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Reverse Osmosis Customer Manual



INTRODUCTION

Congratulations, on the purchase of your new Reverse Osmosis Drinking Water System. Treated with care and regular maintenance, your new system will provide many years of service delivering purified water to the tap.

Although this product is described as a '**Drinking Water System**', the purified water produced by the reverse osmosis (RO) process can be used for many purposes around the home.

- **Drinking Water** - keep container of RO water in the fridge to be able to enjoy the clean, fresh taste.

Alternatively, take it directly from the tap.

- **Ice Cubes** - use RO water to fill ice cube trays. Ice cubes made from RO water are typically clearer and better tasting than ice made from plain tap water.

- **Automatic Ice Makers** - a water line from the RO system can be plumbed to refrigerators with automatic icemakers.

- **Kettles and Coffee Makers** - plain tap water eventually causes films and scale in these devices that is difficult to clean. RO water is very low in dissolved minerals content, greatly reducing the chance of scale buildup.

- **Cooking** - use RO water for boiling pasta, rice or any other recipe that calls for water in the instructions.

- **Washing Fresh Fruit & Vegetables** - prevent tap water minerals from being deposited onto food to maintain freshness.

- **Family Pets** - Allow your dog or cat to enjoy the same purified water you do.

- **Irons and Steamers** - prevent mineral buildup in household appliances that use water and eventually build up with scale when using plain tap water.

Now you can relax and enjoy the benefits of great tasting water supplied by your reverse osmosis drinking water system.

Remember that good quality water is important to maintaining a healthy lifestyle. You can also feel good about the money you have saved by having your own drinking water system instead of dealing with the expense and hassle of bottled water delivery.

Functional Description

Feed water enters the 5-micron pre-filter, which filters out suspended particles such as dirt or sediment. The filtered water then enters the pre-carbon filter, which contains granular activated carbon, which removes any chlorine from the water.

The water then enters the reverse osmosis membrane. The membrane will allow only permeate (product water) to pass through. The brine (waste water) goes to the drain. Permeate then flows through a hydraulic shut-off valve to the storage tank. When the tank fills and the tank pressure reaches approximately 40% to 65% of the inlet feed water pressure, the shut-off valve closes, which turns the system off.

When water is drawn from the faucet, permeate flows from the storage tank through the post carbon filter. This filter contains granulated activated carbon, removing any taste and odor that has accumulated while stored in the tank. When the tank empties, the shut-off valve opens, turning the unit on.

Maintenance Schedule

This schedule is designed for the average potable water supply and should be followed to ensure the proper functioning of your drinking water system.

Pre-Filter - The pre-filter contains a 5 micron mechanical filter element. Its function is to remove suspended particles from the feed water, thus reducing the possibility of clogging the reverse osmosis membrane. The pre-filter element should be ***replaced every twelve months*** or earlier depending on the quality of the feed water.

Pre-Carbon Filter -The pre-filter contains a granular activated carbon. Its function is to remove chlorine from the incoming water to prevent any damage to the TFC membrane. The Pre-Carbon filter cartridge should be ***replaced every 24 months*** or earlier depending on the quality of the feed water.

Reverse Osmosis Module - The reverse osmosis module contains a semi-permeable membrane. Its function is to separate water molecules from dissolved impurities in the feed water. This is accomplished by application of hydraulic pressure greater than the osmotic pressure in water containing dissolved solids. The life of the membrane can be determined by measuring the percentage of rejection of total dissolved solids in the water. The membrane should be ***replaced every 24 to 36 months*** when its efficiency will decrease.

Post-Carbon Filter - The post-filter contains a granular activated carbon. Its function is to remove any taste and odor from the water prior to delivering it to the spigot. The post-filter cartridge should be ***replaced every 24 months***.



Changing Filters

Important: This RO System contains filters, which must be replaced at regular intervals to maintain proper performance.

Local conditions may dictate more frequent cartridge replacement. Use a drip pan to catch any water that may spill when the housings are removed. Use only factory approved filters.

1. Close the saddle valve and open the faucet by lifting the handle. Allow storage tank to empty.

Using sump wrench to change filter cartridges:

2. Loosen and remove the appropriate filter housing(s). Discard the cartridge(s).

3. Wash the inside of the housings using a mild detergent and a soft cloth. Do not use abrasive cleaners or pads. Thoroughly rinse all soap from the housing before re-assembly.

Sanitization Procedures for your Reverse Osmosis System

Sanitization is a simple but important part of a regular maintenance routine required to keep your Reverse Osmosis Drinking Water System operating properly.

Recording the dates of all maintenance and sanitization done on the unit is a good idea as well as marking on your calendar future service interval dates. Home Water Systems has a maintenance service program to deal with cartridge replacement and system sanitization by setting up regular scheduled service calls.

Sanitization maintenance of the Reverse Osmosis Drinking Water System should be performed:

- Upon installation
- At least every 6 - 12 months as part of a regular maintenance routine.
- Whenever the pre-filter and post-filter cartridges are replaced as part of a regular maintenance routine.
- Whenever the reverse osmosis membrane is replaced.
- After the system requires any servicing or routine maintenance by your local water treatment specialist.
- After long periods of time when system is not used (approximately 30 days or more)
- Whenever evidence of harmful bacteriological contamination of the system has been discovered. In this case contact your local water treatment specialist to disinfect your reverse osmosis system, and identify and eliminate the source of contamination.

Materials required for Sanitization of the Reverse Osmosis Drinking Water System:

- Mild soap solution to clean various components. Soap used should be as basic as possible and not contain any fragrances or additives.
- Soft brush to assist cleaning various components. (DO NOT USE SCOURING PADS OR ANY OTHER TYPE OF INSTRUMENT THAT COULD POTENTIALLY SCRATCH THE SURFACES OF THE UNIT.)
- Measuring spoon or device.
- Household bleach, typically containing 5.25% of chlorine.
- One (1) Gallon of potable water to mix up a disinfectant solution. (DO NOT USE WATER THAT IS NOT CONSIDERED POTABLE OR IS OF A QUESTIONABLE NATURE TO MIX UP THE DISINFECTANT SOLUTION)
- Drip pan or catch basin to collect any solution or water spilled along with paper towels to cleanup any spills.
- Silicone Based Lubricant to apply to O-Rings. (DO NOT USE PETROLEUM BASED LUBRICANTS)

Other important requirements to note:

- Before beginning installation and/or sanitization procedure, make sure that all tools used are disinfected.
- Thoroughly wash hands with soap before beginning installation and/or sanitization procedure. If your hands come into contact with any unsanitary surface while performing this procedure or the installation, hands should be rewashed with soap.
- Any surfaces used to work with to set various components on to dry, should be cleaned and disinfected.
- Any replacement cartridges, membranes and cleaned components should be handled as little as possible.

Sanitization Steps

STEP 1: TURN OFF WATER SUPPLY - CLOSE INLET SUPPLY ALL THE WAY

STEP 2: DEPRESSURIZE SYSTEM - OPEN FAUCET SUPPLY UNTIL ALL WATER IS EMPTIED

Use a clean drip pan or basin to continue to catch any spilled water remaining in the housings as you remove the membrane and cartridges.



STEP 3: DISCONNECT THE FEED TUBE FROM THE MEMBRANE HOUSING MODULE. UNSCREW THE MEMBRANE HOUSING MODULE END CAP AND REMOVE THE MEMBRANE ELEMENT. PUT THE MEMBRANE ELEMENT ASIDE ON A CLEAN DISINFECTED SURFACE.

(Unless the membrane element is being replaced at this time, then discard the old membrane.)



STEP 4: OPEN THE FILTER SUMPS WITH THE SUMP WRENCH SUPPLIED AND REMOVE THE CARTRIDGES.

STEP 5: CLEAN THE FILTER SUMPS WITH SOAP AND CLEAN WATER. USE A CLOTH OR SOFT BRUSH AS REQUIRED. CLEAN THE INSIDE OF THE MEMBRANE HOUSING AS WELL.

(You may need to pay close attention to the O-Ring seals and re-grease them afterwards with silicone lubricant)

STEP 6: REINSTALL THE FILTER SUMPS (EXCEPT THE 1ST PRE-FILTER SUMP) AND THE MEMBRANE CAP AND RECONNECT THE INLET TUBING TO THE MEMBRANE HOUSING CAP.

STEP 7: MIX UP A DISINFECTANT SOLUTION OF 1 TEASPOON OF 5.25% BLEACH IN 1 GALLON OF WATER.

STEP 8: POUR THE MIXED DISINFECTANT SOLUTION INTO THE 1ST PRE-FILTER SUMP AND RE-INSTALL.

STEP 9: OPEN THE INLET VALVE AND OPEN THE FAUCET. WHEN WATER BEGINS RUNNING FROM THE FAUCET AGAIN, CLOSE THE FAUCET AND ALLOW THE PRESSURE TANK TO FILL FOR 5 - 10 MINUTES. WHEN THE PRESSURE TANK FEELS LIKE IT HAS FILLED, CLOSE THE INLET SUPPLY VALVE.

STEP 10: ALLOW THE SYSTEM TO SIT WITH THE DILUTED SANITIZING SOLUTION FOR APPROXIMATELY 20 MINUTES.

STEP 11: OPEN THE FAUCET AND PURGE THE TANK AND SYSTEM OF THE SANITIZING SOLUTION.

STEP 12: REINSTALL THE MEMBRANE AND REPLACE THE CARTRIDGES. OPEN THE INLET SUPPLY NEEDLE VALVE AND ALLOW SYSTEM TO FILL. OPEN THE FAUCET AND DISCARD THE FIRST TANK FULL OF WATER. (IF A NEW MEMBRANE ELEMENT IS INSTALLED A THIS TIME, DISCARD THE FIRST TWO TANKS FULL OF WATER).

Trouble Shooting Guide

<i>Probable Cause</i>	<i>Solutions</i>
<i>No water or not enough water</i>	
<ol style="list-style-type: none"> 1. Feed water shut off 2. Storage tank valve shut off 3. Plugged or crimp lines 4. Pre-filter cartridge clogged 5. Low feed water pressure 	Turn on feed water Open tank valve Remove blockage or crimp in lines Replace pre-filter cartridge Feed water pressure at membrane must be at least 50 psi
<i>Low flow rate from faucet</i>	
<ol style="list-style-type: none"> 1. Low air pressure in storage tank 2. Storage tank valve partially closed 	Increase air pressure to 7 psi in storage tank with product water drained Open tank valve completely
<i>High product water TDS</i>	
<ol style="list-style-type: none"> 1. Insufficiently flushed filters 2. Increase in feed water TDS 3. Membrane Life expired 	5 gallons (approx.. 2 full tanks) must be drawn from spigot to sufficiently flush filters Contact Home Water Systems Replace membrane
<i>Bad tasting water</i>	
<ol style="list-style-type: none"> 1. Taste from glass or plastic containers 2. Post carbon filter cartridge exhausted 3. Storage tank and/or system contaminated 4. Membrane life expired 	Contact Home Water Replace post carbon filter cartridge Contact Home Water Systems for assistance Replace membrane
<i>Cloudy water</i>	
<ol style="list-style-type: none"> 1. Dissolved air in feed water gets concentrated in product water 	Condition usually clears up eventually as feed water changes. Letting water stand will allow dissolved air to dissipate.
<i>Cloudy ice cubes</i>	
<ol style="list-style-type: none"> 1. See cloudy water 2. Certain ice cube shapes trap dissolved air more than others. The larger, more squared off cubes are clearest, smaller rounded surface ice cubes are cloudy 	See cloudy water Change ice cube mold shape, make cubes manually if using automatic ice cube maker, let stand to release dissolved air before freezing.