

Industrial RO Series

FACT SHEET

Industrial High Pressure Brackish Water RO Elements

The S-Series proprietary thin-film reverse osmosis membrane is used in the Industrial RO3 elements. It is characterized by high sodium chloride rejection and a smooth, fouling-resistant membrane surface.

The A-Series proprietary thin-film reverse osmosis membrane is used in the Industrial RO5/RO7 elements. It is characterized by high sodium chloride rejection and a high permeability.

Industrial RO Brackish Water Elements are used for concentration of wastewater streams with a high osmotic pressure or a high level of solids. They may also be used to concentrate diluted acids.

These elements feature a 35mil or 50mil spacer in a high pressure compatible element assembly.

Table 1: Element Specification

| | |
|-----------------|--------------------------|
| Membrane | Thin-film membrane (TFM) |
|-----------------|--------------------------|

| Model | Average permeate flow gpd (m ³ /day) (1,2) | Average NaCl rejection (1,2) | Minimum NaCl rejection (1,2) |
|---------------------------|---|------------------------------------|------------------------------------|
| INDUSTRIAL RO3 4040F35 | 1,900 (7.2) | 99.0% | 98.5% |
| INDUSTRIAL RO3 4040F50 | 1,450 (5.5) | 99.0% | 98.5% |
| INDUSTRIAL RO3 8040F35 | 7,800 (29.5) | 99.0% | 98.5% |
| INDUSTRIAL RO3 8040F50 | 6,500 (24.6) | 99.0% | 98.5% |

(1) Average rejection after 24h operation. Individual flow rate may vary ±25%.

(2) Testing conditions: 2,000ppm NaCl solution at 425psi (2,930kPa) operating pressure, 77°F, pH 7.5 and 15% recovery.

| Model | Average permeate flow gpd (m ³ /day) (1,2) | Average NaCl rejection (1,2) | Minimum NaCl rejection (1,2) |
|---------------------------|---|------------------------------------|------------------------------------|
| INDUSTRIAL RO5 4040F35 | 2,200 (8.3) | 99.5% | 99.0% |
| INDUSTRIAL RO5 8040F35 | 9,200 (34.8) | 99.5% | 99.0% |
| INDUSTRIAL RO5 8040F50 | 7,400 (28.0) | 99.5% | 99.0% |
| INDUSTRIAL RO7 4040F35 | 2,200 (8.3) | 92.0% | 90.0% |
| INDUSTRIAL RO7 8040F35 | 10,500 (39.7) | 92.0% | 90.0% |

(1) Average salt rejection after 24h operation. Individual flow rate may vary ±25%.

(2) Testing conditions:

INDUSTRIAL RO5: 2,000 ppm NaCl solution at 225psi (1,550kPa) operating pressure, 77°F, pH 7.5 and 15% recovery.

INDUSTRIAL RO7: 500 ppm NaCl solution at 75psi (520kPa), operating pressure, 77°F, pH 7.5 and 15% recovery.

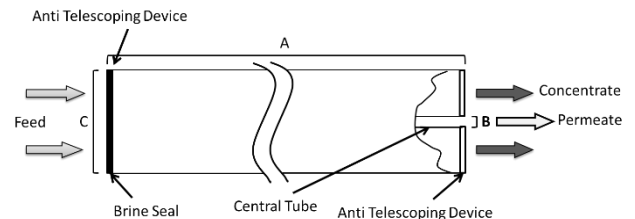


Figure 1 : Element Dimensions Diagram - Female

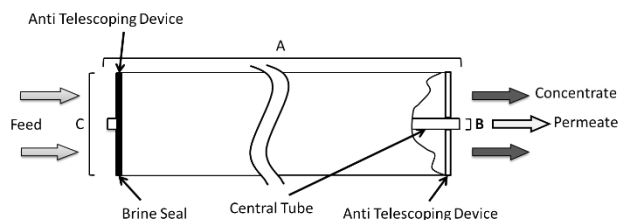


Figure 2: Element Dimensions Diagram - Male

Table 2: Element Properties (3)

| Model | Spacer mil (mm) | Active area ft ² (m ²) | Outer wrap | Part number |
|------------------------|-----------------|---|------------|-------------|
| INDUSTRIAL RO3 4040F35 | 35 (0.89) | 75 (7.0) | Fiberglass | 3050577 |
| INDUSTRIAL RO3 4040F50 | 50 (1.27) | 61 (5.7) | Fiberglass | 3049999 |
| INDUSTRIAL RO3 8040F35 | 35 (0.89) | 330 (30.7) | Fiberglass | 1207451 |
| INDUSTRIAL RO3 8040F50 | 50 (1.27) | 269 (25.0) | Fiberglass | 1207450 |
| INDUSTRIAL RO5 4040F35 | 35 (0.89) | 75 (7.0) | Fiberglass | 3050576 |
| INDUSTRIAL RO5 8040F35 | 35 (0.89) | 330 (30.7) | Fiberglass | 3144696 |
| INDUSTRIAL RO5 8040F50 | 50 (1.27) | 269 (25.0) | Fiberglass | 3097294 |
| INDUSTRIAL RO7 8040F35 | 35 (0.89) | 330 (30.7) | Fiberglass | 3172341 |

Table 3: Dimensions and Weight

| Model | Type | Dimensions, inches (cm) | | | Boxed Weight lbs (kg) |
|-------|--------|-------------------------|--------------|------------|-----------------------|
| | | A | B | C | |
| 4040F | Male | 40.0 (101.6) | 0.75 (1.90) | 3.9 (9.9) | 11 (5) |
| 8040F | Female | 40.0 (101.6) | 1.125 (2.86) | 7.9 (20.1) | 35 (16) |

Table 4: Operating and CIP Parameters (3)

| | |
|----------------------------|--|
| Typical Operating Flux | 5 - 20 GFD (8 – 34 LMH) |
| Maximum Operating Pressure | See Table 5 |
| Maximum Temperature | Continuous operation: 122°F (50°C) Clean-In-Place (CIP): 122°F (50°C) |
| pH Range | Optimum rejection: 7.0 – 7.5 Continuous operation: 2.0 - 11.0 Clean-In-Place (CIP): 1.0 - 13.0 (4) |
| Maximum Pressure Drop | Over an element: 15psi (103kPa) Per housing: 60psi (414kPa) |
| Chlorine Tolerance | 500+ ppm hours, dechlorination recommended |
| Feedwater | NTU < 1 SDI ₁₅ < 5 |

(3) Element properties and parameters are indicative numbers. Specific values by element may vary within normal element manufacturing tolerances.

(4) Please refer to Cleaning Guidelines Technical Bulletin TB1194..

Table 5: Maximum Operating Pressure

| Temperature | Maximum Operating Pressure |
|----------------|----------------------------|
| < 77°F (25°C) | 1,200psi (8,253kPa) |
| < 86°F (30°C) | 1,000psi (6,895kPa) |
| < 95°F (35°C) | 850psi (5,860kPa) |
| < 104°F (40°C) | 750psi (5,171kPa) |
| < 113°F (45°C) | 670psi (4,619Pa) |
| < 122°F (50°C) | 600psi (4,137kPa) |