

# AE HR Series

## High Rejection Low Energy Seawater RO Elements

The AE HR series of proprietary thin film reverse osmosis membrane elements are characterized by an excellent sodium chloride rejection. AE HR series is selected when high quality permeate is demanded from seawater that is relatively high in TDS.

AE HR series new membrane chemistry provides excellent rejection characteristics when operated at seawater operating conditions (pressures exceeding 800psi (5,516kPa)).

**Table 1: Element Specification**

Membrane	Thin-film membrane (TFM*)
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<sup>1</sup> Average salt rejection after 24 hours operation. Individual flow rate may vary +25%/-15%.

<sup>2</sup> Testing conditions: 32,000mg/l NaCl solution at 800psi (5,516kPa) operating pressure, 77°F (25°C), pH7.5 and 10% recovery.

Model	Average permeate flow gpd (m3/day) <sup>1,2</sup>	Average NaCl rejection <sup>1,2</sup>	Minimum NaCl rejection <sup>1,2</sup>
AE-90	2000 (7.6)	99.8%	99.3%
AE-400	9000 (34.1)	99.8%	99.3%
AE-400, 34	9000 (34.1)	99.8%	99.3%
AE-440	9900 (37.5)	99.8%	99.3%
AE-1600	36000 (136.3)	99.8%	99.3%

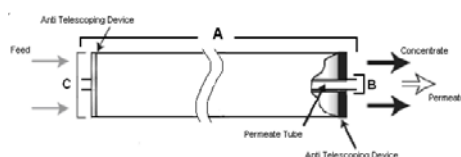
Model	Active area ft² (m²)	Outer wrap	Part number
AE-90	90 (8.4)	Fiberglass	3056660
AE-400	400 (37.2)	Fiberglass	3056661
AE-400, 34	400 (37.2)	Fiberglass	3056662
AE-440	440 (40.9)	Fiberglass	3056663
AE-1600	1600 (148.6)	Fiberglass	3056664

**Table 2: Operating and CIP parameters**

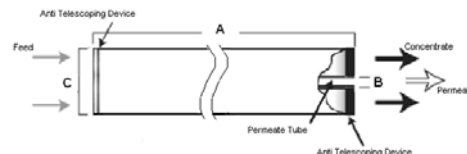
<b>Typical Operating Pressure</b>	800psi (5,516kPa)
<b>Typical Operating Flux</b>	7-11GFD (12-19LMH)
<b>Maximum Operating Pressure</b>	1,200psi (8,274kPa)
<b>Maximum Temperature</b>	Continuous operation: 122°F (50°C) Clean-In-Place (CIP): 122°F (50°C)
<b>pH range</b>	Optimum rejection pH: 7.0-7.5, Continuous operation: 4.0-11.0, Clean-In-Place (CIP): 2.0-11.5
<b>Maximum Pressure Drop</b>	Over an element: 12 psi (83 kPa) Per housing: 50 psi (345 kPa)
<b>Chlorine Tolerance</b>	1,000+ ppm-hours, dechlorination recommended
<b>Feedwater<sup>3</sup></b>	NTU < 1 SDI < 5

<sup>3</sup>SDI is measured on a non-linear scale using a 0.45 micron filter paper. Additionally, finer colloids, particulates and microorganisms that pass through the filter paper and not measured in the SDI test, will potentially foul the RO element. For performance consistency and project warranty, please use Winflows projection software and consult your Filters with Membranes representative.

**Figure 1a: Element Dimensions Diagram – Male**



**Figure 1b: Element Dimensions Diagram – Female**



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**Table 3: Dimensions and Weights**

Model <sup>1</sup>	Type	Dimensions, inches (cm)			Boxed Weight lbs (kg)
		A	B <sup>2</sup>	C	
AE-90	Male	40.0 (101.6)	0.75 (1.90)	3.9 (9.9)	9 (4)
AE-400	Female	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
AE-400, 34	Female	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
AE-440	Female	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
AE-1600	Female	40.0 (101.6)	3.000 (7.620)	16.0 (40.6)	120 (54)