

Reverse osmosis 2000 gpd

Technical specifications : Commercial and industrial reverse osmosis systems

Operating profile

The system uses reverse osmosis technology to reduce total dissolved solids (TDS) level in water by a minimum of 95%, depending on raw water quality. System contains its own pressurization system to optimize the production of water through the membranes. System operating pressure should be between 90 and 130 psi (6,2 and 9,0 bar). System functionalities include monitoring and regulating devices to adjust the system's operating pressure. The system contains an electric inlet valve that closes when a tank full or a problem signal is received. A low pressure switch serves to protect pump from cavitation damage during low pressure occurrences. On/Off cycling is based on a normally open dry contact (ex.: level float switch), a pressure switch or an external contact. The unit is equipped with audible and visual alarms as well as a fused disconnect switch.

Pump design

Units use a multi-stage vertical stainless steel submersible pump. Pump motor is 1 HP (60Hz) or 1½ HP (50Hz) and NEMA rated.

Membranes and housings

System uses a TFC low energy membrane. Each membrane size shall be 102 x 1 016mm (4.0" x 40") with an area of 8,1 m². Each membrane and housing shall be rated for a working pressure to 225 psi (15,5 bar). Housings shall be mounted in a vertical configuration.

Plumbing configuration

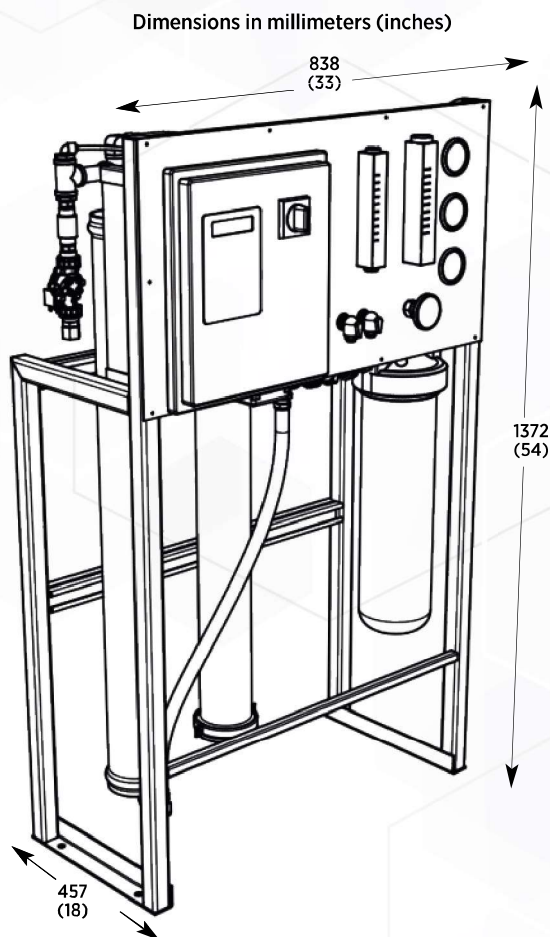
System incorporates a reject recovery design and provides for an adjustable internally recirculated flow rate. Reject flow is controlled by a pressure regulating valve. During a shut down mode, the feed side of the membrane shall be flushed with at least 5 housing volumes of permeate water. PureRince cycle shall be automatic with each shutdown.

Skid

The system is assembled on a corrosion resistant stainless steel frame. The unit will not weight more than 98 kg during operation.

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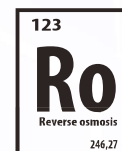
Daily production chart
(liters/day)

TDS (NaCl) inlet water (mg/l)			
°C/°F	500	1 000	2 000
25/77	(gpd) 2 000	2 000	1 814
	(lpd) 7 570	7 570	6 866
15/59	(gpd) 1 857	1 656	1 281
	(lpd) 7 029	6 268	4 849
5/41	(gpd) 1 238	1 109	864
	(lpd) 5 819	4 198	3 270

* Inlet water parameters used for calculations : raw water at 25°C. SDI < 3, no counterpressure.



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Components

Inlet valve	1" FNPT
Inlet filter	5 microns, 114 x 508 mm (4,5 x 20")
Pressurization pump	Submersible booster pump Stainless steel 316
Motor	1HP NEMA
Low pressure protection	Pressure switch
Membrane housing	Stainless steel
Membrane type	TFC - Low energy
Membrane dimensions	102 x 1 016 mm (4" x 40")
Number of membranes	1
Membrane surface m ² (pi ²)	8,1 (87)
Recirculation control	Manual flow control
Drain control	Regulation valve (flow/pressure)
Reject flow meter	0-37,9 lpm (0-10 gpm)
Permeate flow meter	0-18,9 lpm (0-5 gpm)
System shutoff control	Float/contact device
Inlet water quality monitor	0-1 000 µS
Permeate water quality monitor	0-250 µS
Display screen	Printed circuit board, 2 line screen

Connections

Electric power supply	208-240VAC/1ph/60Hz, 12-10,4 Amp. 208-575VAC/3ph/60Hz Other power supply configurations available on demand
Inlet	1" FNPT
Permeate	1/2" MNPT
Reject	3/4" MNPT
PureRince process	1/2" FNPT

Feed water

Inlet pressure	25-50 psi (1,7 - 3,4 bar)
Operating pressure	90-130 psi (6,2 - 9,0 bar)
Temperature	4 - 30 °C
pH	2 - 11 SU
Chlorine	0,05 mg/l
Iron (Max.)	<0,3 mg/l
Silica (Max.)	10,0 mg/l
Total dissolved solids (Max.)	3 000 mg/l

Operating specs

Permeate flow rate *	5,3 lpm (1,39 gpm)
Reject flow rate @ 50 %	5,3 lpm (1,39 gpm)
Daily production	7 570 l (2 000 gal)
Reject rate	97-99 %
Recovery ratio	50-65 %
Rinse time	5 minutes
Rinse volume (Min.)	37,9 l (10 gal)
Width x Depth x Height	838 x 457 x 1 372 mm (33 x 18 x 54")
Shipping / operating weight	113/145 kg (250/320 lbs)

Options

Raw water conductivity probe
Reject water conductivity probe
BACnet or Modbus communication protocols available
Direct feed
Programmable logic controllers (PLC)
Stainless steel piping (316)
Alternate or auxiliary pump