



Reverse Osmosis System
Installation & Operation
Manual

Installation Instructions

Residential Reverse Osmosis

Drinking Water System

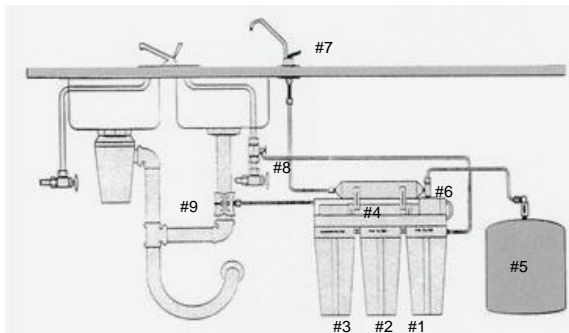
Your Reverse Osmosis System has been factory tested to ensure proper operation. The following periodic maintenance is recommended so your system will provide years of trouble-free service:

Replacement parts	Replacement
Pre-filters (sediment)	Every 12 months
Pre-filter (activated carbon)	Every 12 months
R/O membrane	Every 2-3 years
Post filter (carbon)	Every 12 months

Components

The following components make up your Reverse Osmosis Drinking Water System:

1. **Pre-filter** (sediment) removes larger particles such as sand, silt, and rust.
2. **Pre-filter** (activated carbon) removes chlorine in the feed water to protect the reverse osmosis membrane.
3. An activated carbon **post-filter** is provided for a final "polish" to provide great tasting drinking water.
4. **Reverse Osmosis Membrane** reduces *dissolved* minerals, metals and salts. During the process, harmful compounds are separated by the membrane and the reject water goes to waste (drain).
5. **Storage tanks** holds filtered water, ready for use.
6. **Automatic shut-off valve** senses when the storage tank is full and closes the water supply to conserve water.
7. The dedicated **faucet** is used to dispense RO produced water when needed.
8. **Feed water valve** is connected to the cold water line to supply water to the RO system.
9. **Waste water saddle valve** is connected to the drain to remove reject water from the RO system.



Hook Up Example – Figure 1

Tools

The following tools may be necessary, depending on each particular installation:

- 3/8`` variable speed electric drill; 1/8`` & 1/2`` bits
- Center punch and hammer
- Phillips head and flat blade screwdrivers
- Adjustable wrench
- Teflon tape
- Plastic tube cutter

System Location

Your R/O system may be installed under a sink, in a basement or other location, depending on available space. Do not install unit where temperatures fall below freezing; otherwise, damage will result. Connection to an icemaker should also be considered for optimum performance.

Guidelines for component placement are as follows: (See Figures 2, 3 & 4 for various systems)

Faucet should be placed near the sink where drinking/cooking water is normally required. A 2`` flat surface is required to mount the faucet if an existing hole for a second faucet is not available. The thickness of the mounting surface should not exceed 1-1/4``.

Storage tank may be placed where it is convenient, within ten feet of the faucet. Under the sink or in a nearby cabinet are excellent choices. If tank is located further than ten feet from the faucet, use 1/2`` tubing to reduce pressure drop. Full tanks may weigh more than thirty pounds, so a sturdy shelf is required.

R/O unit may be mounted on either side of the sink, in a cabinet or heated basement, with nearby access to a potable, cold line.

Feed water connection is accomplished with a feed water adaptor or self-piercing feed water saddle valve. Locate this assembly as close to the R/O unit as possible. Connect to a potable, cold water supply line only.

NOTE: Softened water is preferred since it will extend the life of your R/O membrane.

Drain connection is accomplished using a waste water saddle valve which is designed to fit around a standard 1-1/2`` OD drain pipe. The drain saddle valve should always be installed above (before) the trap and on the vertical or horizontal tailpiece. **Refer to Figure 1**

Figure 2

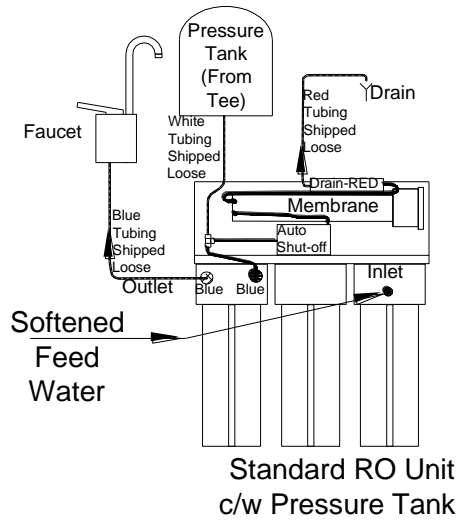


Figure 3

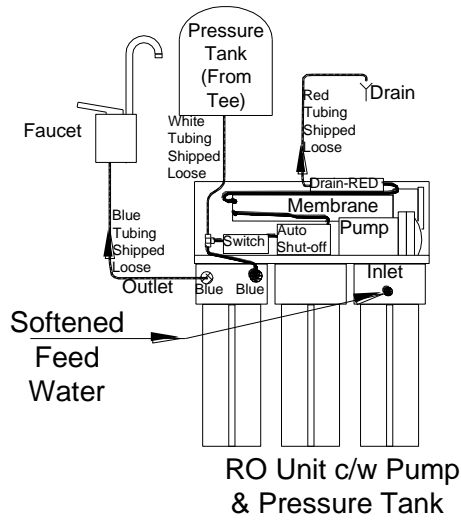
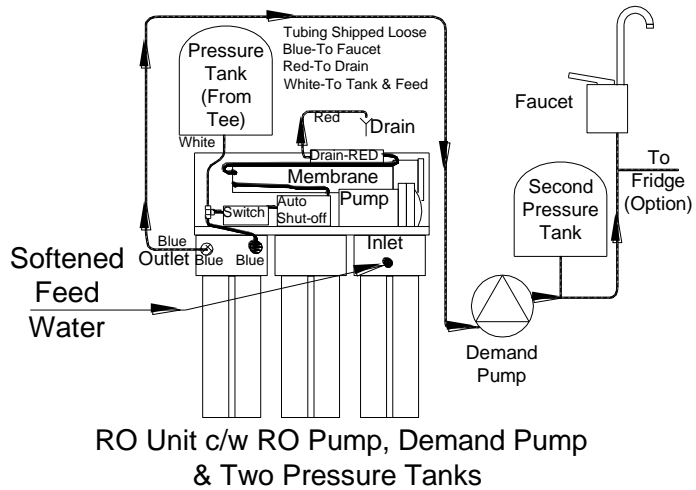


Figure 4



Site Preparation

Installing dealers may want to speak with customers in advance and ask them to clean under the sink to save time. If a basement installation is advisable, check area to determine if extra fittings or hosing are required. Upon arrival it is a good idea to check the condition of all plumbing for potential leaks and advise customer so there will be no misunderstandings in the event leaks occur.

Unit Preparation

Open shipping carton, remove components and check that all parts are present.

Installation Steps

All plumbing must be completed in accordance with provincial/state and local plumbing codes. Some municipalities may require installation by a licensed plumber. Check local authority prior to installation.

1. Faucet Installation

If the sink has a sprayer it may be disconnected for faucet installation. (Installing dealers should discuss this with customers). A pipe cap or plug will be necessary to seal the sprayer connection.

The faucet should be positioned so it empties into the sink and the spout swivels freely for convenience. If sink has a hole that can accommodate the RO faucet, no drilling is required. Proceed with mounting the faucet.

Porcelain, Enamel, Ceramic on Metal or Cast Iron Sinks

For porcelain/enamel sinks marble or granite counter tops refer to Manufacturer/Supplier for proper drilling instructions.

Installation procedures for stainless steel sinks

Recommended tools:

- Center punch
- Variable speed drill
- High speed drill bits
- Protective gloves & eye protectors

To make the faucet mounting hole (if sprayer or second hole is not used), check below to make sure the drill does not interfere with anything below the sink. Center punch a small indent at the desired faucet location. (2`` flat surface is required, not exceeding 1-1/4`` in thickness). Drill the required pilot hole for the chassis punch and tighten nut to cut the desired hole size. Clean up sharp edges.

2. Mounting the Faucet

Disassemble hardware from the threaded nipple, except for chrome base plates and rubber washers.

Feed the threaded nipple through sink or counter mounting hole and orient the faucet. From below sink or counter, assemble the flat washer and hex nut on threaded nipple and tighten by hand. After checking faucet orientation, tighten with a wrench until secure.

3. Feed Water Adaptor Valve and Tubing Installation

- Turn off cold water valve to kitchen faucet or main shut-off valve.
- Loosen nut at top of riser to faucet.
- Install the feed water adaptor valve between riser and faucet.
- Connect 1/4`` feed water tubing from the R/O inlet to the feed water adaptor valve using compression nut, plastic sleeve and insert provided.
- Open cold water valve to faucet and check for leaks.

The self piercing saddle tapping valve which is also supplied is designed for use with 3/8`` to 1/2`` OD soft copper supply tubing (plain or chromed) and rigid metal pipe. Do not use with flexible ribbed supply tubing which is too thin and requires special hardware.



7. Connect tubing to feed water valve using brass compression nut, insert and plastic sleeve.

4. Saddle valve installations with metal pipe

1. Turn off cold water supply.
2. Drill 3/16`` hole at desired location.
3. At this point, make sure piercing lance does not protrude beyond rubber gasket.
4. Assemble saddle on to pipe, aligning with hole.
5. Turn saddle valve handle clockwise to close valve.
6. Tighten nut/seal around valve stem with wrench.
7. Connect tubing to feed water valve using brass compression nut, insert and plastic sleeve.
8. Turn on cold water supply.
9. To open valve, turn handle counter-clockwise and check for leaks.



5. Installation Procedures Using Soft Copper Tubing:

1. Turn off cold water valve from under sink or main water line valve for whole house.
2. Before installing saddle tapping valve, make sure piercing lance does not protrude beyond rubber gasket.
3. Assemble saddle valve on copper tubing.
4. Turn handle clockwise to pierce soft copper tube until valve is firmly seated. (Valve is closed in this position).
5. Turn on water supply to pressure cold water line.
6. Snug nuts/seal with wrench around valve stem.

6. Initial Tubing Connections

For convenience on under counter installations it may be advisable to complete under counter hose connections at this time.

7. Component Installation

Install RO membrane, carbon pre-filter, post-filter and sediment pre-filter in modules of RO unit. **(Refer to Figure 1).**

8. RO Unit Installation

The unit is normally mounted to the right or left sink cabinet sidewall.

To mount the unit, elevate it at least 3`` off the floor, level it and mark the location of mounting holes needed. Drill holes for mounting screws and install screws, allowing the mounting bracket slots to slip over them.

NOTE: If the cabinet sidewalls are not solid, unit may sit on the floor with screws to keep it against the cabinet in a vertical position.

9. Final Tubing Connections

With all components in place, complete final tubing connections using these guidelines:

- Tubing should follow contour of the cabinets
- Cut tubing to desired length using square cuts and proper cutting device

- Make no sharp bends
- Keep tubing from the unit to the faucet as short as practical for good flow

System Start-Up

Prior to Start-Up:

1. Check all connections to be sure they are secure.
2. Turn on feed water valve and check for leaks. (Turn off and correct leaks if leaks occur).
3. Close faucet and wait a reasonable amount of time to see if leaks result.

Flushing System and Checking Operations

To make sure system is operating correctly, follow these simple procedures:

1. Open faucet handle and allow tank to completely drain of sanitizing solution.
Do not use this water.

Maintenance

Your system contains filters which must be replaced periodically for proper operation.

(Please see Page 1 for general change-out recommendations).

NOTE: Change-out procedures may be amended, depending on source water conditions.

To change filters follow these procedures:

NOTE: When handling cartridges be sure hands are clean and sanitized or wear surgical gloves.

1. Close feed water valve by turning it clockwise.
2. Open faucet to de-pressurize the system.
3. Loosen and remove filter housings using wrench provided and discard cartridge and or membrane.
4. Wash the inside of the housings using mild detergent and soft cloth. Thoroughly rinse all soap before reassembly.

NOTE: The system should be sanitized before installing the activated carbon post filter cartridge.

Sanitizing Instructions

1. Close feed water valve.
2. Open faucet to drain storage tank to sink.
3. Remove pre-filters & membrane from housings.
4. Use 5-1/4% unscented bleach, like Chlorox.
5. Add one cap (2 tsp or 10 ml) of bleach to each housing.
6. Carefully re-install housing without filter installed.
7. Slowly open feed water valve to allow water to mix with bleach and refill the housings.
8. Open faucet to allow water to fill lines. Close faucet when water begins to come from spout.
9. Let system stand for approximately 20 minutes.
10. After 20 minutes do the following in order:
 - Close feed water valve
 - Open faucet to release pressure
11. Carefully remove housings and empty them.
12. Remove protective wrap from filters and install them in the appropriate filter housing using clean hands or surgical gloves. Hand tighten and snug with wrench if necessary.

NOTE: Be sure to check o-rings are in place when installing cartridges in filter housings. Damaged or incorrectly placed o-rings will cause leaks.

13. Slowly open feed water valve. When water begins to come from faucet, close faucet.
14. This is normal. Allow filter to flush, close faucet and check for leaks. System is now ready to use.

Conventional Fittings

If quick-connect fittings are not used, it is essential to install inserts at the ends of all tube connections when conventional fittings are used.



Quick Connect Fittings

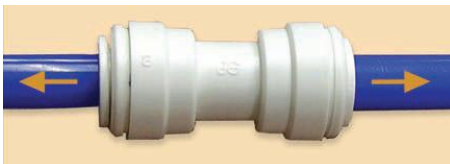
Many systems utilize quick-connect fittings. These user-friendly fittings provide superior performance and are provided with this system. Proper use of these push-in fittings is shown below. Along with these fittings, all tubing selected must be of high quality and must be cut with a plastic tube cutter or sharp razor with a clean, square cut.

Should a leak occur at a fitting, the cause is generally defective tubing. To fix a leak, relieve pressure, release tubing, cut off at least $\frac{1}{4}$ " from the end (square cut), reattach the tubing and confirm the connection is leak-free. Each time a new connection is made, it is advisable to cut off $\frac{1}{4}$ " from the end of the tubing using these fittings.

Cut the tube square and remove burrs and sharp edges. Ensure that the outside diameter is free from score marks. For soft or thin walled plastic tubing we recommend the use of a tube insert.



Push the pipe into the fitting and up to the tube stop.



Pull on the tube to check that it is secure. Test the system before use.



To disconnect, ensure that the system is depressurized, push the collet square against the fitting. With the collet held in this position the tube can be removed.