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Two Case Histories of Industrial Water Reuse Via Membrane Technology

Series - A - Brackish Water - RO Polyamide (PA) Membrane Elements

Product Information

These elements are used for **brackish water Desalination**. The AG4025T elements feature a tape outerwrap and standard feed spacers. The AG4026F, AG4040F, and AG8040F elements feature a fiberglass outerwrap and standard feed spacers. Other materials of construction and special feed spacers are available.

DS-11, a thin-film reverse osmosis membrane, is characterized by high flux and excellent sodium chloride rejection.

Membrane Specifications

Type: Thin-film membrane (TFM[®]).

Applications: Brackish water Desalination, reactive silica removal

Membrane rating: 99.5% average NaCl rejection. Based on 1,000 mg/L NaCl feed at 200 psig net pressure (1,379 kPa) and 77°F (25°C).

pH range: Optimum rejection at pH 6.5-7.5, operating range 4.0-11.0, cleaning range 2.0-11.5.

Element series designation: AG

Notes:

1. NaCl rejection is based on membrane performance after 24 hours without fouling or boundary layer effects.
2. Chlorine tolerance for Desal™ -11 is 1,000 ppm hours, dechlorination recommended.
3. Desal thin-film membranes will operate to 122°F (50°C) with standard element construction and up to 158°F (70°C) with special element construction.

Element Specifications

Model	GPD (m ³ /d)	NaCl Rejection Average/Minimum	Active Area ft ² (m ²)
AG4025T	1,450 (5.48)	99.4%/99.0%	55 (5.11)
AG4026F	1,450 (5.48)	99.4%/99.0%	55 (5.11)
AG4040F	2,350 (8.88)	99.4%/99.0%	90 (8.36)
AG8040F	9,200 (34.78)	99.4%/99.0%	350 (32.52)

Specifications are based on a 2,000 mg/L NaCl solution at 225 psig operating pressure (1,551 kPa), 77°F (25°C), pH 7.5, 15% recovery, after 24 hours. Individual element flux may vary ± 15%.

Operating and Design Parameters

Membrane: Thin-film membrane (TFM).

Typical operating pressure: 200 psig (1,379 kPa).

Maximum pressure: 400 psig (2,758 kPa). High pressure construction available for high solids or low temperature applications.

Maximum temperature: 122°F (50°C).

pH: Optimum rejection at pH 6.5-7.5, operating pH range 4.0-11.0, cleaning pH range 2.0-11.5.

Feed NTU: <1

Feed SDI: <5

Chlorine tolerance: 1,000 ppm-hours, dechlorination recommended.

Permeate flow: Maximum should not exceed specifications:

Recommended per vessel in a system	Elements per pressure vessel					
	1	2	3	4	5	6
delta P - psig (kPa)	10 (69)	20 (138)	30 (207)	38 (262)	45 (310)	50 (345)
% Recovery	15	25	35	45	53	53

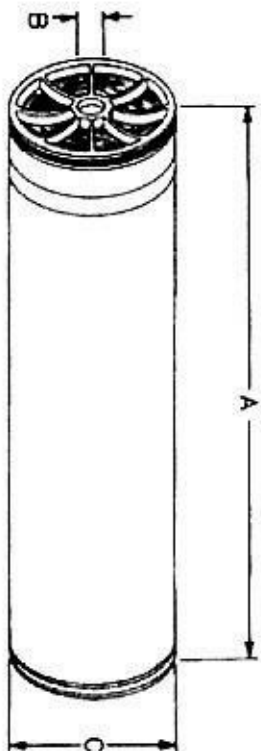
Element Performance

Feed Concentration

Ion	mg/L	% Rejection
Sodium	68.0	99.4
Calcium	80.0	99.8
Magnesium	21.0	99.8
Potassium	4.1	99.4
Bicarbonate	132.0	99.3
Sulfate	163.0	99.8
Chloride	51.0	99.5
Silica	9.3	98.9
TDS	528.0	99.6

Determined at 200 psig net pressure (1,379 kPa), 25% recovery, pH 7.8 on dechlorinated municipal feed water.

Element Weight and Dimensions



Model	Dimensions, inches (cm)			Dry boxed weight lbs. (kg)
	A	B	C	
AG4025T	25.00 (63.50)	0.625 (1.59)	3.88 (9.86)	5 (2.27)
AG4026F	26.25 (66.68)	0.625 (1.59)	3.88 (9.86)	6 (2.72)
AG4040F	40.00 (101.6)	0.625 (1.59)	3.88 (9.86)	12 (5.45)
AG8040F	40.00 (101.6)	1.125 (2.86)	7.88 (20.02)	32 (14.53)

Length includes ATD's for all models except AG4025T. All elements are shipped dry.

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