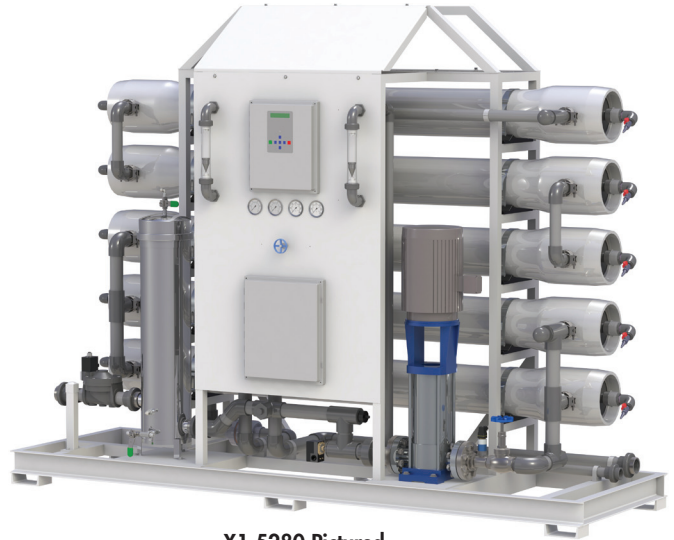


## X1-Series Reverse Osmosis System

**X1-Series Reverse Osmosis Systems** are designed as a cost-effective solution to the growing demand of tap water and well water for applications in food and beverage, pharmaceutical, healthcare, microelectronics, power, chemicals, and agriculture.

With models ranging from 20 to 125 gallons per minute (30,000 to 180,000 gallons per day), the smart, clean utilitarian industrial design of the X1 - Series allows for convenient installation, user-friendly operation, and ease of maintenance. These skid-mounted, package systems are pre-plumbed and pre-wired on a powder-coated steel frame complete with a pre-programmed computer controller, TDS probes, and panel-mounted pressure and flow instrumentation, allowing for straight forward system monitoring and control. The X1 - Series systems utilize energy-efficient ultra low energy membranes with 10% greater membrane surface area than standard 8 - inch RO elements, thus producing more pure water.



X1-5280 Pictured

### Standard Features

- S-150 Pre-Programmed Computer Controller\*
- S-200 Pre-Programmed Computer Controller w/VFD\*\*
- 8 - inch Ultra Low Energy Elements with 440 SF Membrane
- Fiberglass Membrane Housings with Stainless Steel Side Ports
- 5 Micron Sediment Cartridge Filters
- Multi-Cartridge Stainless Steel Filter Cartridge Housing
- Permeate and Concentrate Rotometers\*
- Permeate and Concentrate Digital Paddle\*\*
- Pre- and Post-Filter Pressure Gauges
- Pump Pressure and Concentrate Pressure Gauges
- Feed and Permeate TDS
- Composite Feed Solenoid Valve\*
- Motorized Feed Valve\*\*
- Stainless Steel Globe Throttling Valves\*
- Low and High Pressure Shut-Off Switches
- Vertical Stainless Steel Multistage Pump
- Powder Coated Carbon Steel Frame
- Sch80 PVC Piping
- Chemical Feed Port
- Chemical Feed Power Outlet
- Permeate Sample Ports
- 220VAC 3PH 60 HZ

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\*\*\*
- Motorized Feed Valve\*\*\*
- Concentrate Recycle Loop w/Flow Meter
- Permeate Divert
- Permeate Flush
- pH and/or ORP Sensor
- Chemical Feed System
- Clean-In-Place Skid-Mounted System
- Clean-in-Place (CIP) Valves

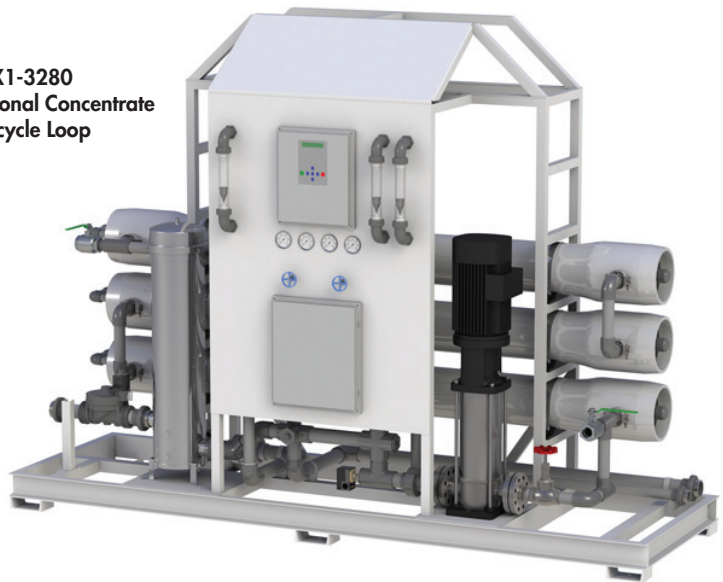
\*Standard on Models X1-2280, X1-3280, X1-4280, X1-5280

\*\*Standard on Models X1-3480, X1-4480, X1-5480, X1-6480

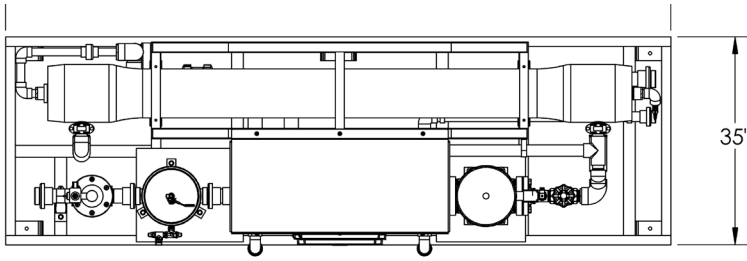
\*\*\*Option available for Models X1-2280, X1-3280, X1-4280, X1-5280. Standard on larger models.

| AXEON's Naming Matrix                |              |   |    |
|--------------------------------------|--------------|---|----|
| X1                                   | 3            | 2 | 80 |
| <b>X-SERIES MODE L</b>               |              |   |    |
| X1 Tap Water Mode l                  |              |   |    |
| <b>HOUSING QUANTITY DESIGNATION</b>  |              |   |    |
| 2                                    | 2 Vessels    |   |    |
| 3                                    | 3 Vessels    |   |    |
| 4                                    | 4 Vessels    |   |    |
| 5                                    | 5 Vessels    |   |    |
| 6                                    | 6 Vessels    |   |    |
| <b>MEMBRANE QUANTITY PER HOUSING</b> |              |   |    |
| 2                                    | 2 Membran es |   |    |
| 4                                    | 4 Membra nes |   |    |
| <b>8.0 INCH MEMBRANE DIAMETER</b>    |              |   |    |

**X1-3280**  
With Optional Concentrate  
Recycle Loop

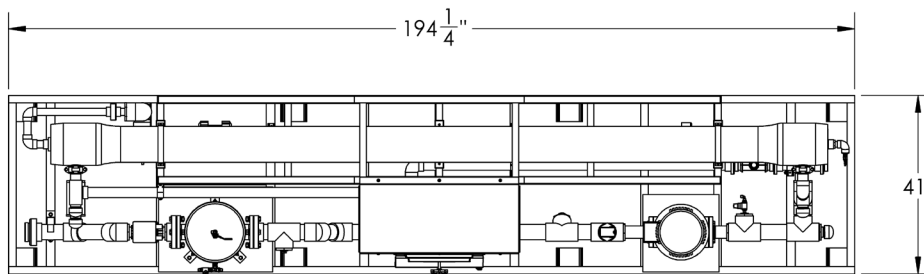
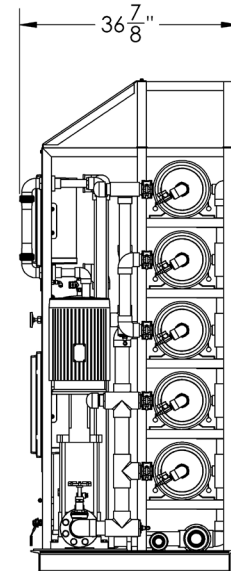
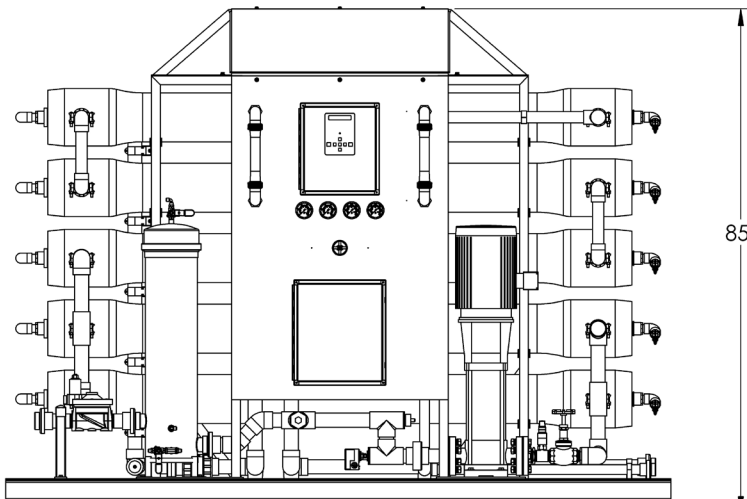


**X1-6480 Pictured**



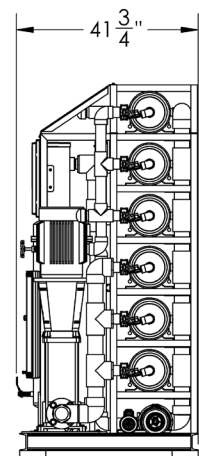
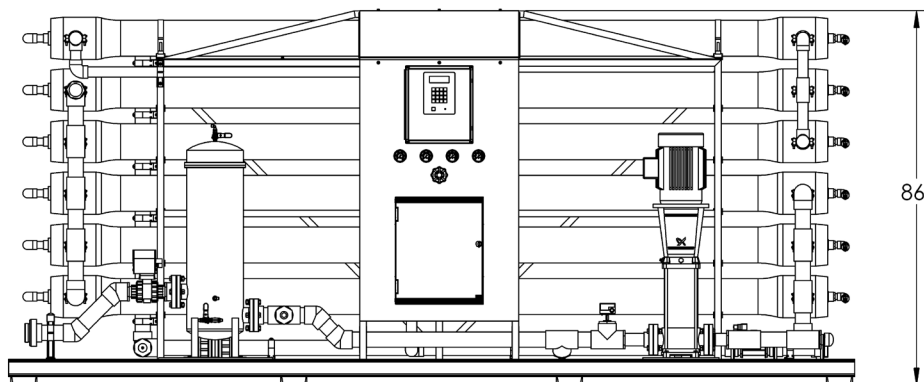
**Notes:**

1. All dimensions are given in inches
2. Dimensions given for X1-2280 through X1-5280. (X1-5280 pictured)



**Notes:**

1. All dimensions are given in inches
2. Dimensions given for X1-3480 through X1-6480. (X1-6480 pictured)



## X1-Series Reverse Osmosis System

| Models                                     | X1-2280                              | X1-3280                              | X1-4280                              | X1-5280                              | X1-3480                              | X1-4480                              | X1-5480                              | X1-6480                              |
|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| <b>Design</b>                              |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |
| System Capacity* gpd (m <sup>3</sup> /day) | 28,800 (109)                         | 43,200 (163)                         | 57,600 (218)                         | 72,000 (273)                         | 86,400 (327)                         | 115,200 (436)                        | 144,000 (545)                        | 180,000 (681)                        |
| Configuration*                             | Single Pass                          | Single Pass                          | Single Pass                          | Single Pass                          | Single Pass                          | Single Pass                          | Single Pass                          | Single Pass                          |
| Feed Water Source** (ppm)                  | TDS < 2,000                          | TDS < 2,000                          | TDS < 2,000                          | TDS < 2,000                          | TDS < 2,000                          | TDS < 2,000                          | TDS < 2,000                          | TDS < 2,000                          |
| Standard Recovery Rate***                  | 60%                                  | 70%                                  | 75%                                  | 70%                                  | 75%                                  | 75%                                  | 75%                                  | 75%                                  |
| Recovery with Concentrate Recycle gpm **   | 80%                                  | 80%                                  | 80%                                  | 80%                                  | 80%                                  | 80%                                  | 80%                                  | 80%                                  |
| <b>Rejection and Flow Rates</b>            |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |
| Nominal Salt Rejection                     | 99.3%                                | 99.3%                                | 99.3%                                | 99.3%                                | 99.3%                                | 99.3%                                | 99.3%                                | 99.3%                                |
| Permeate Flow* gpm (lpm)                   | 20 (75.6)                            | 30 (113.4)                           | 40 (151.2)                           | 50 (189.0)                           | 60 (226.8)                           | 80 (302.4)                           | 100 (378.0)                          | 125 (472.5)                          |
| Minimum Concentrate Flow (gpm (lpm))       | 14 (53)                              | 14 (53)                              | 14 (53)                              | 14 (53)                              | 14 (53)                              | 14 (53)                              | 14 (53)                              | 14 (53)                              |
| <b>Connections</b>                         |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |
| Feed (in)                                  | 2 FNPT                               | 2 FNPT                               | 2 FNPT                               | 2 FNPT                               | 3 FNPT                               | 3 FNPT                               | 3 FNPT                               | 3 FNPT                               |
| Permeate (in)                              | 1½ FNPT                              | 1½ FNPT                              | 2 FNPT                               | 2 FNPT                               | 2 FNPT                               | 2 FNPT                               | 3 FNPT                               | 3 FNPT                               |
| Concentrate (in)                           | 1¼ FNPT                              | 1¼ FNPT                              | 1¼ FNPT                              | 1¼ FNPT                              | 1½ FNPT                              | 1½ FNPT                              | 2 FNPT                               | 2 FNPT                               |
| Clean-in-Place Port (in)                   | 1½ FNPT                              | 1½ FNPT                              | 1½ FNPT                              | 1½ 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                                |
| <b>Membranes</b>                           |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |
| Membranes Per Vessel                       | 2                                    | 2                                    | 2                                    | 2                                    | 4                                    | 4                                    | 4                                    | 4                                    |
| Membrane Quantity                          | 4                                    | 6                                    | 8                                    | 10                                   | 12                                   | 16                                   | 20                                   | 24                                   |
| Membrane Size                              | 8040                                 | 8040                                 | 8040                                 | 8040                                 | 8040                                 | 8040                                 | 8040                                 | 8040                                 |
| <b>Vessels</b>                             |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |
| Vessel Array                               | 1:1                                  | 1:1:1                                | 1:1:1:1                              | 2:1:1:1                              | 2:1                                  | 2:1:1                                | 3:1:1                                | 3:2:1                                |
| Vessel Quantity                            | 2                                    | 3                                    | 4                                    | 5                                    | 3                                    | 4                                    | 5                                    | 6                                    |
| <b>Pumps</b>                               |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |
| Pump Type                                  | Vertical Multistage Centrifugal Pump | Vertical Multistage Centrifugal Pump | Vertical Multistage Centrifugal Pump | Vertical Multistage Centrifugal Pump | Vertical Multistage Centrifugal Pump | Vertical Multistage Centrifugal Pump | Vertical Multistage Centrifugal Pump | Vertical Multistage Centrifugal Pump |
| Motor (HP (KW))                            | 10 (7.5)                             | 10 (7.5)                             | 10 (7.5)                             | 10 (7.5)                             | 15 (11)                              | 15 (11)                              | 20 (11)                              | 20 (11)                              |
| <b>Electrical</b>                          |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |
| Standard Voltage ***                       | 220V, 60Hz, 3Ph, 27A                 | 220V, 60Hz, 3Ph, 27A                 | 220V, 60Hz, 3Ph, 27A                 | 220V, 60Hz, 3Ph, 19.5A               | 220V, 60Hz, 3Ph, 37.5A               | 220V, 60Hz, 3Ph, 37.5A               | 220V, 60Hz, 3Ph, 46A                 | 220V, 60Hz, 3Ph, 46A                 |
| <b>System Dimensions</b>                   |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |
| L x W x H (in / cm)                        | 112 x 35 x 85 (284 x 89 x 216)       | 112 x 35 x 85 (284 x 89 x 216)       | 112 x 35 x 85 (284 x 89 x 216)       | 112 x 35 x 85 (284 x 89 x 216)       | 194 x 41 x 86 (493 x 104 x 218)      | 194 x 41 x 86 (493 x 104 x 218)      | 194 x 41 x 86 (493 x 104 x 218)      | 194 x 41 x 86 (493 x 104 x 218)      |
| Weight (lb / kg)                           | 1,285 (583)                          | 1,435 (651)                          | 1,585 (719)                          | 1,735 (787)                          | 2,005 (910)                          | 2,275 (1,032)                        | 2,645 (1,200)                        | 2,910 (1,320)                        |

\*Product flow and recovery rates are based on feedwater conditions of 2000 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.

\*\*A concentrate recycle loop is available as an option to increase recovery to 75 to 80% (if suitable to feed water conditions).

\*\*\*Other voltage options are available.

## Operating Limits

|                                       |            |                                       |         |
|---------------------------------------|------------|---------------------------------------|---------|
| Design Temperature (°F / °C)*         | 77 / 25    | Maximum Turbidity (NTU) <sup>^</sup>  | 0       |
| Maximum Feed Temperature (°F / °C)*   | 85 / 29    | Maximum Free Chlorine (ppm)           | 2,000   |
| Minimum Feed Temperature (°F / °C)*   | 50 / 10    | Maximum TDS (ppm)**                   | 3,000   |
| Maximum Ambient Temperature (°F / °C) | 120 / 48.9 | Maximum Hardness (gpg) <sup>^^</sup>  | 0       |
| Minimum Ambient Temperature (°F / °C) | 40 / 4.4   | Maximum pH (Continuous)               | 11      |
| Maximum Feed Pressure (psi / bar)     | 85 / 5.9   | Minimum pH (Continuous)               | 3       |
| Minimum Feed Pressure (psi / bar)     | 45 / 3.1   | Maximum pH (Cleaning 30 Min.)         | 12      |
| Maximum Piping Pressure (psi / bar)   | 230 / 16   | Minimum pH (Cleaning 30 Min.)         | 2       |
| Maximum SDI Rating (SDI)              | <3         | Maximum Turbidity (NTU) <sup>^^</sup> | Up to 1 |

<sup>^</sup>Product flow and recovery rates are based on feedwater conditions of 2000 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.

<sup>^^</sup>Appropriate filtration must be installed in order to prevent premature membrane fouling.

<sup>^^^</sup>Scale prevention measures must be taken to prolong membrane life.



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