

# BT-Series Reverse Osmosis System

## **FLEXEON BT - Series Commercial Reverse Osmosis Systems**

further expand the FLEXEON commercial RO lineup with three models designed for 1,500, 1,800 and 2,000 gallons per day. Featuring 4" diameter sediment and carbon block pre-filters, low energy membranes, and a high pressure pump, the BT-Series sets the industry standard for high - performance RO systems. These models can also be upgraded with options for higher recovery rates by adding the concentrate recycle option.



**BT-2000**  
Reverse Osmosis System  
Front

## Benefits

- Fully Equipped and Customizable
- Expandable and Lightweight Design
- Compact Space Saving Design
- Components Easily Accessible
- Pre-Plumbed, Wired and Assembled
- Factory Tested and Preserved
- Low Operation Costs
- Low Maintenance Costs
- Easy Maintenance and Servicing
- CE Compliant
- 1-Year Limited Warranty
- Made in the U.S.A.

Engineered Water Treatment Solutions

# FLEXEON BT-Series Reverse Osmosis Systems

## Standard Features

- AXEON® HF1 Low Energy Membranes
- AXEON PVC Membrane Housings
- AXEON 5 Micron Sediment Pre-Filter
- AXEON 10 Micron Carbon Block Pre-Filter
- AXEON by Pentair® Single O-Ring Cartridge Housings
- AXEON Permeate and Concentrate Flow Meters
- AXEON 0 - 100 psi Glycerin - Filled Pre-Filter Pressure Gauges
- AXEON 0 - 300 psi Glycerin - Filled Pump Pressure Gauge
- Manual On and Off Control Switch
- Feed Low Pressure Switch
- AXEON GC - Series Feed Solenoid Valve
- AXEON 316 Stainless Steel Concentrate Valve
- Fluid - O - Tech™ Low Lead Brass Rotary Vane High Pressure Pump
- John Guest® Push/Pull Fittings with Locking Safety Clips
- White Powder Coated Aluminum Frame



## Options and Upgrades

- |   |   |
|---|---|
| ■ AXEON® HF4 Extra Low Energy Membranes           | ■ Minitrol IF Computer Controller with Feed Flush |
| ■ AXEON® NF3 Nanofiltration Membranes             | ■ S150 Computer Controller with Feed Flush        |
| ■ AXEON® NF4 Nanofiltration Membranes             | ■ High Pressure Tank Switch                       |
| ■ AXEON® Stainless Steel Membrane Housings        | ■ Chemical Pump Outlet                            |
| ■ Concentrate Recycle Valve with Flow Meter       | ■ Blending Valve                                  |
| ■ HM Digital™ PS-100 TDS Controller               | ■ Permeate Flush with Pressure Tank               |
| ■ HM Digital™ PS-200 Dual TDS Controller          | ■ Permeate Flush with Atmospheric Tank            |
| ■ HM Digital™ PSC-150 TDS/Conductivity Controller | ■ Permeate Flush with Mechanical Float            |
| ■ Fluid-O-Tech™ Stainless Steel Rotary Vane Pump  | ■ Permeate Sample Ports                           |
| ■ Minitrol Computer Controller                    | ■ Single Wood Crate                               |

## Reverse Osmosis System Packages

Models	BT-1500 / BT-1800 / BT-2000		
Frame	STANDARD (S)	ADVANCED (A)	PREMIER (P)
White Powder Coated Aluminum Frame	✓	✓	✓
<b>Controls</b>			
Manual On and Off Control Switch	✓		
Minitrol Computer Controller		✓	
Minitrol IF Computer Controller			✓
Pre-Treatment Lockout		✓	✓
Tank Level Input		✓	✓
LED Controller Display		✓	✓
Feed Solenoid Valve	✓	✓	✓
Concentrate Recycle Valve		✓	✓
Feed Low Pressure Switch 15-30 psi	✓	✓	✓
<b>Instrumentation</b>			
AXEON® Permeate Flow Meter	✓	✓	✓
AXEON® Concentrate Flow Meter	✓	✓	✓
Concentrate Recycle Flow Meter		✓	✓
AXEON® 316 Stainless Steel Concentrate Valve	✓	✓	✓
AXEON® 0-100 psi Pre-Filter In Pressure Gauge	✓	✓	✓
AXEON® 0-100 psi Pre-Filter Out Pressure Gauge	✓	✓	✓
AXEON® 0-300 psi Pump Pressure Gauge	✓	✓	✓
HM Digital™ PS-100 Permeate TDS Controller		✓	
HM Digital™ PS-202 Dual Permeate and Feed TDS Controller			✓
<b>Features</b>			
Feed Flush			✓
AXEON® 5 Micron Sediment Pre-Filter	✓	✓	✓
AXEON® 10 Micron Carbon Block Pre-Filter	✓	✓	✓
AXEON® by Pentek® Single O-Ring Filter Housings	✓	✓	✓
AXEON® HF1 Low Energy RO Membranes	✓		
AXEON® HF4 Extra Low Energy RO Membranes		✓	✓
AXEON® PVC Membrane Housings	✓	✓	✓
Fluid-O-Tech™ Brass Rotary Vane High Pressure Pump	✓	✓	
Fluid-O-Tech™ Stainless Steel Rotary Vane Pump			✓
ODP High Efficiency Carbonator Motor	✓	✓	✓

**Note 1:** All 50Hz systems come standard with AXEON HF4 Extra Low Energy RO Membranes.

**Note 2:** BT-1800 RO Systems come standard with the Concentrate Recycle Valve and Flow Meter options in order to achieve a higher recovery rate.

## Naming Matrix

- **B** = Frame Style
- **T** = Feed Water Type - Tap Water (T), Brackish Water (B), Sea Water (S)
- **XXXX** = Rated Production in Gallons Per Day Based on Standard Test Conditions
- **S, A, P** = System Package Identifiers

FLEXEON BT-Series	Standard (S)	Advanced (A)	Premier (P)
FLEXEON BT-1500	BT-1500S	BT-1500A	BT-1500P
FLEXEON BT-1800	BT-1800S	BT-1800A	BT-1800P
FLEXEON BT-2000	BT-2000S	BT-2000A	BT-2000P

# BT-Series Reverse Osmosis System

## Specifications

Models	BT-1500	BT-1800	BT-2000
<b>Design</b>			
System Capacity gpd (lpd)	1,500 (15,678)	1,800 (6,813)	2,000 (7,971)
Configuration	Single Pass	Single Pass	Single Pass
Feed Water Source ***	TDS <2000 ppm	TDS <2000 ppm	TDS <2000 ppm
Standard Recovery Rate†	41%	30%	63%
Recovery with Concentrate Recycle	Up to 75%	Up to 75%	Up to 75%
<b>Rejection and Flow Rates</b>			
Nominal Salt Rejection %	98.5	98.5	98.5
Permeate Flow* gpm (lpm)	1.04 (3.93)	1.25 (4.73)	1.38 (5.22)
Minimum Feed Flow gpm (lpm)	2.04 (7.72)	4.25 (16.10)	2.35 (8.89)
Maximum Feed Flow gpm (lpm)	6.00 (22.70)	14.00 (53.00)	6.00 (22.70)
Minimum Concentrate Flow gpm (lpm)	1.00 (3.78)	3.00 (11.36)	1.00 (3.78)
<b>Connections</b>			
Feed	1 FNPT	1 FNPT	1 FNPT
Permeate	¾ Tube	¾ Tube	¾ Tube
Concentrate	¾ Tube	¾ Tube	¾ Tube
<b>Membranes</b>			
Membrane(s) Per Vessel	1	1	1
Membrane Quantity	2	1	3
Membrane Size	2540	4040	2540
<b>Vessels</b>			
Vessel Array	1:1	1	1:1:1
Vessel Quantity	2	1	3
<b>Standard Pump</b>			
Pump Type	Rotary Vane 601 Brass or 611 SS	Rotary Vane 1001 Brass or 1011 SS	Rotary Vane 1001 Brass or 1011 SS
Motor (hp)	¾	¾	¾
RPM @ 60 (50 Hz)	1725 (1465)	1725 (1465)	1725 (1465)
<b>Electrical</b>			
Standard Voltage	110V, 60Hz, 1 PH, 11.0A	110V, 60Hz, 1 PH, 11.0A	110V, 60Hz, 1 PH, 11.0A
Voltage Options	220V, 60Hz, 1 PH, 5.6A 220V, 50Hz, 1 PH, 5.6 A	220V, 60Hz, 1 PH, 5.6A 220V, 50Hz, 1 PH, 6.6A	220V, 60Hz, 1 PH, 5.6A 220V, 50Hz, 1 PH, 6.6A
<b>System Dimensions</b>			
L x W x H (in / cm)	19 X 23 X 46 (48 X 58 X 116)	19 X 23 X 46 (48 X 58 X 116)	19 X 23 X 46 (48 X 58 X 116)
Weight (lb / kg)	105 (47.63)	105 (47.63)	115 (52.16)

\* Product Flow rates and recovery are based on equipment test parameters.

\*\* Does not include operating space requirements.

\*\*\* Treatment ability of the RO system is dependent on feed water quality. Performance projections must be run for each installation.

## Operating Limits

Maximum Feed Temperature °F (°C)	85 (29.00)	Maximum Turbidity (NTU)	1
Minimum Feed Temperature °F (°C)	40 (4.44)	Maximum Free Chlorine (ppm)	0
Maximum Ambient Temperature °F (°C)	120 (48.89)	Maximum TDS (ppm)	2000
Minimum Ambient Temperature °F (°C)	40 (4.44)	Maximum Hardness (gpg) <sup>††</sup>	0
Maximum Feed Pressure (psi)	85 (5.86)	Maximum pH (Continuous)	11
Minimum Feed Pressure (psi)	45 (3.10)	Minimum pH (Continuous)	5
Maximum Operating Pressure psi (bar)	150 (10.34)	Maximum pH (Cleaning 30 Min.)	12
Maximum SDI Rating (SDI)	<3	Minimum pH (Cleaning 30 Min.)	2

**Test Parameters:** 550 TDS Filtered (5 Micron), De-Chlorinated, Municipal Feed Water, 65 psi (4.50 bar) Feed Pressure, 150 psi (10.34 bar) Operating Pressure, 77 Degrees F (25 Degrees C), Recovery as stated, 7.0 pH. Data taken after 60 minutes of operation.

<sup>†</sup> Low temperatures and high feed water TDS levels will significantly affect systems production capabilities. Computer projections should be run for individual applications which do not meet or exceed minimum and maximum operating limits.

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