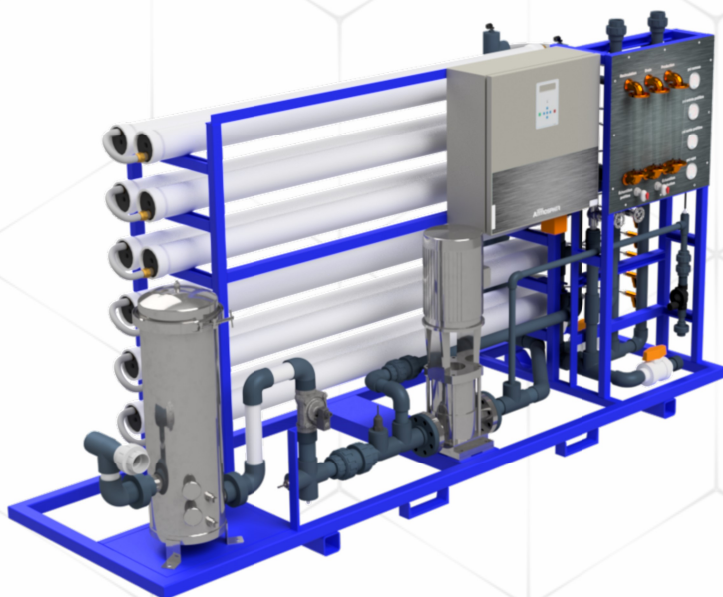


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Nanofiltration 37 005 gpd

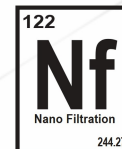


Production flow chart

STD (MgSO₄) at inlet (mg/l)

°C/°F	2 000
25/77	(gpm) 25,7
	(lpm) 97,3
15/59	(gpm) 26,7
	(lpm) 101,1
5/41	(gpm) 21,2
	(lpm) 80,1

* Water parameters : Raw water at 25°C. SDI < 3, no backpressure



Components

Inlet valve	Solenoid valve 2"
Prefilter	Cartridge filter 1 micron
Pump	Multistage stainless steel 304
Motor	5HP 240VAC/1ph/60Hz
	208-575VAC/3Ph/60Hz
	3HP 460VAC/3ph/50Hz
Low pressure protection	Pressure switch
Housing type	FRP
Membrane type	TFC – Nanofiltration
Membranes dimensions	102 x 1 016 mm (4 x 40")
Membranes quantity	24
Membranes surface m ² (pi ²)	182,4 (1968)
Matrix configuration	6/4 Concentrate recuperation
Internal recirculation loop	1,5" PVC
Recirculation control	3/4" PVC Globe Valve
Drain control	3/4" PVC Globe Valve
Recirculation flow meter	0-151,4 lpm (0-40 gpm)
Concentrate flow meter	0-151,4 lpm (0-40 gpm)
Permeate flow meter	0-151,4 lpm (0-40 gpm)
System shutdown	Float/contact
Inlet quality control	0-1 000 µS
Permeate quality control	0-250 µS
Controller / Display	Printed circuit board, 2 lines display

Connections

Power supply	240VAC/1ph/60Hz
	208-575/3ph/60Hz
	380VAC/1ph/50Hz
	Other power supply options available on demand
Inlet	2" PVC Union
Permeate	1,5" PVC Union
Concentrate	1,5" PVC Union
Backwash PureRince	3/4" PVC Union
Inlet CIP	2" PVC Union
Return CIP	1,5" PVC Union (2 connections)

Water supply

Inlet pressure	30-50 psi (2,1 - 3,4 bar)
Temperature	4 - 30°C
pH	2 - 11 SU
Chlorine (Max.)	0,05 mg/l
Hardness (Max.)	103 mg/l (6 gpg)
Iron (Max.)	0,3 mg/l
Silica (Max.)	10,0 mg/l
Dissolved total solids (Max.)	3 000 mg/l

Characteristics

Inlet flow @ 65 %	149,7 lpm (39,5 gpm)
Permeate flow*	97,3 lpm (25,7 gpm)
Concentrate flow @ 65%	52,4 lpm (13,8 gpm)
Daily production	140 075 l (37 005 gal)
Operating pressure	60-90 psi (4,1 – 6,2 bar)
Pressure max. – shutdown	150 psi (10,3 bar)
Pressure min. – shutdown	15 psi (1,0 bar)
Recovering ratio	65 % - 75 %
Backwash time PureRince	10 minutes
Backwash volume PureRince	302,8 l (80 gal)
Width x Depth x Height	2 946 x 914 x 1 626 mm (116" x 36" x 64")
Weight	769 kg (1 695 lbs)

Options

Conductivity probe, raw water
Conductivity probe, concentrate water
BACnet or Modbus protocols available
Direct feed
Programmable controller (PLC)
Stainless steel 316 piping
Alternating or auxiliary pump
Updates for brackish waters



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TECHNOLOGIES

Nanofiltration 37 005 gpd

Datasheet : Commercial and industrial nanofiltration systems

General description

The system uses nanofiltration technology to remove micro-pollutants, improve color, and reduce dissolved solids by at least 95%, depending on the raw water composition. The system includes its own pressurization system to optimize water production through the membrane. The system's operating pressure ranges from 60 to 90 psi (4,1 to 6,2 bar). System features include monitoring and control devices for adjusting system pressure. The system includes an automatic inlet valve that closes when the system shuts down. A low-pressure switch protects the pump from cavitation damage caused by a drop in pressure or flow rate. The ON/OFF cycle is based on the activation of a normally open dry contact switch (i.e., a level control float), which closes when the system needs to shut down.

Pump design

The unit uses a multistage centrifugal pump. The wet end of the pump is made of 304 grade stainless steel (also available in 316). The NEMA-rated pump motor is a fully enclosed, fan-cooled design and operates on three-phase power (single-phase is also available). The pump uses multiple impeller stages to increase water pressure to between 100 and 150 psi (6.9 and 10.3 bar).

Housings and membranes

The system uses nanofiltration TFC membranes measuring 102 x 1016 mm (4.0" x 40"). A total of 24 membranes are used to produce up to 37 005 gallons of water per day based on an operating temperature of 25°C. The membrane device is designed for low-energy operation at pressures below 150 psi (10.3 bar). The fiberglass membrane housings are rated for operation at pressures up to 250 psi (17.2 bar). Twelve housings are included in the system, and each housing contains two 102 x 1016 mm (4.0" x 40") membranes. The system includes a reject recovery device; the reject valve of the first membrane module discharges into the feed line of the second module, and so on.

Plumbing configuration

The system is calibrated for a maximum operating pressure of 175 psi (12.1 bar). The primary plumbing components are 80 PVC. The system includes internal adjustment of the recirculated flow rate. The discharge flow rate is controlled by a pressure regulating valve. Discharge recirculation data is displayed on the operator interface panel, accessible at the front of the system. The supply and pump pressures are also displayed. The recirculation valves are installed for easy access, and permeate sampling ports are located on each membrane housing.

Controls system

All system controls are automated and controlled by an integrated circuit. The system continuously displays the produced water quality data in microsiemens (μ S). The controller triggers system alarms, including low or high pressure, as well as poor raw and treated water quality. During the shutdown phase, the membrane feed side is drained using water treated by the system. All electronic components are housed in a NEMA 4X non-metallic, enclosed package. System controls include a main disconnect switch for interrupting the main power supply.

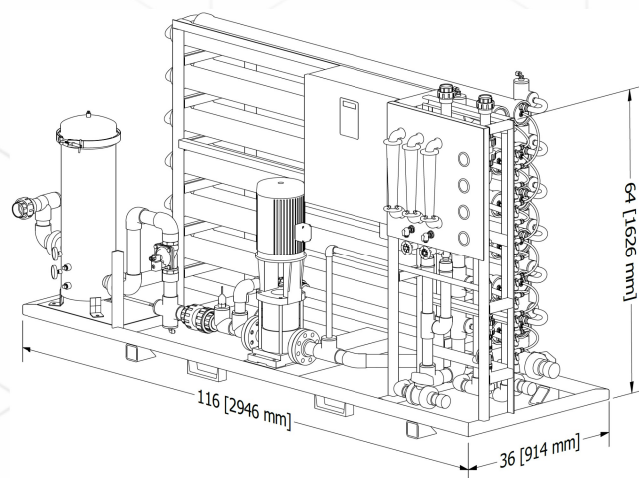
Frame

The system dimensions do not exceed 2946 x 914 x 1626 mm (116 x 36 x 64"). The system is assembled on a steel frame coated with epoxy paint. Also available in stainless steel upon request.

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