AXEON

# X3 – Series Industrial Reverse Osmosis Systems

**X3 – Series Reverse Osmosis Systems** are engineered for seawater desalination and other high total dissolved solids (TDS) applications requiring high pressure pumps. The **X3 – Series Reverse Osmosis Systems** are rated to handle total dissolved solids as high as 45,000.

**X3 – 5280**
Industrial Reverse Osmosis System

The **X3 – Series Reverse Osmosis Systems** range in capacity from 5.6 to 27.8 gallons per minute (8,000 to 40,000 gallons per day) utilize a clean design that allows for convenient installation, user–friendly operation.

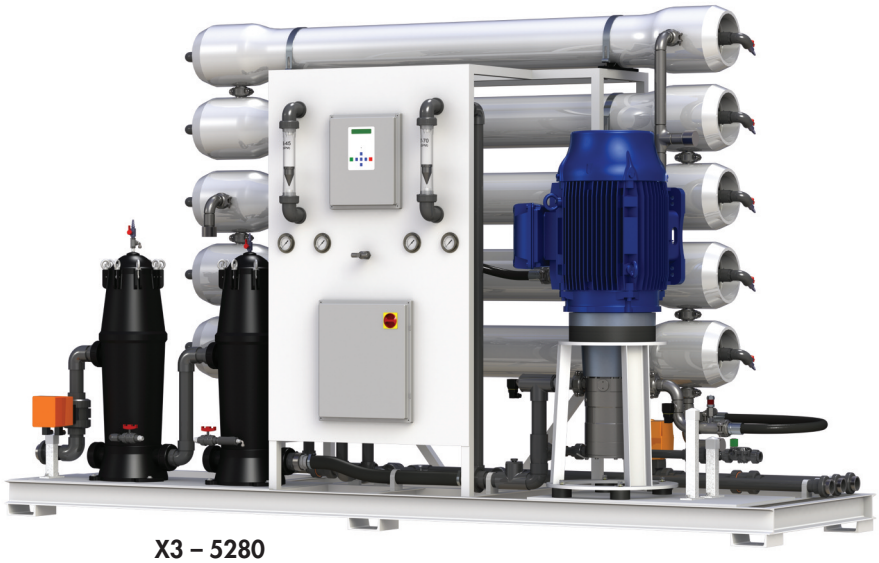
Featuring robust components for enhanced performance, the **X3 – Series Reverse Osmosis Systems** include a duplex stainless steel axial piston pump, high pressure hoses, stainless steel valving and FRP membrane housings with duplex stainless steel side ports.

Know Higher Standards™

AXEON®
WATER TECHNOLOGIES

## Standard Features

- 8 – inch Low Energy Seawater Membrane Elements
- 8 – inch Fiberglass Membrane Housings with Duplex Stainless Steel Side Ports (1000 psi)
- 2 Stage Glass–Reinforced, Polypropylene, Non–Metallic Pre–Filtration Housings
- 5 – Micron Sediment Pre–Filter (Stage 1)
- 1 – Micron Sediment Pre–Filter (Stage 2)
- Duplex Stainless Steel Axial Piston Pump
- Low and High Pressure Shut–Off Switch
- Pump Pressure Relief Valve
- S – 150 Pre–Programmed Computer Controller with Soft Start
- Permeate and Concentrate Rotameters
- Permeate TDS Monitoring
- Pre– and Post–Filter 316L Stainless Steel Pressure Gauges



**X3 – 5280**
Industrial Reverse Osmosis System

- Pump and Concentrate 316L Stainless Steel Pressure Gauges
- PVC Feed Motorized Ball Valve
- 316L Stainless Steel Needle Concentrate Valve
- Epoxy Powder Coated Carbon Steel Frame
- Sch80 Low Pressure PVC Piping
- Electroplated 316L Sch80 Stainless Steel Piping
- Nitrile High Pressure Hose with Duplex Stainless Steel Connections

- Clean–In–Place (CIP) Ports with Valves
- Permeate Sample Ports
- Chemical Feed Port
- Chemical Feed Power Outlet
- Composite Permeate Flush Solenoid Valve
- PVC Permeate Divert Motorized Ball Valve
- 460VAC 3PH 60Hz

## Options and Upgrades

- S – 200 Computer Controller
  - Permeate and Concentrate Digital Paddlewheel Sensors
- VFD (Variable Frequency Drive)
- Programmable Logic Controller (PLC) with Touch Screen
- pH Sensor
- ORP Sensor
- Clean–In–Place Skid–Mounted System
- Chemical Feed System
- 8 – inch Low Energy Seawater Membrane Elements (440 SF)
- Voltage Options: 220VAC 3PH 60Hz, 220VAC 3PH 50Hz, 380VAC 3PH 50Hz

**AXEON Naming Matrix**

| X3 | 5 | 2 | 80 |
|---|---|---|---|

**X-SERIES MODEL**

| | |
|---|---|
| X3 | Seawater Model |

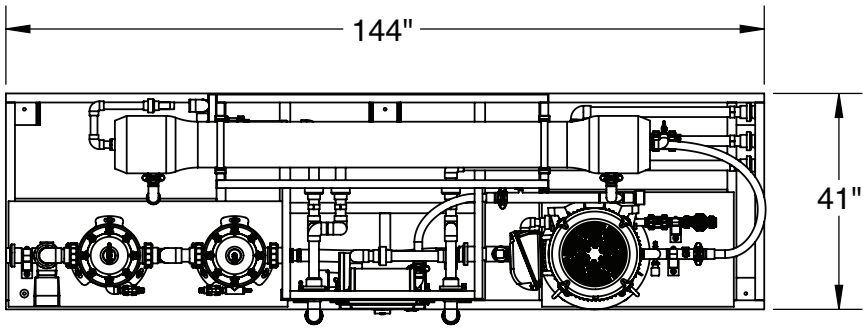
**HOUSING QUANTITY DESIGNATION**

| | |
|---|---|
| 1 | 1 Vessel |
| 2 | 2 Vessels |
| 3 | 3 Vessels |
| 4 | 4 Vessels |
| 5 | 5 Vessels |

**MEMBRANE QUANTITY PER HOUSING**

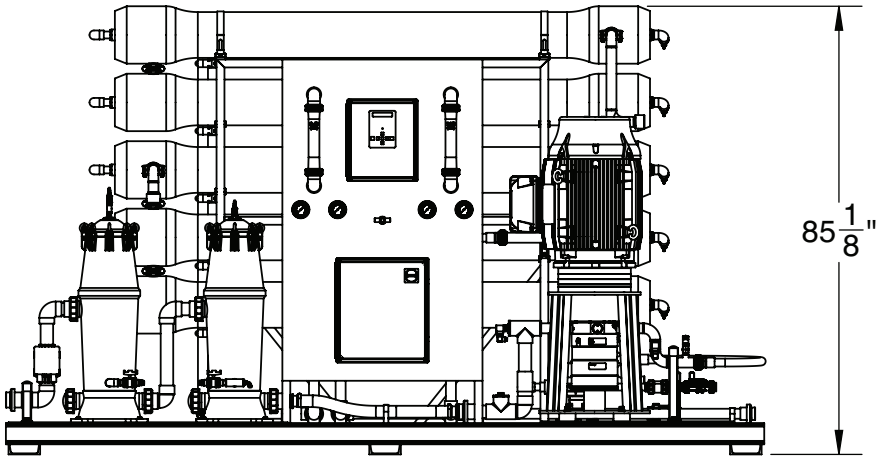
| | |
|---|---|
| 2 | 2 Membranes |

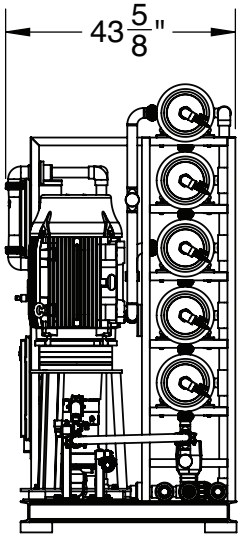
**8.0 INCH MEMBRANE DIAMETER**




## Notes:

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



# AXEON X3 – Series Reverse Osmosis Systems

| Product Specifications | | | | | |
|---|---|---|---|---|---|
| **Models** | **X3 – 1280** | **X3 – 2280** | **X3 – 3280** | **X3 – 4280** | **X3 – 5280** |
| **Design** | | | | | |
| Configuration | Single Pass | Single Pass | Single Pass | Single Pass | Single Pass |
| Feedwater TDS max (ppm)† | 38,000 | 38,000 | 38,000 | 38,000 | 38,000 |
| Standard Recovery % | 30 | 45 | 50 | 50 | 50 |
| **Rejection and Flow Rates ††† ** | | | | | |
| Nominal Salt Rejection % | 99.8 | 99.8 | 99.8 | 99.8 | 99.8 |
| Permeate Flow Rate (gpm / lpm) | 5.60 / 21.00 | 11.10 / 42.00 | 16.70 / 63.00 | 22.20 / 84.00 | 27.80 / 105.00 |
| Minimum Concentrate Flow Rate (gpm / lpm) | 14 / 53 | 14 / 53 | 17 / 64 | 22 / 83 | 28 / 106 |
| **Connections** | | | | | |
| Feed Connection (in) | 2 FNPT | 2 FNPT | 2 FNPT | 2 FNPT | 2 FNPT |
| Permeate Connection (in) | 1 1/4 FNPT | 1 1/4 FNPT | 1 1/4 FNPT | 1 1/2 FNPT | 1 1/2 FNPT |
| Concentrate Connection (in) | 1 1/4 FNPT | 1 1/4 FNPT | 1 1/4 FNPT | 1 1/2 FNPT | 1 1/2 FNPT |
| Clean–in–Place Port (in) | 1 1/2 FNPT | 1 1/2 FNPT | 1 1/2 FNPT | 1 1/2 FNPT | 1 1/2 FNPT |
| Chemical Feed Port (in) | 1/2 NPT | 1/2 NPT | 1/2 NPT | 1/2 NPT | 1/2 NPT |
| **Membranes** | | | | | |
| Membrane(s) Per Vessel | 2 | 2 | 2 | 2 | 4 |
| Membrane Quantity | 2 | 4 | 6 | 8 | 10 |
| Membrane Size | 8040 | 8040 | 8040 | 8040 | 8040 |
| **Vessels** | | | | | |
| Vessel Array | 1 | 1:1 | 1:1:1 | 2:1:1 | 2:1:1:1 |
| Vessel Quantity | 1 | 2 | 3 | 4 | 5 |
| **Pumps** | | | | | |
| Pump Type | Axial Piston | Axial Piston | Axial Piston | Axial Piston | Axial Piston |
| Motor HP / KW | 20 / 15 | 20 / 15 | 25 / 19 | 40 / 30 | 40 / 30 |
| **System Electrical** | | | | | |
| Standard Voltage + Amp Draw | 460V, 60Hz, 3PH, 25.5A | 460V, 60Hz, 3PH, 25.5A | 460V, 60Hz, 3PH, 31A** | 460V, 60Hz, 3PH, 48.5A | 460V, 60Hz, 3PH, 48.5A |
| **Systems Dimensions** | | | | | |
| Approximate Dimensions* L x W x H (in / cm) | 144 x 41 x 75 / 366 x 104 x 190 | 144 x 41 x 75 / 366 x 104 x 190 | 144 x 41 x 75 / 366 x 104 x 190 | 144 x 41 x 75 / 366 x 104 x 190 | 144 x 41 x 85 / 366 x 104 x 216 |
| Approximate Weight (lbs / kg) | 2230 / 1060 | 2660 / 1206 | 3090 / 1400 | 3860 / 1750 | 4220 / 1920 |

**Test Parameters:** 35,000 TDS Filtered (5 – Micron), Dechlorinated, Municipal Feedwater, 65 psi / 4.50 bar Feed Pressure, 950 / 65.5 psi bar Operating Pressure, 77°F / 25°C, Recovery as stated, 7.0 pH. Data taken after 60 minutes of operation.

* Does not include operating space requirements.

** Varies with motor manufacturer.

## Operating Limits††

| | | | |
|---|---|---|---|
| Design Temperature (°F / °C) | 77 / 25 | Maximum SDI Rating (SDI) | < 3 |
| Maximum Feed Temperature (°F / °C) | 85 / 29 | Maximum Free Chlorine (ppm) | 0 |
| Minimum Feed Temperature (°F / °C) | 40 / 4 | Maximum Hardness (gpg) | 0 |
| Maximum Ambient Temperature (°F / °C) | 120 / 49 | Maximum pH (Continuous) | 11 |
| Minimum Ambient Temperature (°F / °C) | 40 / 4 | Minimum pH (Continuous) | 2 |
| Maximum Feed Pressure (psi / bar) | 72.5 / 5 | Maximum pH (Cleaning 30 Minutes) | 12 |
| Minimum Feed Pressure (psi / bar) | 45 / 3 | Minimum pH (Cleaning 30 Minutes) | 1 |
| Maximum Piping Pressure (psi / bar) | 950 / 66 | Maximum Turbidity (NTU) | < 1 |

† Low temperatures and feedwater quality, such as high TDS levels will significantly affect the systems production capabilities and performance. Computer projections must be run for individual applications which do not meet or exceed minimum and maximum operating limits for such conditions.

†† System pressure is variable due to water conditions. Permeate flow will increase at a higher temperature and will decrease at a lower temperature.

††† Product flow and maximum recovery rates are based on feedwater conditions as stated above. Do not exceed recommended permeate flow.