

# SeaPRO\* series

## Water Technologies & Solutions fact sheet

seawater reverse osmosis desalination systems  
35,000 ppm TDS, 50 or 60 Hz, 20-70 gpm (109-382 m<sup>3</sup>/d)



SeaPRO-28

### system features

- Balance of low capital cost and energy efficiency through use of turbocharger energy recovery technology
- Use of SUEZ High Flow Z depth filters for faster and easier replacement
- High pressure pump optimally placed on membrane skid for reduced footprint
- Allen-Bradley PV+700 Panel 6.5 inch color display with touchscreen controls
- Allen-Bradley MicroLogix 1200 PLC
- 4-20 mA instruments displayed on instrument center
- Variable frequency drive (VFD) for high pressure pump
- Low pressure feed water flush on shutdown
- Skid mounted control enclosure



SeaPRO-8



SeaPRO-16

## operating parameters

<b>Design Feed TDS</b>	35,000 ppm
<b>Maximum Recovery</b>	40-45%
<b>Nominal Rejection</b>	97-99%
<b>Operating Temperature</b>	35 to 85°F (1.6 to 29.4°C)
<b>Minimum Inlet Pressure</b>	30 psig (2 Bar)
<b>Design Temperature</b>	77°F (25°C)

## instrumentation

Flow Meters .....	Permeate, concentrate
Conductivity.....	Permeate
pH .....	Feed
Pressure Gauges .....	Pre-filter, post-filter, high pressure pump outlet (turbocharger inlet), feed inlet to membrane pressure vessels, concentrate outlet from membrane pressure vessels, permeate, concentrate
Pressure Transmitters..	Feed inlet to membrane pressure vessels, concentrate outlet from membrane pressure vessels
Pressure Switches.....	High pressure pump feed, permeate, concentrate
Temperature .....	Permeate
Instrument Center .....	Thornton M800

## materials of construction

<b>Frame</b>	Siloxane coated carbon steel
<b>Cartridge Filter</b>	SUEZ HF.R0.Zs 01-40, 1-micron nominal
<b>Cartridge Filter Housing</b>	HFRP1-40, SUEZ FRP (fiber reinforced plastic) 40 inch single round high flow
<b>Membrane Elements</b>	SUEZ AD-400
<b>Membrane Housing</b>	FRP
<b>Low Pressure Pipe</b>	Schedule 80 PVC
<b>High Pressure Pipe</b>	Duplex 2205
<b>Enclosures</b>	Main Enclosure: NEMA 4X, FRP VFD Enclosure: NEMA 4X, plastic carbonate with stainless steel backplate

## options available

- Safety relief valves (ASME Compliance)
- Multi-media filters
- Clean-in-place (CIP) units
- Chemical feed systems
- Transfer pumps and storage tanks

## documentation included

- Operation and maintenance manual
- Control narrative
- Drawings: piping and instrumentation, electrical, and general dimensional

## SeaPRO models

MODEL	SeaPRO-8	SeaPRO-16	SeaPRO-28 <sup>1</sup>
Permeate rate:	20 gpm (109 m <sup>3</sup> /d)	40 gpm (218 m <sup>3</sup> /d)	70 gpm (382 m <sup>3</sup> /d)
Concentrate Rate:	30 gpm (164 m <sup>3</sup> /d)	49 gpm (268 m <sup>3</sup> /d)	86 gpm (469 m <sup>3</sup> /d)
Feed Rate:	50 gpm (273 m <sup>3</sup> /d)	89 gpm (486 m <sup>3</sup> /d)	156 gpm (851 m <sup>3</sup> /d)
<b>Power Requirements</b>			
Power and Control Circuit	Choice of: Power: 230/460 VAC, 3-phase, 60 Hz with Control Circuit: 120 VAC, 1-phase, 60 Hz Power: 380 VAC, 3-phase, 50 Hz with Control Circuit: 220 VAC, 1-phase, 50 Hz		
<b>Pumps and Motors</b>			
Manufacturer:	FEDCO	FEDCO	FEDCO
Quantity:	1 High Pressure	1 High Pressure	1 High Pressure
60 Hz HP Pump, Type:	MSS 1540, 40 hp TEFC	MSS 2026, 60 hp TEFC	MSS 5532, 125 hp TEFC
50 Hz HP Pump, Type:	MSS 1547, 40 hp TEFC	MSS 2026, 60 hp TEFC	MSS 5532, 125 hp TEFC
<b>Energy Recovery Booster</b>			
Model:	HPB-20	HPB-20	HPB-40
Manufacturer:	FEDCO	FEDCO	FEDCO
Quantity:	1	1	1
Design Feed Flow Rate:	30 gpm (164 m <sup>3</sup> /d)	49 gpm (268 m <sup>3</sup> /d)	86 gpm (469 m <sup>3</sup> /d)
<b>Membrane Elements and Housings</b>			
Membranes Quantity:	8	16	28
Membrane Housing Style:	4 element long, 4 port	4 element long, 4 port	4 element long, 4 port
Banking Arrangement:	2, parallel	4, parallel	7, parallel
<b>Cartridge Filtration</b>			
Manufacturer:	SUEZ	SUEZ	SUEZ
Cartridge Filter:	HF.R0.Zs 01-40-FSE	HF.R0.Zs 01-40-FSE	HF.R0.Zs 01-40-FSE
Filter Length:	40"	40"	40"
Filter Quantity:	1 per change out	2 per change out	4 per change out
<b>Installation and Other Utility Requirements</b>			
Inlet:	1.5" flange	2.0" flange	4.0" flange
Permeate:	1.0" flange	1.5" flange	3.0" flange
Concentrate:	1.5" flange	1.5" flange	3.0" flange
Inlet Water Pressure:	30 psig, minimum	30 psig, minimum	30 psig, minimum
Air Pressure:	100 psig, oil-free	100 psig, oil-free	100 psig, oil-free
Drain to be Sized for:	50 gpm (273 m <sup>3</sup> /d)	89 gpm (486 m <sup>3</sup> /d)	200 gpm (851 m <sup>3</sup> /d)
<b>SeaPRO Skid Estimated Dimensions</b>			
Equipment Skid			
Height:	80" (204 cm)	80" (204 cm)	102" (260 cm)
Width:	57" (145 cm)	57" (145 cm)	60" (153 cm)
Depth:	205" (521 cm)	205" (521 cm)	235" (597 cm)
Weight Estimate (Shipping):	3,300 lbs (1,500 kg)	4,300 lbs (1,953 kg)	6,190 lbs (2,811 kg)
Membranes			
Weight Estimate (Shipping):	280 lbs (128 kg)	560 lbs (255 kg)	980 lbs (445 kg)
Overall			
Height:	80" (204 cm)	80" (204 cm)	102" (260 cm)
Width:	57" (145 cm)	57" (145 cm)	60" (153 cm)
Depth:	205" (521 cm)	205" (521 cm)	235" (597 cm)
Total Operating Weight:	4,235 lbs (1,923 kg)	4,860 lbs (2,207 kg)	8,730 lbs (3,964 kg)

<sup>1</sup> SeaPRO-28 is designed to be able to operate at up to 90 gpm of permeate (110 gpm concentrate, 200 gpm feed) with proper pretreatment.