

# AD HR Series

## High Rejection Seawater RO Elements

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

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

**Table 1: Element Specification**

Membrane	Thin-film membrane (TFM*)
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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>
AD-90	1500 (5.7)	99.75%	99.3%
AD-365	6000 (22.7)	99.75%	99.3%
AD-400	6500 (24.6)	99.75%	99.3%
AD-400, 34	6500 (24.6)	99.75%	99.3%
AD-440	7100 (26.9)	99.75%	99.3%
AD-1600	26000 (98.4)	99.75%	99.3%

<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 7% recovery.

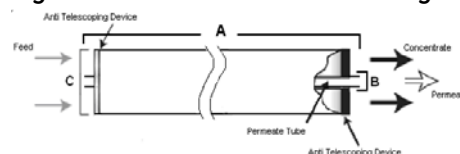
Model	Active area ft² (m²)	Outer wrap	Part number
AD-90	90 (8.4)	Fiberglass	3056651
AD-365	365 (33.9)	Fiberglass	3056652
AD-400	400 (37.2)	Fiberglass	3056653
AD-400, 34	400 (37.2)	Fiberglass	3056654
AD-440	440 (40.9)	Fiberglass	3056655
AD-1600	1600 (148.6)	Fiberglass	3056656

**Table 2: Operating and CIP parameters**

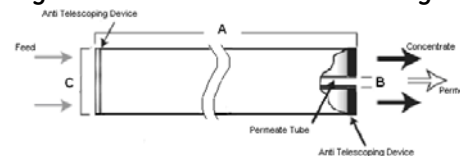
<b>Typical Operating Pressure</b>	800psi (5,516kPa)
<b>Typical Operating Flux</b>	7-11GFD (12-19LMH)
<b>Maximum Operating Pressure</b>	1,200psi (8,274kPa)
<b>Maximum Temperature</b>	Continuous operation: 122°F (50°C) Clean-In-Place (CIP): 122°F (50°C)
<b>pH range</b>	Optimum rejection: 7.0-7.5, Continuous 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	
AD-90	Male	40.0 (101.6)	0.75 (1.90)	3.9 (9.9)	9 (4)
AD-365	Female	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
AD-400	Female	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
AD-400, 34	Female	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
AD-440	Female	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
AD-1600	Female	40.0 (101.6)	3.000 (7.620)	16.0 (40.6)	120 (54)