

# SeaPRO Series 60 Hz

## Seawater Desalination Machines

45,000 ppm NaCl, 100-300 gpm (22.7-68.1 m<sup>3</sup>/hr)



### Basic Features (BAS)

- GE Fanuc Quick Panel 6-inch color display. Primarily text operating screens, Touchscreen controls.
- GE Fanuc Micro VersaMax processor
- 4-20 mA instruments displayed on instrument center
- Variable frequency drive (VFD) for high pressure pump
- Motor starter for boost pump
- Stand alone master control enclosure, skid mounted local control enclosure with terminal strips
- Membrane/energy recovery device (ERD)/boost pump and pump/prefilter located on separate skids

### Premium Features (PRE)

- GE Fanuc QuickPanel 12-inch color display. Text and pictorial operating screens. Touchscreen controls.
- GE Fanuc VersaMax processor
- 4-20 mA instruments on touchscreen
- Primary and final pressure transmitters
- Variable frequency drive (VFD) for high pressure pump
- Motor starter for boost pump
- Automated valves and control for feed flush upon shut down
- Stand alone master control enclosure, local control enclosure with remote I/O
- Membrane/energy recovery device (ERD)/boost pump and pump/prefilter located on separate skids

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## Operating Parameters

Design Feed TDS	45,000 ppm NaCl
Maximum Recovery	35%
Nominal Rejection	95-98%
Operating Temperature	35 to 85°F (1.6 to 29.4°C)
Minimum Inlet Pressure	30 psig (2 Bar)
Design Temperature	77°F (25°C)

## Instrumentation

Flow Meters.....Permeate, concentrate, low pressure (LP) ERD inlet, high pressure (HP) ERD outlet

Conductivity.....Permeate

pH .....Feed

Pressure.....Pre-filter, post-filter, primary, final, permeate, concentrate, LP ERD inlet, LP ERD outlet, HP ERD inlet, HP ERD outlet (PRE Feature = Primary, Final transmitter)

Pressure Switches.....Feed, permeate, concentrate, primary

Instrument Center .....Thornton 770 MAX

## Materials of Construction

Frame	Painted Carbon Steel
Cartridge Filter	RO.Zs 05-40, 5-micron nominal
Cartridge Filter Housing	GRP (glass reinforced plastic)
Membrane Elements	GE SW-RO-400-HR-WT
Membrane Housing	FRP
Low Pressure Pipe	Schedule 80 PVC
High Pressure Pipe	Duplex 2205
Enclosures	NEMA 4

## Options Available

- Allen Bradley control system
- 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-42	SeaPRO-63	SeaPRO-84	SeaPRO-126
Permeate rate:	144k gpd 100 gpm (22.7 m <sup>3</sup> /hr)	216k gpd 150 gpm (34.1 m <sup>3</sup> /hr)	288k gpd 200 gpm (45.4 m <sup>3</sup> /hr)	432k gpd 300 gpm (68.1 m <sup>3</sup> /hr)
Concentrate Rate:	186 gpm (42.2 m <sup>3</sup> /hr)	279 gpm (63.4 m <sup>3</sup> /hr)	371 gpm (84.3 m <sup>3</sup> /hr)	557 gpm (126.5 m <sup>3</sup> /hr)
Feed Rate:	286 gpm (65.0 m <sup>3</sup> /hr)	429 gpm (97.4 m <sup>3</sup> /hr)	571 gpm (129.7 m <sup>3</sup> /hr)	857 gpm (194.6 m <sup>3</sup> /hr)
<b>Pumps and Motors</b>				
Manufacturer:	Fedco	Fedco	Fedco	Fedco
Quantity:	1	1	1	1
HP Pump HP and Type:	100 Hp (75 kW) TEFC	150 Hp (110 kW) TEFC	200 Hp (150 kW) TEFC	250 Hp (186 kW) TEFC
Boost Pump HP and Type:	10 Hp (7.5 kW) TEFC	20 Hp (15 kW) TEFC	20 Hp (14.9 kW) TEFC	40 Hp (29.8 kW) TEFC
<b>Energy Recovery Booster</b>				
Model:	PX-220	PX-180	PX-220	PX-220
Manufacturer:	ERI	ERI	ERI	ERI
Quantity:	1	2	2	3
Design Flow Rate:	180 gpm (40.9 m <sup>3</sup> /hr)	135 gpm (30.7 m <sup>3</sup> /hr)	180 gpm (40.9 m <sup>3</sup> /hr)	180 gpm (40.9 m <sup>3</sup> /hr)
<b>Membrane Elements and Housings</b>				
Membranes Quantity:	42	63	84	126
Memb. Housing Style:	7 element long, 4 port	7 element long, 4 port	7 element long, 4 port	7 element long, 4 port
Banking Arrangement:	6, parallel	9, parallel	12, parallel	18, parallel

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<b>Cartridge Filtration</b>				
Cartridge Filter:	RO.Zs05-40XK	RO.Zs05-40XK	RO.Zs05-40XK	RO.Zs05-40XK
Filter Length:	40" (102 cm)	40" (102 cm)	40" (102 cm)	40" (106 cm)
Filter Quantity:	22 per change out	54 per change out	54 per change out	108 per change out
<b>Installation and Utility Requirements</b>				
Inlet:	4.0" flange	6.0" flange	6.0" flange	8.0" flange
Permeate:	3.0" flange	3.0" flange	3.0" flange	4.0" flange
Concentrate:	3.0" flange	4.0" flange	6.0" flange	6.0" flange
Inlet Water Pressure:	30 psig, minimum	30 psig, minimum	30 psig, minimum	30 psig, minimum
Air Pressure:	100 psig, oil-free	100 psig, oil-free	100 psig, oil-free	100 psig, oil-free
Drain to be Sized for:	286 gpm (64.9 m3/hr)	455 gpm (103.3 m3/hr)	606 gpm (137.6 m3/hr)	909 gpm (206.4 m3/hr)
Power:	230/460 VAC, 3-phase, 60Hz	230/460 VAC, 3-phase, 60Hz	230/460 VAC, 3-phase, 60Hz	230/460 VAC, 3-phase, 60Hz
Control Circuit:	120 VAC, 1-phase, 60Hz	120 VAC, 1-phase, 60Hz	120 VAC, 1-phase, 60Hz	120 VAC, 1-phase, 60Hz
<b>SeaPRO Skid</b>				
Membrane/ERD Skid				
Height:	87" (221 cm)	87" (221 cm)	87" (221 cm)	87" (221 cm)
Width:	77" (196 cm)	77" (196 cm)	77" (196 cm)	90" (229 cm)
Depth:	324" (823 cm)	324" (823 cm)	324" (823 cm)	324" (823 cm)
Weight Estimate for Shipping Purposes:	8,215 lb (3,725 kg)	10,055lb (4,560 kg)	12,260 lb (5,560 kg)	15,410 lb (6,990 kg)
Pump/Prefilter Skid				
Height:	101" (257cm)	101" (257cm)	101" (257cm)	101" (257cm)
Width:	77" (196 cm)	77" (196 cm)	77" (196 cm)	77" (196 cm)
Depth:	210" (533 cm)	210" (533 cm)	210" (533 cm)	210" (533 cm)
Weight Estimate for Shipping Purposes:	4,895 lb (2,220 kg)	5,885 lb (2,670 kg)	6,270 lb (2,845 kg)	7,095 lb (3,220 kg)
Membranes:	1,680 lb (760 kg)	2,520 lb (1,140 kg)	3,360 lb (1,525 kg)	5,040 lb (2,285 kg)

