

X3-Series Industrial Sea Water Reverse Osmosis Systems

AXEON X3 - Series Industrial Seawater Reverse Osmosis Systems are engineered for seawater desalination and other high total dissolved solids (TDS) applications requiring high pressure pumps. The X3 - Series systems are rated to handle total dissolved solids as high as 38,000 ppm (with higher levels of TDS achievable by adjusting the recovery and /or flux rate).

The X3 - Series models range in capacity from 8,000 to 96,000 gallons per day and utilize a clean modular design that allows for convenient installation, user-friendly operation, and future expandability. The larger models in the series are designed with the pump vertically-mounted on a separate side-by-side skid for ultimate flexibility, efficient use of space, and ease of maintenance.



X3-5280 Pictured

Featuring robust components selected for enhanced performance, the X3 - Series includes a duplex steel plunger - type pump, high pressure hose, stainless steel valving, and FRP pressure vessels with duplex steel side ports. The larger models also include VFD motor control of the pump and a motorized feed valve.

Standard Features

- S-150 Pre-programmed Computer Controller w/soft start*
- S-200 Pre-programmed Computer Controller w/VFD**
- 8-inch Low Energy Seawater Elements
- Fiberglass Membrane Housings w/Duplex Steel Side Ports
- AXEON® 5 Micron Sediment Pre-Filter
- Multi-Cartridge PVDF/Polypro Cartridge Housing
- Permeate and Concentrate Rotometers*
- Permeate and Concentrate Digital Paddle Wheels**
- Pre- and Post-Filter Pressure Gauges
- Pump Pressure and Concentrate Pressure Gauges
- Permeate TDS
- Flow Control
- Motorized Feed Valve
- Low and High Pressure Shut-Off
- Permeate Flush
- Permeate Divert
- Plunger - Type Duplex Steel Pump
- Powder-Coated Carbon Steel Frame
- Nitrile High Pressure Hose/Stainless Steel Pipe
- Sch80 PVC Piping (Low Pressure Side)
- Chemical Feed Port
- Chemical Feed Power Outlet
- Permeate Sample Ports
- 460VAC 3PH 60 HZ

*Standard on Models X3 - 1280, X3 - 2280, X3 - 3280, X3 - 4280, X3 - 5280

**Standard on Models X3 - 3480, X3 - 4480, X3 - 5480, X3 - 6480

Engineered Water Treatment Solutions

Options and Upgrades

- S-200 Computer Controller***
- VFD***
- Programmable Logic Controller (PLC) w/Touch Screen
- Permeate and Concentrate Digital Paddle Wheels***
- 8" Low Energy Seawater 440 SF Elements
- Clean-In-Place Skid-Mounted System
- Clean-In-Place Ports
- pH and/or ORP Sensor
- Chemical Feed System
- Energy Recovery Device (ERD)

***Option available for Models X3-1280, X3-2280, X3-3280, X3-4280, X3-5280. Standard on larger models.

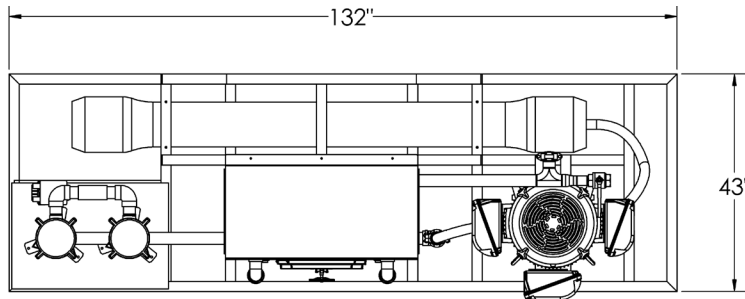
AXEON's Naming Matrix				
	X3	5	2	80
X-SERIES MODEL				
X3 Seawater Model				
HOUSING QUANTITY DESIGNATION				
1	1 Vessel			
2	2 Vessels			
3	3 Vessels			
4	4 Vessels			
5	5 Vessels			
6	6 Vessels			
MEMBRANE QUANTITY PER HOUSING				
2	2 Membranes			
4	4 Membranes			
8.0 INCH MEMBRANE DIAMETER				



**X3-5280
Pictured**

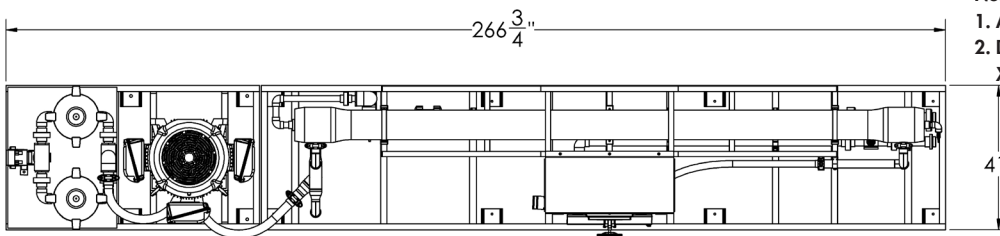
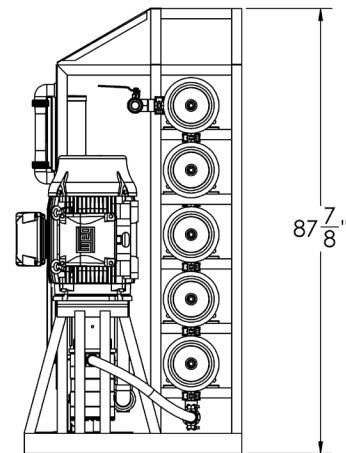
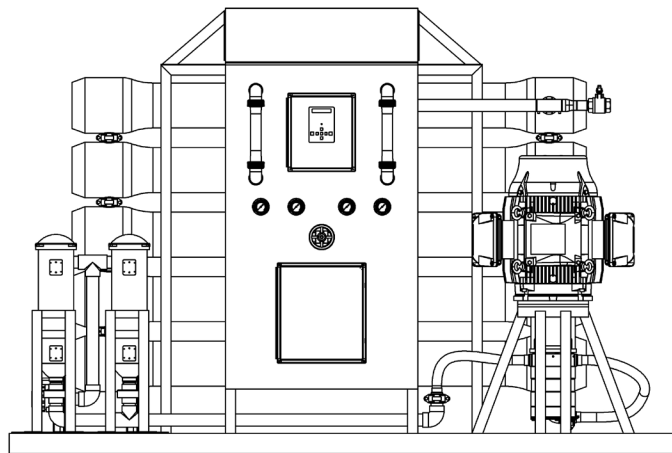


X3-6480 Pictured



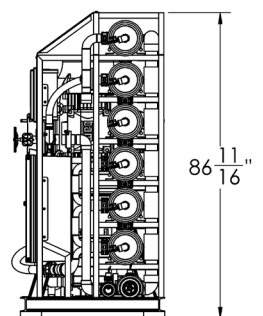
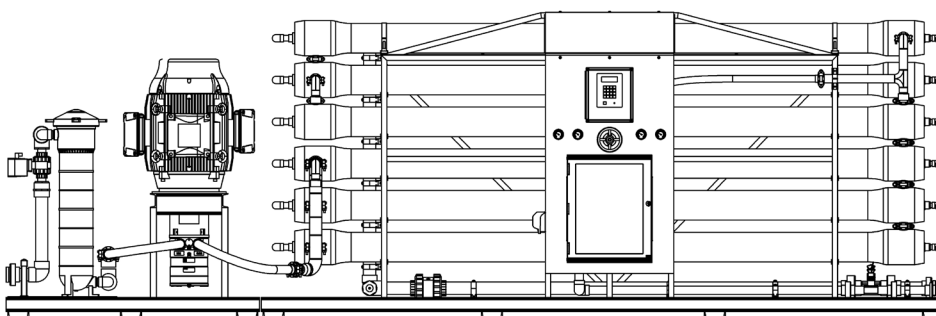
Notes:

1. All dimensions are given in inches
2. Dimensions given for X3-1280 through X3-5280. (X3-5280 pictured)



Notes:

1. All dimensions are given in inches
2. Dimensions given for X3-3480 through X3-6480. (X3-6480 pictured)



X3-Series Industrial Sea Water Reverse Osmosis Systems

Models	X3-1280	X3-2280	X3-3280	X3-4280	X3-5280	X3-3480	X3-4480	X3-5480	X3-6480
Design									
System Capacity gpd (m ³ /day)	8000 (30)	16000 (61)	24000 (91)	32000 (121)	40000 (151)	48000 (182)	64000 (242)	80000 (303)	96000 (363)
Configuration	Single Pass	Single Pass	Single Pass	Single Pass	Single Pass	Single Pass	Single Pass	Single Pass	Single Pass
Feed Water Source (ppm)	TDS < 4,000	TDS < 4,000	TDS < 4,000	TDS < 4,000	TDS < 4,000	TDS < 4,000	TDS < 4,000	TDS < 4,000	TDS < 4,000
Nominal Recovery Rate	30%	45%	50%	50%	50%	50%	50%	50%	50%
Rejection and Flow Rates									
Nominal Salt Rejection	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%
Permeate Flow* gpm (lpm)	5.6 (21)	11.1 (42)	16.7 (63)	22.2 (84)	27.8 (105)	33.3 (126)	44.4 (168)	55.5 (210)	66.6 (252)
Minimum Concentrate Flow gpm (lpm)	14 (53)	14 (53)	14 (53)	14 (53)	14 (53)	14 (53)	14 (53)	14 (53)	14 (53)
Connections									
Feed (in)	2 FNPT	2 FNPT	2 FNPT	2 FNPT	2 FNPT	3 FNPT	3 FNPT	3 FNPT	3 FNPT
Permeate (in)	1 ¼ FNPT	1 ¼ FNPT	1 ¼ FNPT	1 ½ FNPT	1 ½ FNPT	2 FNPT	2 FNPT	2 ½ FNPT	2 ½ FNPT
Concentrate (in)	1 ¼ FNPT	1 ¼ FNPT	1 ¼ FNPT	1 ½ FNPT	1 ½ FNPT	2 FNPT	2 FNPT	2 FNPT	2 FNPT
Clean-in-Place Port (in)	1 ½ FNPT	1 ½ FNPT	1 ½ FNPT	1 ½ FNPT	1 ½ FNPT	2 FNPT	2 FNPT	2 FNPT	2 FNPT
Chemical Feed Port (in)	½ NPT	½ NPT	½ NPT	½ NPT	½ NPT	½ NPT	½ NPT	½ NPT	½ NPT
Membranes									
Membranes Per Vessel	2	2	2	2	4	4	4	4	4
Membrane Quantity	2	4	6	8	10	12	16	20	24
Membrane Size	8040	8040	8040	8040	8040	8040	8040	8040	8040
Vessels									
Vessel Array	1	1:1	1:1:1	2:1:1	2:1:1:1	2:1	2:1:1	3:1:1	3:2:1
Vessel Quantity	1	2	3	4	5	3	4	5	6
Pumps									
Pump Type	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger
Motor (HP (KW))	20 (15)	20 (15)	25 (19)	40 (30)	40 (30)	50 (37)	75 (56)	100 (75)	100 (75)
Electrical									
Standard Voltage ***	460V, 60Hz, 3Ph	460V, 60Hz, 3Ph	460V, 60Hz, 3Ph	460V, 60Hz, 3Ph	460V, 60Hz, 3Ph	460V, 60Hz, 3Ph	460V, 60Hz, 3Ph	460V, 60Hz, 3Ph	460V, 60Hz, 3Ph
System Dimensions									
L x W x H (in / cm)	132 x 45 x 90 (335 x 114 x 229)	132 x 45 x 90 (335 x 114 x 229)	132 x 45 x 90 (335 x 114 x 229)	132 x 45 x 90 (335 x 114 x 229)	132 x 45 x 90 (335 x 114 x 229)	267 x 41 x 90 (667 x 104 x 229)	267 x 41 x 90 (667 x 104 x 229)	267 x 41 x 90 (667 x 104 x 229)	267 x 41 x 90 (667 x 104 x 229)
Weight (lb / kg)	2,230 (1,060)	2,260 (1,210)	3,090 (1,400)	3,860 (1,750)	4,220 (1,920)	5,390 (2,450)	5,870 (2,660)	7,150 (3,250)	7,570 (3,440)

*Product flow and recovery rates are based on feedwater conditions of 38000 ppm TDS at 77°F. Treatment ability of the RO system is dependent on feed water quality. Higher TDS and/or lower temperatures will reduce product flow. An AXEON Applications Engineer can rate the units for these other feed water conditions.
 ††Other voltage options are available

Operating Limits

Design Temperature (°F / °C)*	77 / 25	Maximum Turbidity (NTU) [^]	0
Maximum Feed Temperature (°F / °C)*	85 / 29	Maximum Free Chlorine (ppm)	0
Minimum Feed Temperature (°F / °C)*	41 / 5	Maximum TDS (ppm)**	40,000
Maximum Ambient Temperature (°F / °C)	120 / 49	Maximum Hardness (gpg) ^{^^}	<1
Minimum Ambient Temperature (°F / °C)	40 / 4	Maximum pH (Continuous)	11
Maximum Feed Pressure (psi / bar)	85 / 6	Minimum pH (Continuous)	3
Minimum Feed Pressure (psi / bar)	45 / 3	Maximum pH (Cleaning 30 Min.)	12
Maximum Piping Pressure (psi / bar)	1000 / 69	Minimum pH (Cleaning 30 Min.)	2
Maximum SDI Rating (SDI)	<3	Maximum Turbidity (NTU) ^{^^}	< 1

[^]Product ow and recovery rates are based on feedwater conditions of 38000 ppm TDS at 77°F. Treatment ability of the RO system is dependent on feed water quality. Higher TDS and/or lower temperatures will reduce product ow. An AXEON Applications Engineer can rate the units for these other feed water conditions.

^{**}Appropriate filtration must be installed in order to prevent premature membrane fouling.

^{^^}Scale prevention measures must be taken to prolong membrane life.



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