in a polyethylene bag containing 1.0 % SBS (Sodium bisulfite) solution and packaged individually in a cardboard box.

Product description

Membrane type: Thin-Film Composite
Membrane material: PA (Polyamide)
Membrane superficial charge: Negative
Modules configuration: Spiral-Wound, FRP wrapping

Features

H2O Innovation’s 70-400 elements with 90 % monovalent ion rejection and more than 99 % rejection of divalent ions are useful for water softening, removing endocrine disruption chemicals from drinking water and food processing.

Dimensions

A = 40 in (1 016 mm)
B = 8.0 in (203 mm)
C = 1.12 in (28 mm)

1. One interconnector (coupler) is supplied for each membrane element.
2. All H2O Innovation membrane elements fit nominal 8.0-inch (203 mm) I.D. pressure vessel.
3. Outer feature may vary as design revisions take place.
Organic Rejection Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rejection Ratio</th>
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<tbody>
<tr>
<td>DBP in terms of HAAPF</td>
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<tr>
<td>DBP in terms of THMFP</td>
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<td>MIB</td>
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<td>NOM in terms of AOC</td>
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<td>NOM in terms of BDOC</td>
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<td>NOM in terms of DOC</td>
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</tbody>
</table>

DBP (Di-butyl-phthalate), HAAPF (haloacetic acid formation potential), THMFP (THM Formation Potential), THM (Trihalomethane), MIB (methyl isoborneol), NOM (Natural organic matter), BDOC (biodegradable dissolved organic carbon), DOC (Dissolved organic carbon).

Application data

**Operating limits**

- Max. Pressure drop / element: 15 lb/in² (0.1 MPa)
- Max. Pressure drop / 240° vessel (6 membranes): 60 lb/in² (0.42 MPa)
- Max. Operating pressure: 600 lb/in² (4.14 MPa)
- Max. Feed flow rate: 66 gpm (15.0 m³/h)
- Min. Concentrate flow rate: 16 gpm (3.6 m³/h)
- Max. Operating temperature: 113 °F (45 °C)
- Operating pH range: 3.0 ~ 10.0
- CIP pH range: 2.0 ~ 12.0
- Max. Turbidity: 1.0 unit N.T.U.
- Max. SDI (15 min): 5.0
- Max. Chlorine concentration: 0.1 mg/L

**Salts saturation limits**

- CaSO₄: 230 % saturation
- SrSO₄: 800 % saturation
- BaSO₄: 6 000 % saturation
- SiO²: 100 % saturation

Above values are saturation limits at the tail end of the membrane elements for each sparingly soluble salts with proper scale inhibitor.

**CaCO₃-scaling potential limits as LSI or SDSI**

- Without scale inhibitor: < -0.2
- LSI (SDSI) with SHMP: < +0.5
- LSI (SDSI) with special inhibitor¹: < +1.5
- SDSI with any inhibitor: < +0.5

¹. Special inhibitor means one of approved organic inhibitors. It should be approved from real plant for more than three years. We recommend SpectraGuard from PWT.

**Design guidelines for various water sources**

- Wastewater conventional (SDI < 5): 8 ~ 12 gfd*
- Wastewater pre-treated by UF (SDI < 3): 10 ~ 14 gfd
- Seawater, open intake (SDI < 5): 7 ~ 10 gfd
- Seawater, beach well (SDI < 3): 8 ~ 12 gfd
- Surface water (SDI < 5): 12 ~ 16 gfd
- Surface water (SDI < 3): 13 ~ 17 gfd
- Well water (SDI < 3): 13 ~ 17 gfd
- OI/UF Permeate (SDI < 1): 21 ~ 30 gfd

* gallons per membrane square foot per day

**Conditions for Handling**

- Customers must keep the element boxes dry at room temperature to prevent them from freezing and damages from heat. If the polyethylene bag is torn, a new protective solution has to be added to the RO membrane element and the element has to be repackaged air-tight to prevent from biological growth.
- Keep elements moist at all time after initial wetting.
- Permeate obtained from the first hour of operation should be discarded in order to flush the protective solution in the elements.
- H₂O Innovation’s 70-400 elements should be immersed in a protective solution during storage, shipping or system shutdowns to prevent biological growth and freeze damage. The standard storage solution contains one (1) weight percent sodium bisulfite or sodium metabisulfite (food grade). For short term storage of one week, one percent (1%) sodium metabisulfite solution is adequate for inhibiting biological growth.
- The customer is fully responsible for the effects of incompatible chemicals on the elements. Their use will void the element’s limited warranty.