

## INTRODUCTION

The Everpure ENVI-RO™ Mineral Reduction System is a pre-engineered, pre-assembled Reverse Osmosis (RO) system designed to provide high purity water for multiple applications, such as premium espresso, coffee, blended beverages and steam, to name a few. It combines a number of water treatment technologies into one easy to install package. The system provides superior protection against taste and odor causing contaminants while removing dirt, particulates and dissolved solids that can foul or scale equipment.

### Initial System Production

Water production depends on supply water pressure and temperature. See PERFORMANCE section (page 8) for normalized production.

### Influent Water Characteristics

The following table lists the allowable operating range of various water properties within which the ENVI-RO™ will function properly.

Total Dissolved Solids (TDS)	0-1,000 ppm (0-1,000 mg/l)
pH	5-10
Chlorine <sup>1</sup>	0-3 ppm (0-3 mg/l)
Chloramines	0-3 ppm (0-3 mg/l)
Turbidity	0-1 NTU
Iron	0-1 ppm (0-1 mg/l)

<sup>1</sup> Reverse osmosis membrane filter used in this system will be damaged by chlorine. An activated carbon filter should be provided with this system to protect the reverse osmosis membrane from chlorine attack. Influent chlorine should not exceed 3 mg/l.

### The system consists of 5 major components:

1. 2SR-BW Water Conditioning cartridge
2. Dual-Head booster pump
3. MR-600 Reverse Osmosis (RO) membrane cartridge.
4. 6-Gallon RO Water Storage Tank
5. Control System with Power Supply

The 2SR-BW Water Conditioning cartridge contains media that reduces the scaling tendency of hard water minerals found in many water supplies, extending RO membrane life.

The Dual-Head booster pump increases the inlet pressure to maintain consistent permeate production, plus eliminates back-pressure on the permeate output. This innovative approach to both boosting and eliminating back-pressure allows for maximum system efficiency.

The MR-600 RO membrane cartridge contains a semi-permeable reverse osmosis membrane. Here, most dissolved impurities are separated from the water and flushed down the drain. The water that is able to pass through the membrane, which is very low in dissolved impurities, is referred to as permeate, RO water, or product water.

Once the RO water is produced, it is stored in the 6-Gallon RO Water Storage Tank. This tank serves two key functions; 1) It acts as a buffer between the system and the connected equipment, providing ample volumes of water instantaneously, 2) It reduces the on-off cycling of the RO system, which produces better quality water, and prolongs the system's life.



## OPERATING SPECIFICATIONS

- Dynamic Operating Pressure: 25-80 psi (1.7-5.5 bar)
- Static Operating Pressure: 100 psi (6.9 bar)
- Operating Temperature 40-100°F (4.4-37.8°C)
- Connections
  - Inlet/Outlet: 3/8-inch OD tube (John Guest© Push-in)
  - Concentrate: 3/8-inch OD tube (John Guest© Push-in)
  - Electrical: 115 volt AC / 60 Hz / 1 Phase
  - Ampere:
    - Stand-by: 0.2
    - Flush: 0.5
    - Run/Fill: 2.7
  - Branch Circuit Protection: 15 or 20 AMP Ground Fault Protected

### Pre-Installation Checklist

1. Can the unit be mounted within a reasonable distance of the water supply and drain facilities?
2. Is there an un-switched 115 VAC GFIC (ground fault interrupter circuit) protected receptacle available for powering the system?
3. Is there adequate clearance and support to install the unit and permit access for maintenance? The total system weight will vary based on model and storage tank selected. See specification table for approximate operating weights.
4. Does the inlet water supply meet the requirements listed below?
  - a. A minimum of 25 PSI pressure on a consistent basis
  - b. Less than 1,000 ppm of Total Dissolved Solids (TDS)
  - c. pH level between 7.0-9.0
  - d. Turbidity less than 1 NTU

**NOTES:**

- Please read this manual prior to installing and operating the system.
- Incoming water supplies that do not meet these requirements may need additional pre-treatment prior to the system. System performance may be affected if requirements are not met, including system output production and cartridge change-out frequency.
- Consult with your local building inspector for approval and required permits to install this system. Additional equipment, such as back-flow prevention devices, seismic restraint equipment, air gaps, etc., may be required. Completed installation must meet all local and national codes.

Do not connect the ENVI-RO™ system after any water filtration system, unless specifically provided or specified for use with the ENVI-RO™ system.

**UNPACKING AND INSPECTION**

The ENVI-RO™ includes all the necessary fittings for installation. Lengths of 3/8" tubing have been provided for connecting to the wastewater/drain connection. Supply lines and distribution piping/tubing are not included.

The ENVI-RO™ system is packaged as a complete unit in one carton. At a minimum, you should have the following:

1. Plate mounted processor assembly including:
  - Dual-head Pump
  - Cartridge Heads
  - Controller & Power Supply
  - Storage Tank
2. Wall Mount Bracket
3. MR-600 RO cartridge
4. 2SR-BW Cartridge
5. Parts Kit

Inspect the carton for damage. Report any damage to freight carrier immediately and retain all packaging materials. Carefully unpack and inspect each item.

**SYSTEM ASSEMBLY**

Locate the system in an area that is convenient to the inlet water supply and drain facilities, with access for routing the product water tubing/piping to the equipment. Install in a dry location, away from all forms of corrosive and/or flammable materials. Consider ease of access for servicing when selecting a location. Evaluate the mounting surface for its ability to properly support the weight of the processor when in operation (Approximately 90 pounds).

**⚠ WARNING** Do not use screws smaller than #12 for mounting the processor.

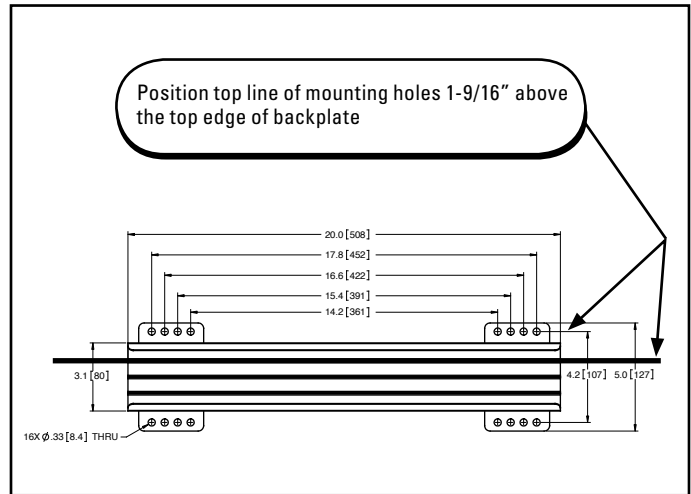
**⚠ WARNING** Mounting surface may require reinforcement to support processor safely. Hollow walls, drywall and other non-structural surfaces are not suitable unless reinforced.

**Processor Assembly Mounting**

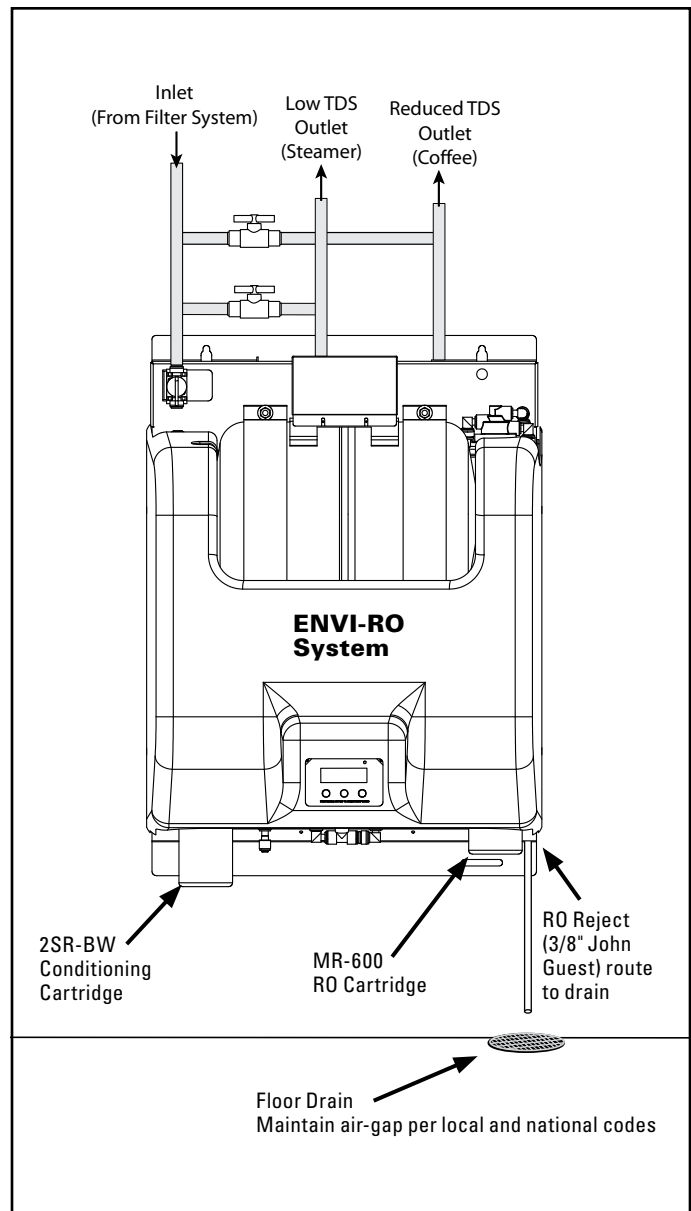
1. The ENVI-RO system has been provided with a wall mount bracket to allow greater installation flexibility and ease of processor placement. If the wall mount bracket is not suitable for this specific application, the processor backplate has 4 mounting holes (2 keyhole slots, 2 standard) on 16" centers for securing it directly to a vertical surface.
2. Refer to **Figure 7** (page 13) for dimensional information. Use this as your guide to determine the wall mount bracket and/or processor location. If NOT installing the wall mount bracket go to step 5.

continued on the next page . . .

**Figure 1. Wall mount bracket.**



**Figure 2. ENVI-RO Assembly.**



3. Refer to **Figure 1** for mounting bracket details. Position the top row of holes 1-9/16" inches below the top of the processor when installed. Install the wall mount bracket to a suitable vertical surface. Use no less than 4 - #12 fasteners to secure the bracket to the surface.
4. Prepare to attach the processor to the wall mount bracket. Lift the processor and "hook" the metal lip of the processor backplate over the top edge of the wall mount bracket. Go to step 6.
5. Measure and install 2 - #12 fasteners on 16" centers to engage the top edge of the processor backplate - leave 1/4" gap. Lift the processor and "hook" the key-hole slots on the processor backplate. Tighten the 2 fasteners.
6. Install 2 - #12 minimum fasteners in the 2" wide slots along the bottom edge of the processor backplate.

### Piping/Tubing Connections

1. Refer to **Figure 2** and the drawing on Page 14 for general views of the piping, with a description of major components and connection points. These major components and connections will be referred to in the following steps.
2. A parts kit has been provided, which includes valves and tees to configure a system by-pass. Assemble the parts to the system using the example shown in **Figure 3**.
3. Prepare the plumbing to accept the RO system.

**NOTE:** The product water tubing/piping and associated fittings connecting the RO product outlet to the equipment being serviced should be food grade material that meets NSF Standard 51 or 61 with a minimum pressure rating of 100-PSI. The product water may react with metal piping, creating a corrosive condition, in addition to imparting an objectionable taste. Plastic pipe or reinforced tubing are generally very good choices for RO water distribution materials. The size of the product water tubing/piping should be 3/8" ID minimum. Distances of 25 feet or greater from the RO to the equipment being serviced should be 1/2" ID minimum.

4. Shut-off the supply of water to the existing filtration system, and relieve pressure. Connect a line from the treated water outlet of the filtration system to the inlet of the ENVI-RO system.
5. Connect the appropriate size and type of tubing/piping and associated fittings to the corresponding ENVI-RO outlet connection. Route the line(s) to the equipment being serviced (i.e.; espresso, coffee, etc.). Close the inlet, outlet and by-pass valves. Apply pressure to the existing filtration system and place it back into service.
6. Check the storage tank pre-charge pressure. It should only be checked and adjusted when the storage tank is empty. A 30 psi pre-charge pressure is required.
7. Connect a 3/8" OD tube to the reject Y-connector (labeled WASTE) located in lower right corner of processor. Route the other end of the tubing to a drain nearby, securing it properly. Allow an air gap at the drain, following any applicable local and national codes. See **Figures 2 and 4**.

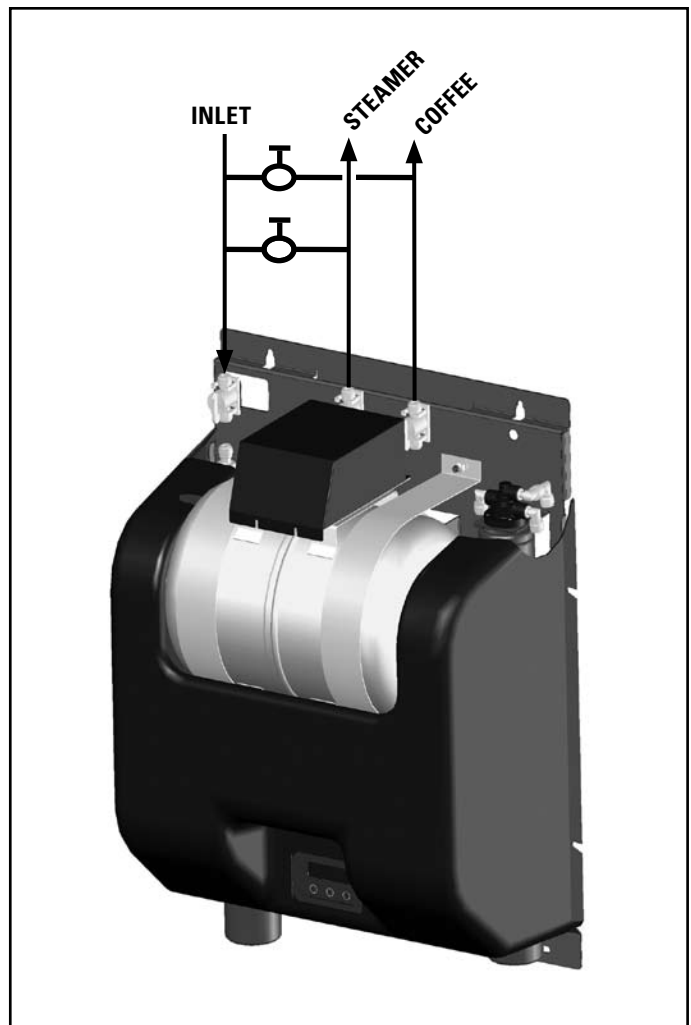
**⚠ WARNING** Refer to "Reject to Drain, Maximum" under *RO Production* in the Performance Table (page 8) to determine the maximum gallon per minute waste flow rate. Verify drain has ample capacity for this waste flow, plus all other sources of waste flow sharing this drain.

8. Locate the needle valve from the parts kit. Attach a short section of 3/8" tubing to this valve.

**NOTE:** This assembly will be used to adjust the system recovery in the following section, then removed.

9. Remove the 3/8" tube from the reject Y-connector and install the needle assembly between the reject Y-connector and 3/8" tube.

**Figure 3.** Inlet and Outlet Connections



**Figure 4.** Reject Y-Connector Detail



## CONTROL SYSTEM OPERATION

The ENVI-RO system includes a micro-processor based control system that monitors system conditions and controls the system operation. A digital display panel provides operational information and 4 buttons provide operator access. To follow is a list of modes and a description of each function. Use this as a guide during start-up, normal operation and when service is required.

### Operational Mode

- **MAIN SCREEN VIEW** - When the system is in normal operation and not operating in any of the following operational modes, the panel will display the system identification with software version and total run hours since start-up, or last reset.
- **PRESSURIZE** - When pressure in the storage tank drops below the pressure switch "on" setting, the system will start processing water and refill the storage tank. Once the pressure in the storage tank rises above the pressure switch "off" setting, the system will stop. Run time in seconds will be displayed.
- **FLUSHING** - If the ENVI-RO System remains idle for the programmed length of time, the control system will automatically go into FLUSHING mode. During this time, there will be flow to drain (reject). Remaining flush time in seconds will be displayed.
- **REFILL** - At the end of FLUSHING, or if pressure drops too low in the storage tank during FLUSHING, the control will enter REFILL mode. Run time in seconds will be displayed.

### Programming Mode

The ENVI-RO Controller has several user accessible menu's. This menu "loop" allows for adjustment of several variable parameters. The Controller has 4 buttons below the display for these adjustments. Description of the button functions are shown in the digital display area.

- **Press and hold any key for 3 seconds to enter set-up mode.**
- **Flush Time X1** - This parameter determines the flush duration. Upon determining the recovery and reject flow, a time value in seconds is entered for this setting. Range is 0-995 seconds in 5 second increments. Use the +/- keys to adjust this value. Press Enter to save value and go to next screen.
- **Flush Int X2** - This parameter determines the flush interval. If the system does not process water for the time value selected, the system will enter FLUSHING mode. A time value in hours is entered for this setting. Range is 0.5 to 10 hours in 0.5 hour increments. Use the +/- keys to adjust this value. Press Enter to save value and go to next screen.
- **Reset Total Hr?** - This parameter allows resetting the total run time, which is displayed in the MAIN SCREEN VIEW. Press YES to reset, NO to NOT reset. Controller saves selection and goes to next screen.
- **Coffee Setup?** - This parameter allows viewing the TDS reading in the coffee outlet line, with a very frequent up-date rate. Use this mode when adjusting the blend valves. Select YES to enter this mode, and NO to exit programming.
- **Coffee TDS:** - This is a view only screen. The value displayed is the TDS level of the water in the Coffee outlet line. The most accurate readings are attained by having flow on the Coffee line. Press any key to return to the MAIN SCREEN VIEW.
- **SAVING DATA...** - This is a view only screen. The controller is saving the settings and returning to the MAIN SCREEN VIEW. If desired, press and hold either middle button to enter TDS Calibration mode.
- **TDS CAL** - This parameter allows adjustment of the TDS value the controller will display. Use this mode to calibrate the system with a calibration solution. Use the +/- keys to adjust this value. Press Enter to save and return to the MAIN SCREEN VIEW.

## Electrical Connections

The system is pre-wired at the factory. Verify that a 115 VAC ground fault protected circuit rated at 15 Amps minimum is located nearby. Plug-in power cord when instructed to do so in the following section.

**ENVIRO V. X.XX**  
**TOTAL: XXXX.XX Hours**

**PRESSURIZE... XXXXX**

**FLUSHING... XXXX**

**REFILL... XXXX**

**ENVIRO V. X.XX**  
**TOTAL: XXXX.XX Hours**

**Flush Time X1**  
**- Enter +**

**Flush Int X2**  
**- Enter +**

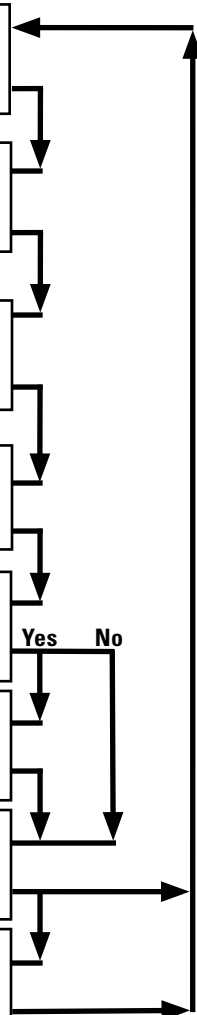
**Reset Total Hr?**  
**Yes No**

**Coffee Setup?**  
**Yes No**

**Coffee TDS: XXX**  
**PRESS TO RETURN**

**SAVING DATA...**

**TDS CAL XXX**  
**- Enter +**



## CARTRIDGE INSTALLATION AND ACTIVATION

1. Remove the outer shrink-wrap and protective cap from the 2SR-BW & MR-600 RO cartridges. Position a bucket under the 2SR-BW cartridge head. Slowly open the Inlet shut-off valve. Apply power to the system by plugging the power cord into the receptacle. Within moments, the display water should illuminate and the system will go into PRESSURIZE mode. Once a solid flow of water has been established, flush 1 gallon. Unplug power cord. Empty bucket.
2. Install 2SR-BW cartridge. Align the lugs on the new cartridge with the slots in the head. Holding the head and cartridge firmly, press the cartridge upward into the head fully, and then turn the cartridge to the right until it stops.
3. Disconnect 3/8" OD line from 2SR-BW to Booster Pump inlet at Booster Pump. Route line into bucket and secure. Plug-in power cord. Once a solid flow of water has been established, flush 1 gallon. Unplug power cord. Re-connect 3/8" OD line to Booster Pump inlet. Empty bucket.
4. Route a blue line from the 3/8" storage tank drain valve to drain temporarily. Open storage tank drain valve.
5. Install MR-600 cartridge. Align the lugs on the new cartridge with the slots in the head. Holding the head and cartridge firmly, press the cartridge upward into the head fully, and then turn the cartridge to the right until it stops.
6. Plug-in power cord. Once a solid flow of water has been established, flush 5 gallons from storage tank drain (about 10 minutes). Unplug power cord.

**⚠ WARNING DO NOT USE THIS PRODUCT WATER! It may contain a preservative solution from the RO cartridge and should not be consumed!**

## RECOVERY ADJUSTMENT

1. Measure the raw water TDS. Refer to Table 1 on page 6. Find the TDS range in the column labeled "Raw Water TDS" that corresponds to your TDS measurement. Read across that row to determine maximum recovery, permeate to reject ratio and permeate/reject volumes.
2. Using 2 - 32 oz. or 1,000 ml graduated containers, apply power to the system and collect the permeate flow (from storage tank drain valve) in one container and the reject (WASTE) flow in the second container. Compare the volumes collected to the data shown in the table. Adjust the reject needle valve to increase or decrease the flow. Empty the containers and collect additional samples.
3. Once the ratio of Permeate-to-Reject closely matches the data in Table 1, the Reject Only volume requires measurement. Using only 1 graduated cylinder, collect the reject flow for 1 minute.

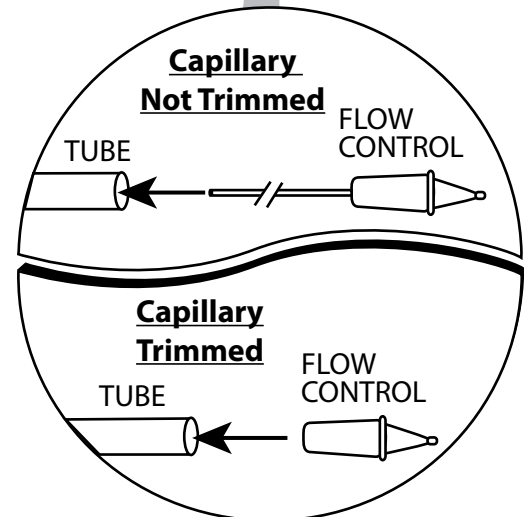
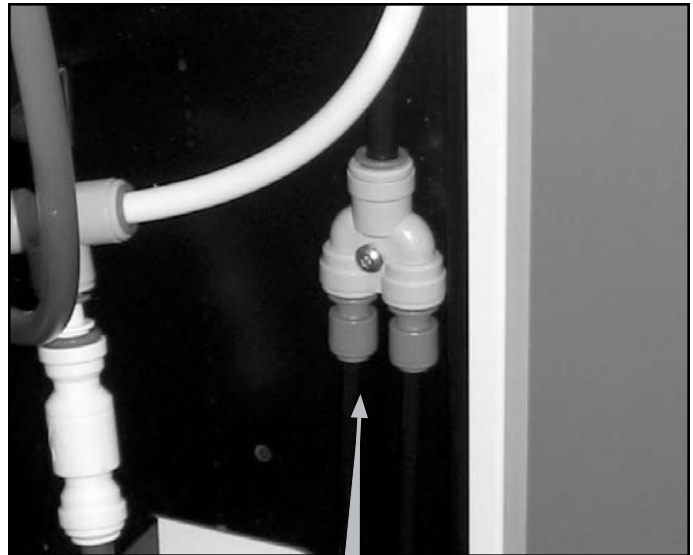
**NOTE:** Reject volume in 1 minute may exceed 32 oz./1,000 ml. If so, use a larger container, or collect samples in multiple containers and add all collected volumes together.

4. Unplug power cord. Close storage tank drain valve.
5. Return to page 6, Table 2. Find the volume range in the column labeled "Reject Volume per Minute" that corresponds to the volume collected in Step 4. Read across that row to identify the correct capillary tube combination.
6. Locate the correct capillary tubes from the parts kit. Remove the 2 - 1/4" OD tubes from the upper Y-connector. Insert the capillary tubes into each line and re-assemble to the Y-connector.

**NOTE:** In some cases, the capillary tube requires trimming. Use a SHARP utility knife to cut the tube cleanly without tearing or crushing the tube.

7. Remove Reject Needle valve assembly and reconnect 3/8" tube. Plug-in power cord. Allow system to run and fill tank. This will take 5-10 minutes.
8. Refer to Table 2 again. Under the column labeled "Flush Time in Seconds", find the value that corresponds to the Raw Water TDS. Enter this value in the controller under "FLUSH TIME X1". Adjust "FLUSH INT X2" to 1.5 Hours.

Figure 5. RO Reject Flow Control Assembly



**Table 1 - Recovery & Permeate to Reject Ratio**

Raw (Feed) Water TDS	Maximum Recovery	Ratio			Permeate & Reject Volumes at Specified Recovery			
					Permeate (Blue Line)		Reject (Black Line)	
		Permeate	to	Reject	Ounces	Milliliters	Ounces	Milliliters
0 - 200	80.0%	1	to	0.25	80.0	800	20.0	200
201 - 250	77.4%	1	to	0.29	77.4	774	22.6	226
251 - 300	72.8%	1	to	0.37	72.8	728	27.2	272
301 - 350	68.3%	1	to	0.46	68.3	683	31.7	317
351 - 400	63.8%	1	to	0.57	63.8	638	36.2	362
401 - 450	59.3%	1	to	0.69	59.3	593	40.7	407
451 - 500	54.7%	1	to	0.83	54.7	547	45.3	453
501 - 550	50.2%	1	to	0.99	50.2	502	49.8	498
551 - 600	45.7%	1	to	1.19	45.7	457	54.3	543
601 - 650	41.2%	1	to	1.43	41.2	412	58.8	588
651 - 700	36.7%	1	to	1.73	36.7	367	63.3	633
701 - 750	32.1%	1	to	2.11	32.1	321	67.9	679
751 - 1000	30.0%	1	to	2.33	30.0	300	70.0	700

**Table 2 - Capillary Tube and Flush Time Selector**

Reject Volume per Minute		Capillary Tube		Flush Time in Seconds
Ounces	Milliliters	#1	#2	
0.0 - 6.1	0 - 179	Red	PLUG	838
6.1 - 14.0	180 - 414	Brown - Trimmed	PLUG	362
14.0 - 20.1	415 - 593	Brown - Trimmed	Red	253
20.1 - 25.9	594 - 766	Green	PLUG	196
25.9 - 31.9	767 - 945	Green	Red	159
31.9 - 40.1	946 - 1186	Blue - Trimmed	PLUG	126
40.1 - 46.2	1187 - 1365	Blue - Trimmed	Red	110
46.2 - 51.6	1366 - 1525	White - Trimmed	PLUG	98
51.6 - 57.6	1526 - 1703	White - Trimmed	Red	88
57.6 - 65.5	1704 - 1938	White - Trimmed	Brown - Trimmed	77
65.6 - 72.9	1939 - 2155	Grey	Red	70
72.9 - 77.4	2156 - 2290	White - Trimmed	Green	66
77.4 - 83.7	2291 - 2475	White	Blue - Trimmed	61
83.7 - 91.6	2476 - 2709	White - Trimmed	Blue - Trimmed	55
91.6 - 97.5	2710 - 2883	White	White	52
97.5 - 103.1	2884 - 3048	White - Trimmed	White - Trimmed	49
103.1 - 116.5	3049 - 3444	Grey	White	44
116.5 - 135.5	3445 - 4006	Grey	Grey	37

## DISINFECTION

When cartridge activation and recovery adjustments are complete, the storage tank and associated piping must be disinfected, then completely flushed. The steps for this are outlined below.

1. Locate the 3/8" OD tubing that connects to the inlet (left side) of the storage tank. Disconnect the end which connects to the elbow fitting at the processor. Measure 1 ounce of 5.25% bleach for every 7.5 gallons of storage tank capacity. Pour this volume of bleach into the tube that leads to the storage tank. Re-connect this tube to the elbow fitting. Apply power to the system by plugging the power cord into the receptacle. The booster pump should begin to run and fill the storage tank.
2. Once sufficient water has entered the storage tank (more than 1/4 full), demand treated water from at least one piece of equipment the ENVI-RO is supplying water to. Once all of the air has been purged, and a solid flow of water is observed, stop the flow at the connected equipment. Purge the air from all remaining pieces of connected equipment by demanding water from each one individually.
3. Allow the storage tank to fill until the booster pump turns off. Allow the chlorinated water to remain in the storage tank and distribution piping for 10 minutes.
4. Unplug the power cord. Drain the storage tank by demanding water downstream and allow the storage tank to drain. Once the storage tank is empty, stop demanding water downstream.
5. Apply power to the system by plugging the power cord into the receptacle. Once sufficient water has entered the storage tank (more than 1/4 full), demand treated water from at least one piece of equipment the ENVI-RO is supplying water to. After 5 minutes, stop the flow at the connected equipment. Flush the lines to each remaining piece of connected equipment by demanding water from them for 2 minutes each.
6. Allow the storage tank to fill until the booster pumps turns off.
7. Unplug the power cord. Drain the storage tank by demanding water downstream and allow the storage tank to drain. Once the storage tank is empty, stop demanding water downstream.
8. Repeat steps 5-7 until no residual chlorine odor is detected from the water exiting the storage tank or connected equipment.

## PLACING ENVI-RO INTO SERVICE

Once the cartridges have been activated, the storage tank and distribution piping sanitized, the ENVI-RO can be placed into service.

During normal operation, the valves on the ENVI-RO should be in the following positions:

- A. System inlet and outlet valves – open
- B. System by-pass valves – closed.

Once the system been started-up initially, it is a good idea to measure the outlet water flow rate and quality to verify the system's performance. The initial values should be recorded for future comparison to detect any changes in performance. A Performance Log has been provided on Page 9 to record this information.

## OPERATION

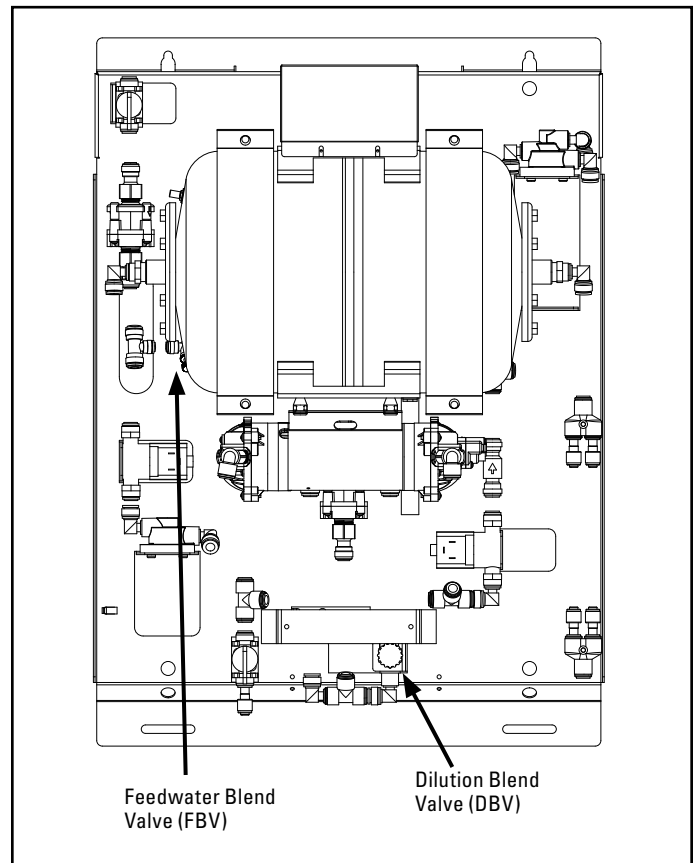
1. During normal operation, a continuous supply of water must be available to the system.
2. The system inlet and outlet valves must be open, the sample outlet and flushing valves must be closed and the drain line must be unrestricted.

## DUAL OUTLET AND BLEND ADJUSTMENT

The ENVI-RO system is capable of producing two water qualities, which are detailed below.

- The outlet marked "STEAMER" provides water directly from the RO Membrane. The TDS of this water is very low, ideally suited for applications such as flash steamers and other equipment that "boils away" the water. This outlet requires no adjustment.
- The outlet marked "COFFEE" can produce a wide range of water qualities. It combines or "blends" two sources of water; 1) directly from the RO Membrane and, 2) filtered water containing the same level on mineral content as the raw (feed) water. The following text describes the adjustment of this feature.
  1. Open the feedwater blend valve (FBV) and dilution blend valve (DBV) fully. See **Figure 6** for location of these valves.
  2. Demand flow on the "COFFEE" line. The flowrate should equal the maximum expected demand of all connected equipment.
  3. Access the "Coffee TDS" view screen on the controller to observe a real-time reading of the TDS quantity in the water flowing to the "COFFEE" line.
  4. Compare TDS value on controller to application requirement. If controller reading is higher than requirement, slowly close FBV until TDS value is met. If controller reading is lower than requirement, slowly close DBV until TDS value is met.

Figure 6. RO Blend Valve Locations



## PERFORMANCE\* SECTION

<b>RO Production†</b>	<b>ENVI-RO 600</b>
Gallons per Day	600
Gallons per Hour	25
Ounces per Minute	53
Inlet Supply Requirements, Minimum	1.5 gpm
Reject to Drain, Maximum	0.85 gpm

†Production rates based on the following:  
750 ppm TDS Soft Water @ 50 psi, 77°F, to Atmosphere, Recovery = 40%, SDI = <3,

### Stored Water System

Flowrate (gpm)	Dependant on: Pressure/volume in storage, line sizes
Volume (Gallons)	Dependant on: Pressure/volume in storage
Pressure (typical)	60–100 psi (4.1-6.9 bar)
Salt Rejection	90% minimum
Recovery	Varies based on water conditions - 30-80%

## DIMENSIONS AND OPERATING WEIGHTS

<b>System Only</b>	<b>ENVI-RO (EV9970-38)</b>
Dimensions	32"H x 23"W x 13.6"D
Operating Weight	90 lbs.

### Cartridges and Elements

Reverse Osmosis	24-inch TFC
Conditioning Cartridge	10-inch Scale Control
Carbon Post-Filter	10-inch In-line

\*Specifications Subject To Change Without Notice.

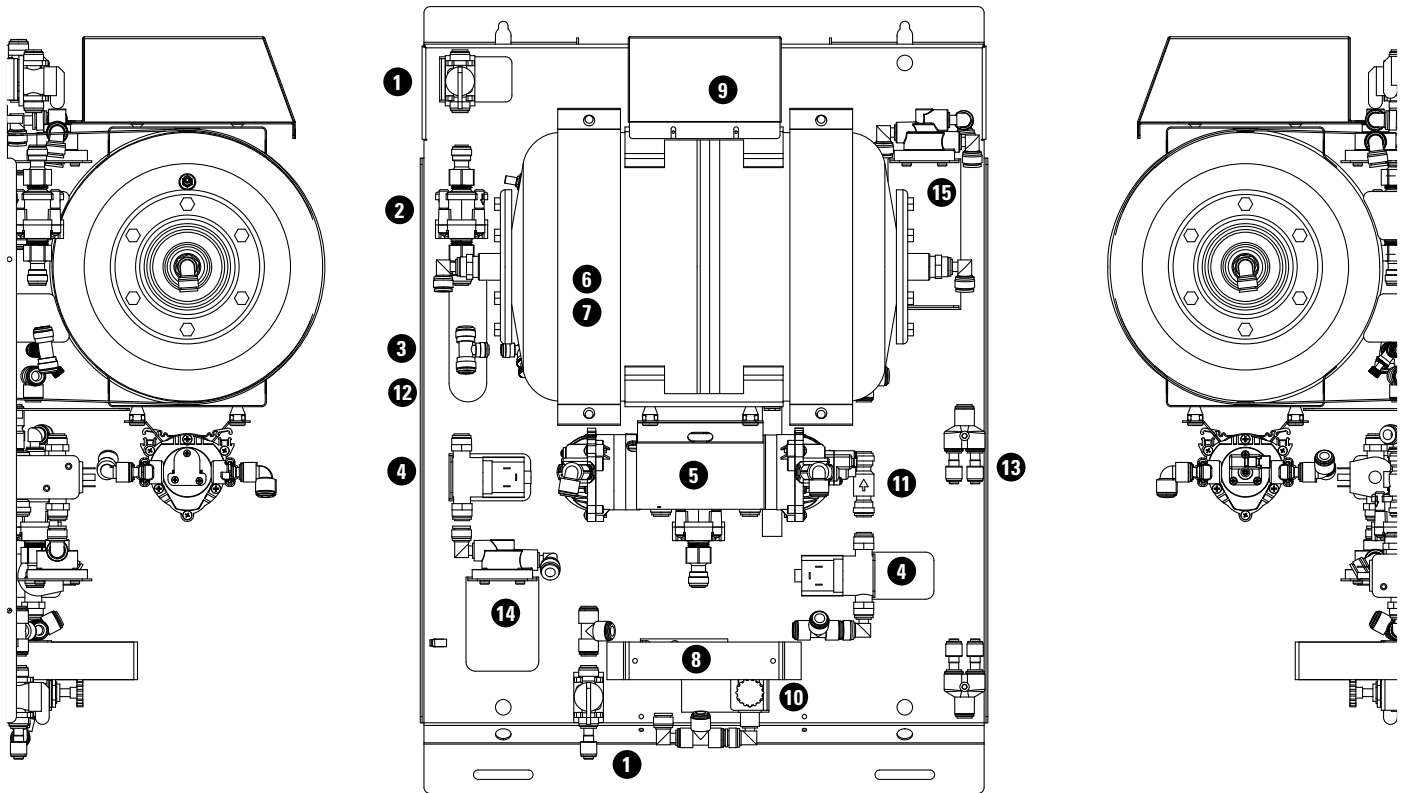




## TROUBLESHOOTING GUIDE

<b>Problem</b>	<b>Possible Cause</b>	<b>Remedy</b>
1. Insufficient product water during normal operating periods.	a. Pre-filtration system restriction.	a. Check pre-filtration system and/or replace pre-filter cartridge(s).
	b. SR cartridge plugged.	b. Replace SR cartridge.
	c. RO cartridge plugged.	c. Replace RO cartridge.
	d. Insufficient system inlet pressure.	d. Check/repair booster pump and inlet line.
	e. Incorrect storage tank pre-charge.	e. Empty water in storage tank. Check pre-charge pressure. Adjust to 30 psi. Presence of water at Schrader valve indicates failed bladder - Replace bladder or tank.
2. Insufficient product water volume during peak periods.	a. Refer to problem 1.	a. Refer to problem 1.
	b. System rated output low for application.	b. Verify system output. If output is within specification, increase output if applicable.
	c. System storage capacity low.	c. Increase storage capacity if applicable.
3. Low quality RO water.	a. Refer to problem 1.	a. Refer to problem 1.
	b. RO cartridge failure.	b. Replace RO cartridge.
4. Low water pressure at water using equipment.	a. Tubing/piping run to equipment restrictive.	a. Increase tubing/piping diameter. Refer to "System Installation" section for recommendations.
	b. Incorrect storage tank pre-charge.	b. Empty water in storage tank. Check pre-charge pressure. Adjust to 30 psi. Presence of water at Schrader valve indicates failed bladder - Replace bladder or tank.
5. Objectionable product water odor.	a. Pre-filtration cartridge(s) exhausted.	a. Replace pre-filtration cartridge(s).
	b. Storage tank requires disinfection.	b. Disinfect storage tank.
6. Wastewater flow too low or decreases over time.	a. Drain line restricted.	a. Check/correct any restrictions in drain line tubing. Make sure to allow an air gap at the drain. Disconnect reject line at quick connect fitting and inspect for obstruction or damage. Remove obstruction. Replace if required.
	b. Insufficient system inlet pressure.	b. Check/repair booster pump and inlet line.

**Figure 6. Parts Diagram**



**REPLACEMENT PARTS**

KEY	PART NO.	DESCRIPTION	KEY	PART NO.	DESCRIPTION
1	EV311192	Valve, Ball, 3/8" PI x 3/8" PI	13	EV312827	RESTRICTOR, BLUE, 735 ml/min
2	EV312810	Pressure Reducing Valve	13	EV312828	RESTRICTOR, WHITE, 1052 ml/min
3	EV312839	Valve, Control (FBV)	13	EV312829	RESTRICTOR, GREY, 1577 ml/min
4	EV312808	Valve, Solenoid	13	EV312830	RESTRICTOR, RED, 125 ml/min
5	EV312818	Pump	13	EV312831	RESTRICTOR, BROWN, 189 ml/min
6	EV312809	Accumulator Tank without Bladder	13	EV312832	RESTRICTOR, GREEN, 525 ml/min
7	EV312814	Bladder	13	EV312833	PLUG, 1/4" OD
8	EV312817	Controller			
9	EV312815	Power Supply			
10	EV311161	Valve, Needle (DBV)			
11	EV310391	Check Valve, 3/8"			
12	EV312840	Check Valve, 1/4"			

**REPLACEMENT CARTRIDGES**

KEY	PART NO.	DESCRIPTION	KEY	PART NO.	DESCRIPTION
14	EV962714	Cartridge, 2SR-BW	16	EV312867	IN-LINE FILTER, GS-215RO-H, 16PK
15	EV962713	Cartridge, MR-600			

**Contact your local Everpure Dealer for replacement and spare parts.**

## MAINTENANCE

The ENVI-RO requires very little maintenance. Regular cartridge replacement is the only normal requirement, and a very important one. In typical service, the cartridge change-out schedules are as listed below.

### Every 6 months

#### - Replace the SR cartridge:

- Open both by-pass valves.
- Remove power from system by unplugging power cord.
- Close the inlet valve.
- Follow instructions on the SR cartridge label. Place a bucket under the cartridge to catch any excess water that may spill from the head. Remove the old cartridge by turning the cartridge to the left until it stops and pulling it downward until it is free from its head.
- Remove the outer shrink-wrap and protective cap from the new SR cartridge.
- Align the lugs on the new cartridge with the slots in the head.
- Holding the head and cartridge firmly, press the cartridge upward into the head fully, and then turn the cartridge to the right until it stops.
- Disconnect 3/8" OD line from SR Cartridge to Booster Pump inlet at Booster Pump. Route line into bucket and secure. Plug-in power cord.
- Route a blue line from the 3/8" storage tank drain valve to drain temporarily. Open inlet valve. Open storage tank drain valve. Drain storage tank until system starts processing water. Close storage tank drain valve.
- Once a solid flow of water has been established, flush 1 gallon. Unplug power cord. Re-connect 3/8" OD line to Booster Pump inlet. Plug in power cord.
- Close both by-pass valves.

### Every 12 months

#### - Sanitize the storage tank and lines:

- Refer to "Disinfection" section - steps 1-8, for sanitization procedure.

#### - Replace the RO cartridge:

- Open both by-pass valves.
- Remove power from system by unplugging power cord.
- Close the inlet valve.
- Follow instructions on the MR cartridge label. Place a bucket under the cartridge to catch any excess water that may spill from the head. Remove the old cartridge by turning the cartridge to the left until it stops and pulling it downward until it is free from its head.
- Remove the outer shrink-wrap and protective cap from the new MR cartridge.
- Align the lugs on the new cartridge with the slots in the head.
- Holding the head and cartridge firmly, press the cartridge upward into the head fully, and then turn the cartridge to the right until it stops.
- Remove both capillary restrictors temporarily.
- Route a blue line from the 3/8" storage tank drain valve to drain temporarily. Open inlet valve. Open storage tank drain valve. Plug-in power cord.

- Drain storage tank until system starts processing water. Once a solid flow of water has been established, flush 5 gallons from tank drain (about 10 minutes). Unplug power cord.

**⚠ WARNING DO NOT USE THIS PRODUCT WATER! It may contain a preservative solution from the RO cartridge and should not be consumed!**

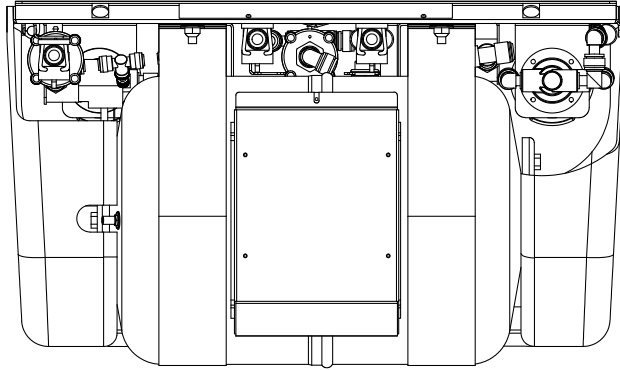
- Re-install capillary tubes.
- Close both by-pass valves.

#### - Replace the Post Carbon cartridge:

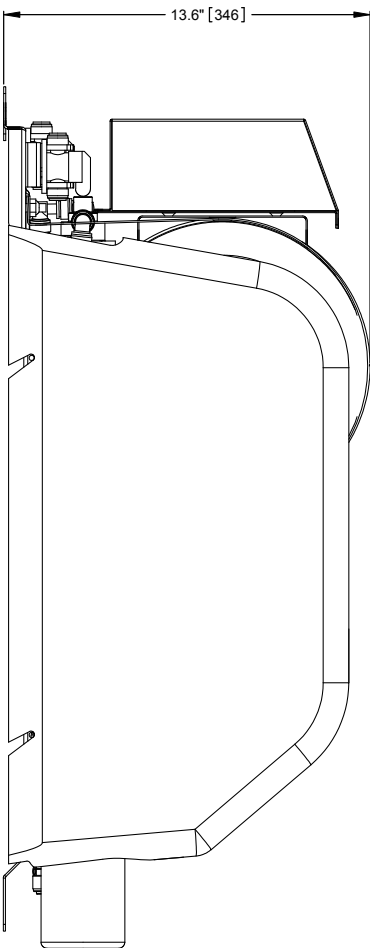
- Open both by-pass valves.
- Remove power from system by unplugging power cord.
- Close the inlet and both outlet valves.
- Route a blue line from the 3/8" storage tank drain valve to drain temporarily. Open storage tank drain valve. Drain storage tank. Close storage tank drain valve.
- Follow instructions on the Post Carbon cartridge label. Place a bucket under the cartridge to catch any excess water that may spill when removing lines. Remove lines, note flow direction, then remove cartridge.
- Install new cartridge, in same flow direction as original cartridge. Connect lines.
- Plug-in power cord. Once a solid flow of water has been established, flush 5 gallons from tank drain.
- Close storage tank drain valve.
- Open the inlet and both outlet valves.
- Close both by-pass valves.

**Figure 7. Dimensional Drawing**

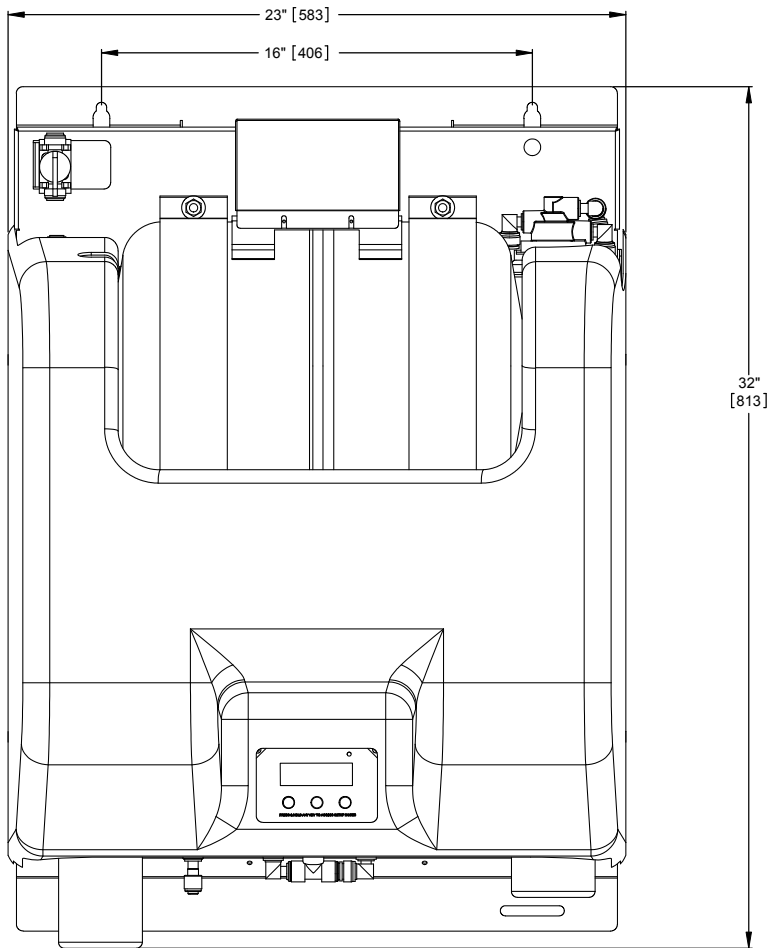
**Top View**



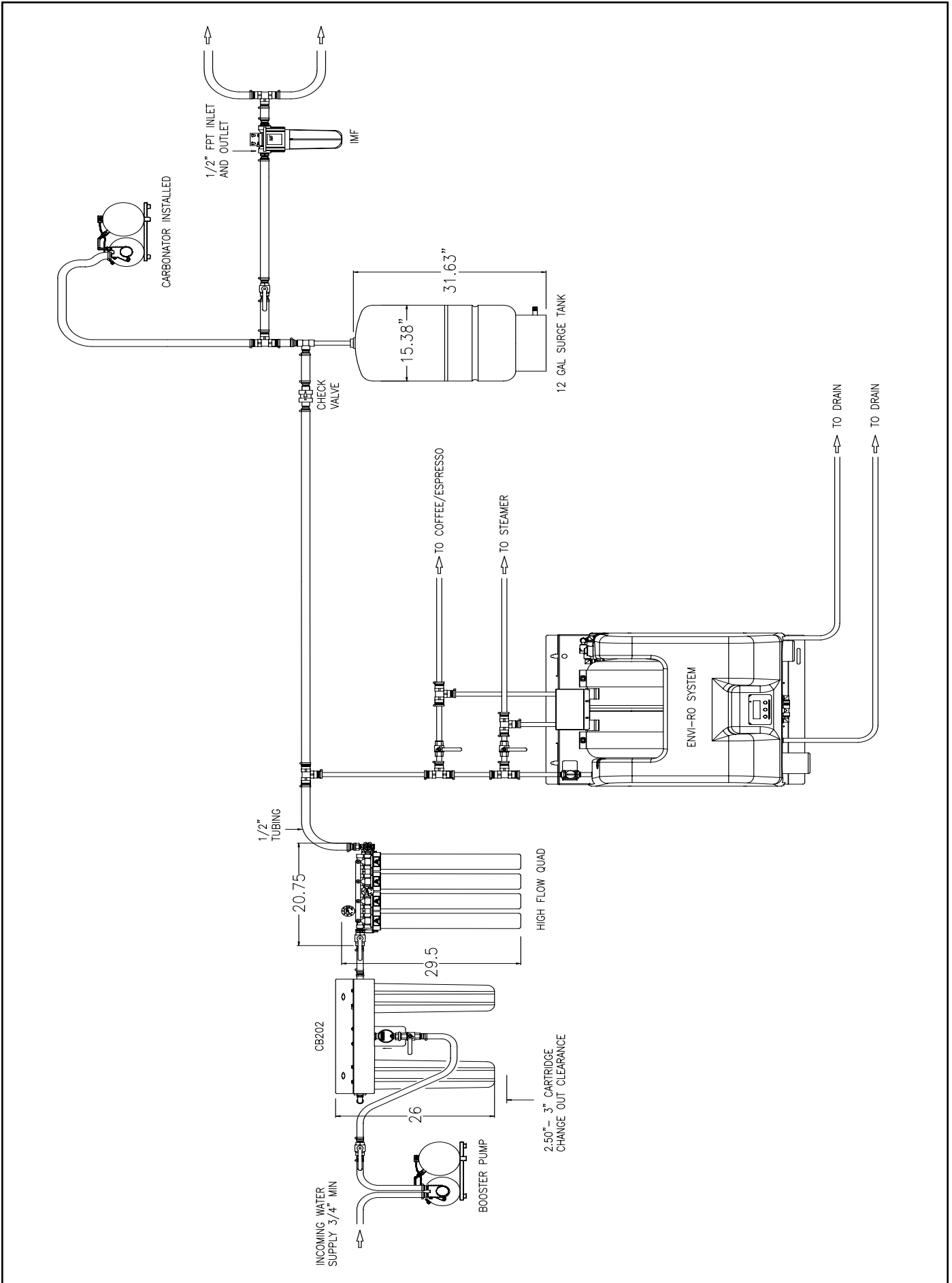
**Side View**



**Front View**



**Figure 8. General Installation Arrangement**







**For sales, replacement components, and service, contact your Everpure dealer or:  
Everpure, LLC: 1040 Muirfield Drive • Hanover Park, Illinois 60133 • 800.323.7873**

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