

Sea Water RO Systems

SWRO-80M Series

SWRO-80M series are available with capacities ranging from 3.8m³/hr to 6.65m³/hr. Designed to convert seawater to drinking water without energy recovery devices, these systems use our proven technology to give reliable performance and meet the demanding requirements of the marine environment. By using high quality reverse osmosis seawater membranes in the water purification process, the product water is used in a variety of areas including hotels, resorts, navy, offshore platforms and industrial applications etc.

Features:

- Auto start-up flush
- HP pump with VFD
- Slow Start-up pressure build up
- Auto Shut-down flush water high flow flush
- Auto Shut-down pressure release
- RO low pressure/high pressure protection
- pumps and valves switching smoothly
- SS304 Skid with marine grade coating
- SS304 control panel with marine grade coating
- Auto and manual 2 modes operation
- With pulsation dampener
- Diaphragm isolation seals for pressure switches
- Diaphragm isolation seals for high pressure gauges
- SS2205 & Flurorin Plastic Feed/Flush pump
- Permeate and concentrate water low flow protection



Benefits

- | | |
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| <ul style="list-style-type: none"> • Fully Equipped and Customisable to your specifications • Individually Tested and preserved • Expandable and Skid Mounted • Low Operation and Maintenance Costs | <ul style="list-style-type: none"> • Components Easily Accessible • Easy Maintenance and Servicing • Pre-Plumbed Wired and Assembled • SS2205 valves, HP pipe Fittings • Manufacturing in ISO9001 facility |
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Pleated filter

- Housing --- ET80-150S-20
- Quantity --- 2 pcs
- Sediment filter --- 8" x 20"; 5&1 micron

Membrane Elements and Housings

- Membrane model --- SW30HRLE-400
- Membrane manufacturer --- Filmtec
- Housing Spec. --- FRP, 1000psi, Side port

High Pressure Pump

- Pump head inner wet contact ---SS2507
- Pump head (case)—SS2205
- Pump Brand --- Danfoss

Connection Port

- Feed sea water Inlet Port
- Fresh water inlet port (for shut-down flush)
- Permeate Port
- Drain Port
- Air release port

Instrumentation

- Digital Flow meters --- Permeate, concentrate
- Conductivity --- Permeate
- Pressure gauge--- Pre-filter, post - filter, pump discharge, concentrate
- Pressure switch --- Feed, RO membrane inlet
- Pressure transmitter—Pre-filter, post-fiter, Hp pump discharge, concentrate

Control system

- PLC Control with HMI
- ABB VFD
- HP pump soft start
- Tank level control
- Low pressure/High pressure protection
- Auto feed water and flesh water flush
- Level switch and manual control
- Feed water pump control

Motorized valve

- Feed Water Valve --- UPVC; 10bar
- Fresh Water Inlet Valve(for flush)---UPVC; 10bar
- Fresh Flush outlet Valve(for flush)---SS2205; 128bar
- Actuator motor-220VAC or 24VDC

Material of Construction

- High - pressure pipeline --- SS2205 Sch40 and flexible hose
- Low - pressure piping --- UPVC
- Frame --- SS304 marine grade coating
- Control box --- IP54 (SS304 marine grade coating)

Documentation Included

- Operation and maintenance manual
- Drawings: P&ID, Electrical diagram

Options or Upgrades

- Feed water pump with VFD drive
- Feed Water Conductivity Meter
- Communication: Modbus RTU or others
- Ethernet on-line monitor and control
- Anti-scalant & other Dosing Systems
- 2507 pipework option
- pH Meter
- Clean-in-Place (CIP) ports
- Pretreatment system
- OPR meter
- Containerised
- 316 Frame

Working Conditions

Maximum Feed Temperature °C (°F)	35 (95)	pH (Continuous)	4 ~ 9
Minimum Feed Temperature °C (°F)	5 (41)	Minimum pH (Continuous)	4
Maximum Feed Pressure bar (psi)	5 (72)	Free Chlorine	undetectable
Minimum Feed Pressure bar (psi)	2 (29)	Iron (ppm)	<0.1
Maximum TDS (ppm)	40000	Manganese (ppm)	<0.05
SDI	<5	Organic matter (ppm)	<1

MODEL	SWRO-80M-24K-E	SWRO-80M-24K	SWRO-80M-30K-E	SWRO-80M-30K	SWRO-80M-42K
Feed Water TDS ¹	35000ppm	35000ppm	35000ppm	35000ppm	35000ppm
Nominal Permeate rate ²	3m ³ /hr	4m ³ /hr	5m ³ /hr	5m ³ /hr	6m ³ /hr
	(up to 4 m ³ /hr)				(up to 7 m ³ /hr)
Nominal Permeate rate (GPD)	24000	24000	30000	30000	42000
Nominal Permeate rate (M3/day)	96	96	120	120	168
Approximate Concentrate rate	6.0 m ³ /hr	5.5 m ³ /hr	7.8 m ³ /hr	5.0 m ³ /hr	10.5 m ³ /hr
Approx. Feed rate	10.0 m ³ /hr	10.0 m ³ /hr	13.0m ³ /hr	10.0 m ³ /hr	18.0 m ³ /hr
Recovery Rate	40-43%	40-45%	40-45%	50%	40-45%
Pump and Motor					
Manufacturer	Danfoss				
Model	APP10.2 (50hz)	APP10.2 (50hz)	APP13 (50hz)	APP10.2 (50hz)	APP19 (50hz)
Motor HP	30kw	30kw	37kw	30kw	45kw
Max. flow rate	10.5m ³ /hr	10.5m ³ /hr	13.8m ³ /hr	10.5m ³ /hr	18.8m ³ /hr
Pump head (case)	SS2205				
Pump head internal wet contact	SS2507				
Max. Pump pressure	66.7bar				
Membranes Elements and Housings 80120-80240					
Membranes quantity	6	8		10	12
Membrane housing	8"; 3-element long	8"; 4-element long		8"; 5-element long	8"; 6-element long
Mem. housing quantity	2	2	2	2	2
Membrane housing	1→1	1→1	1→1	1→1	2 in parallel
Pre-Filter (High Flow Cartridge Filter)					
Filter housing	MT-ET80-150S-20				
PP Cartridge Length	20"				
Pre-filter Housing Qty. (1st stage for 20mic.)	1				
Pre-filter Housing Qty. (2nd stage for 5mic.)	1				
Capacity	15-25m ³ /hr				
Valves					
Motorized Feed valve	2" UPVC; Butterfly				2.5" UPVC; Butterfly
Motorized Flush water inlet valve (for flush)	2" UPVC; Butterfly				2.5" UPVC; Butterfly
Motorized Flush outlet valve	1.5" SS2205; Ball valve				2" SS2205; Ball valve
Concentrate valve	1.5" SS2205; Needle valve				1.5" SS2205; Needle Valve
Air release valve	1/2" SS2205; Ball valve 3/4				1/2" SS2205; Ball valve

Installation					
Feed /flush Inlet	2" Flange			2.5" Flange	
Permeate	1.5" Flange or Thread			1.5" Flange or Thread	
Drain	1.5" Flange or Thread			2" Flange	
Package Size					
Approx. Height	1600mm	1600mm	1600mm	1600mm	1800mm
Approx. Width	3800mm	5000mm	5900mm	5900mm	6900mm
Approx. Depth	900mm	900mm	900mm	900mm	1100mm
Approx. Shipping Weight	700kg	900kg	1200kg	1200kg	1600kg
Options					
Feed Water Pump	10m³/hr@4bar	10m³/hr@4bar	12.5m³/hr@4bar	10m³/hr@4bar	17.5m³/hr@4bar
Antiscalant Feed System	Metering pump: 1.0L/hr; Chemical tank: 100-200L				
CIP system	CIP tank: 500L	CIP tank: 1000L			
	CIPpump: 10m³/h@3- 4bar				CIPpump: 20m³/h@3- 4bar
	CIP filter: BF1-2				
Pretreatment:	As per request				

¹Treatment ability and working pressure of the RO system are dependent on feed water quality.

² Nominal permeate rate listed at temperature 25°C, Permeate rate can be reduced by up to 20% as temperature drops.

Specifications subject to change without notice

AVRO Seawater RO Systems are available in a variety of voltages. Please select the desired voltage code as below. The three-digit code will be added to the end of the Seawater RO System Model number.

Example: SWRO-2000-116 = 110v/1ph/60Hz. Voltage Codes (available for all models):

-116 = 110V/1Ph/60Hz

-216 = 220-240V/1Ph/60Hz

-215 = 220-240V/1Ph/50Hz

-235 = 220-240V/3Ph/50Hz

-236 = 220V-240V/3Ph/60Hz

-335 = 380V-420V/3Ph/50Hz

Remark: All weights and dimensions are approximate. Other custom designs are available upon request

