

Installation Manual

**REVERSE OSMOSIS
SYSTEM**



Introduction

Congratulations, you have purchased one of **PureT's** finest residential Reverse Osmosis Drinking Water systems available for your home. When properly maintained, this system will provide you with years of great tasting, pure drinking water and trouble-free service. Please read the enclosed section regarding the proper care and maintenance of your new **Pure T** Water System, and experience the taste of exceptional purity.

Parts Check List

Your new **Pure T** R.O. System should include the following items. If any item is missing, please contact your supplier, retailer, or any local professional plumbing service. Please take a few moments to check all following components.

- ✓ 5-stage Reverse Osmosis Assembly
- ✓ Drinking Water Storage Pressure Tank
- ✓ Reverse Osmosis Membrane Cartridge
- ✓ Feed Water Saddle Valve
- ✓ Drain Saddle Valve
- ✓ Storage Tank Shut-Off Ball Valve
- ✓ Long-Reach Faucet Package
- ✓ Filter Housing Wrench
- ✓ White Poly Tubing
- ✓ Tubing Cutter

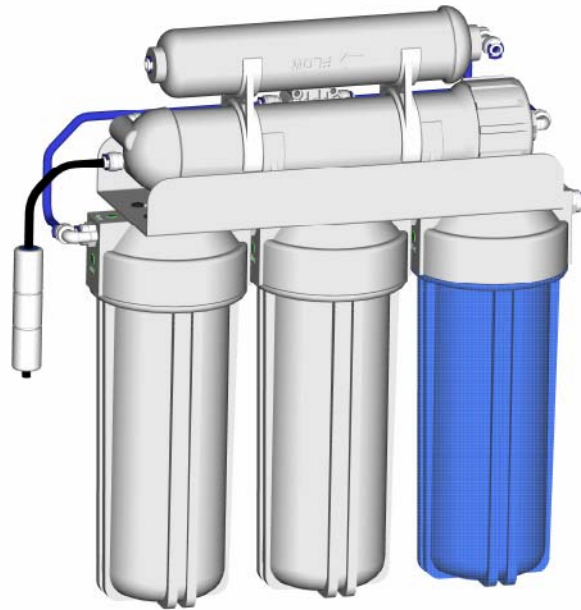
Recommended Tools List

Before you begin, make sure the installation kit and tools are complete and ready to use.

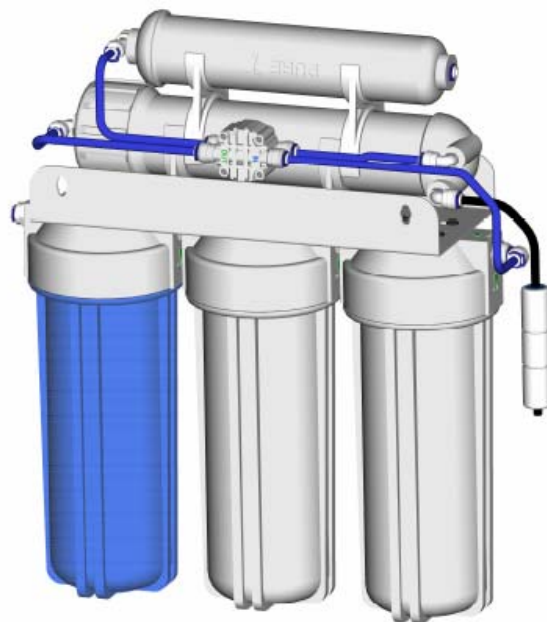


Product Overview

Please check and view the entire system before the installation. If there is any part missing or damaged, please return the system or contact the local dealer for assistance.

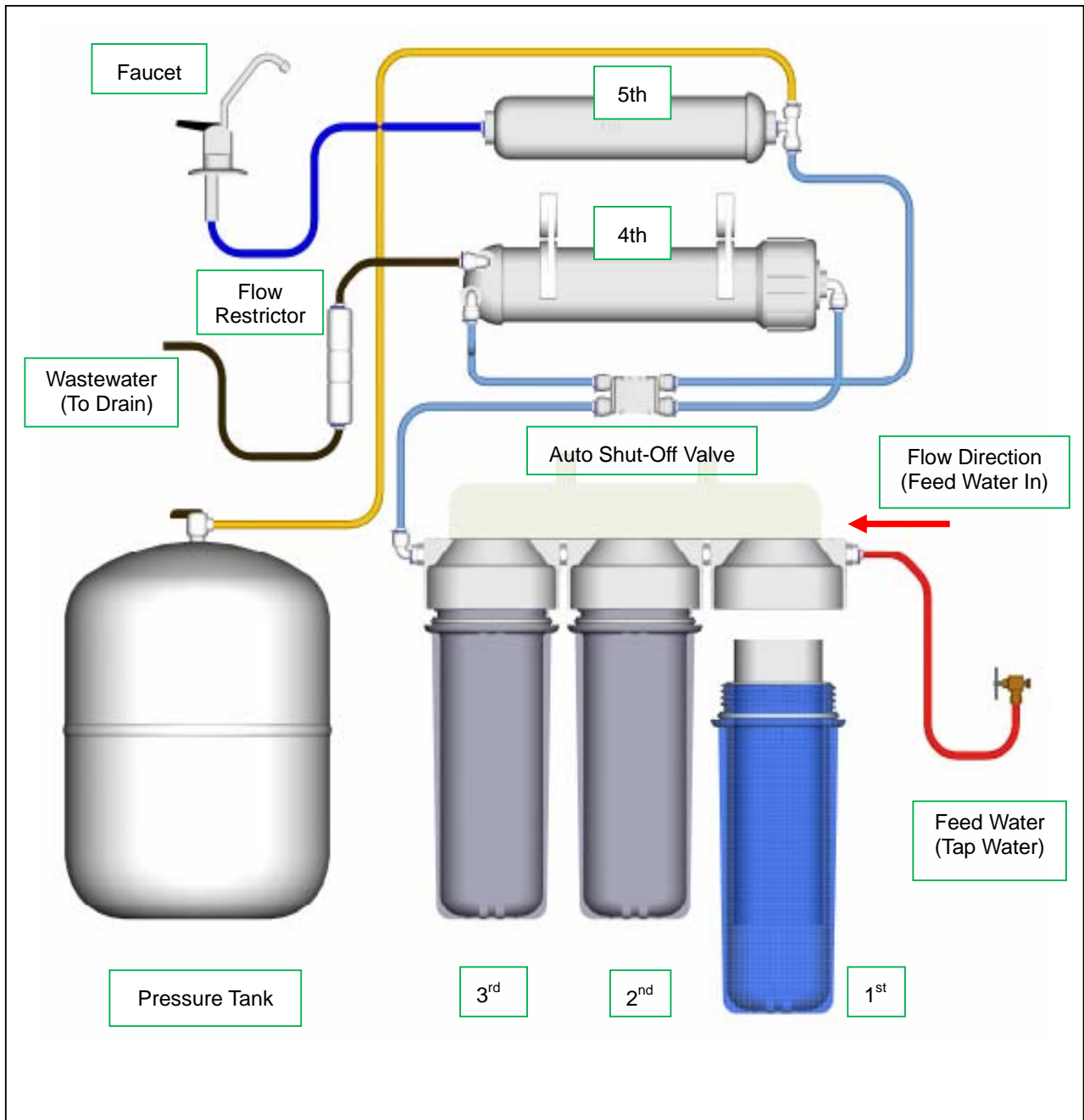


Front View



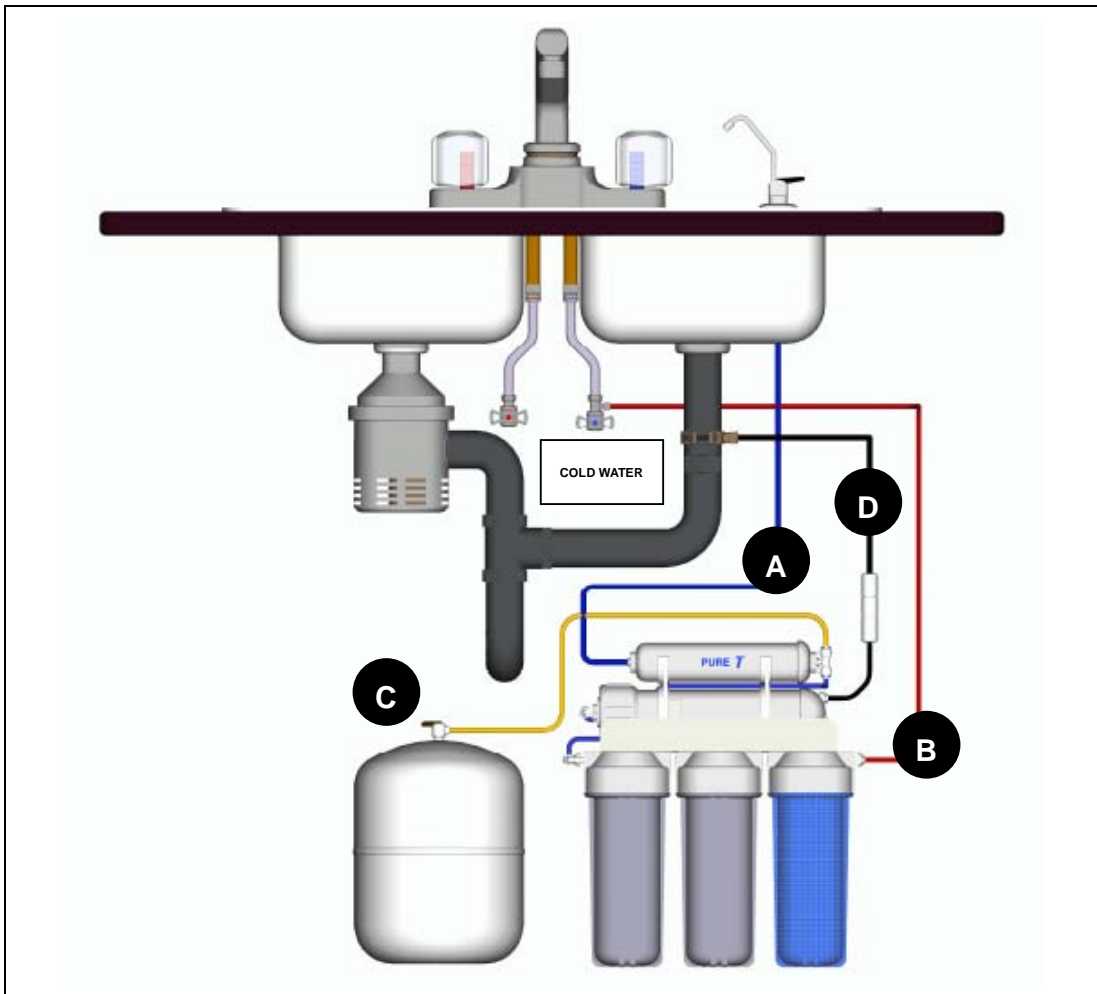
Back View

5-Stage RO System Filtration Process



Stage	Description	Service Time
1 st stage	Sediment Pre-filter	3-4 months
2 nd stage	GAC Pre-filter	3-4 months
3 rd stage	Carbon Block Pre-filter	3-4 months
4 th stage	RO Membrane	24-36 months
5 th stage	Polish Inline Filter	6-8 months


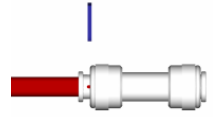

Residential Reverse Osmosis System Diagram



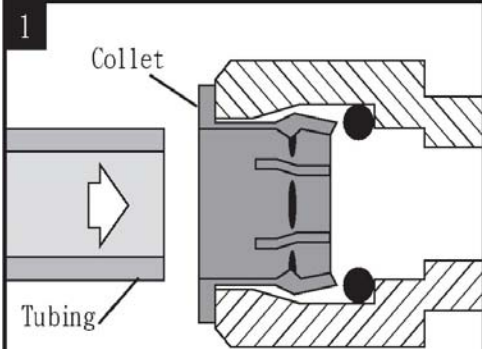
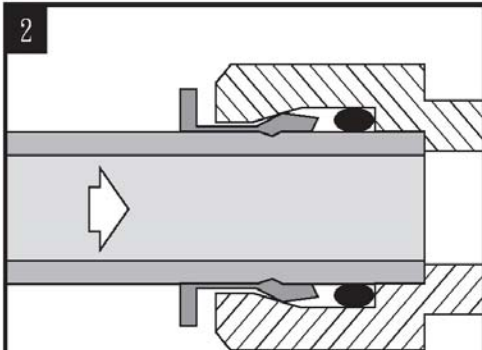
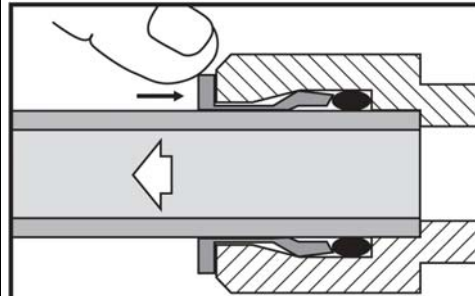
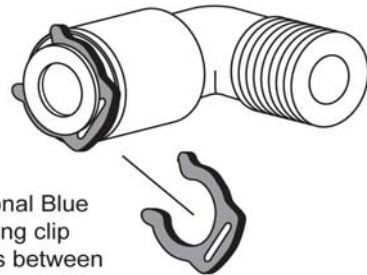
Please follow the four color-coded tube connections to complete installation.

4 Connections		Item No.	Tube Color	Description
A	RO Faucet	F-01-CHR-NAG	Blue	Pure Water to the Faucet
B	Water Feed Valve	SV-01 or SV-02	Red	Feed Water to RO System
C	Tank Ball Valve	BV-102	Yellow	Pure Water to Storage Tank
D	Drain Connector	DV-14W or DV-14BLK	Black	Discharge Water to Drain

Tube Connection Guide

<p>Cut the tube squarely, and insert tube into the lock fitting (be sure the lock fitting is flush for secure insert).</p>	
<p>Push tube inward while pushing the lock fitting outward and insert the lock pin.</p>	
<p>Pull the tube to ensure tube is tightly fitted.</p>	

CAUTION: When cutting supplied tubes, predetermine the length by measuring the distance between the components to be connected.

<p><u>To Attach Tubing</u></p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>1</p>  <p>Collet</p> <p>Tubing</p> <p>Push tubing straight in as far as it will go.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>2</p>  <p>Tubing is secured in position.</p> </div>	<p><u>To Release Tubing</u></p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  <p>Push in collet to release tubing.</p> </div> <p><u>To Insert Locking Clip</u></p> <div style="border: 1px solid black; padding: 5px;">  <p>Optional Blue Locking clip slides between collet and fitting.</p> </div>
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Preparation

- Determine the location for installation of the RO system.
- Determine the location for installation of the RO faucet.
 - You may use the existing predrilled hole on the sink. Make sure the washer is big enough to cover the hole.
 - If you drill a new hole on the countertop or sink, make sure that drilling the hole will not damage any pipe or wiring underneath the countertop or sink.
- Determine the location for the water storage tank.
 - The pressure storage tank can stand up straight or lie down at the desired location.
 - The maximum distance between the storage tank and the RO faucet is 15 feet. The system will produce a faster flow at the RO faucet with the shortest tubing from the tank to the RO faucet.

Before Installation * Shut Off Water Supply *

- Locate both cold and hot water supply shut-off valves underneath the sink. Turn **OFF** both cold and hot water shut-off valves.
- **Only** hook up the water supply to the RO system from **COLD water** feed line. **CAUTION: Hot water will permanently damage the RO system.**
- If no shut-off valve is located under the sink, turn off the main water supply at the entry to the house.

CAUTION

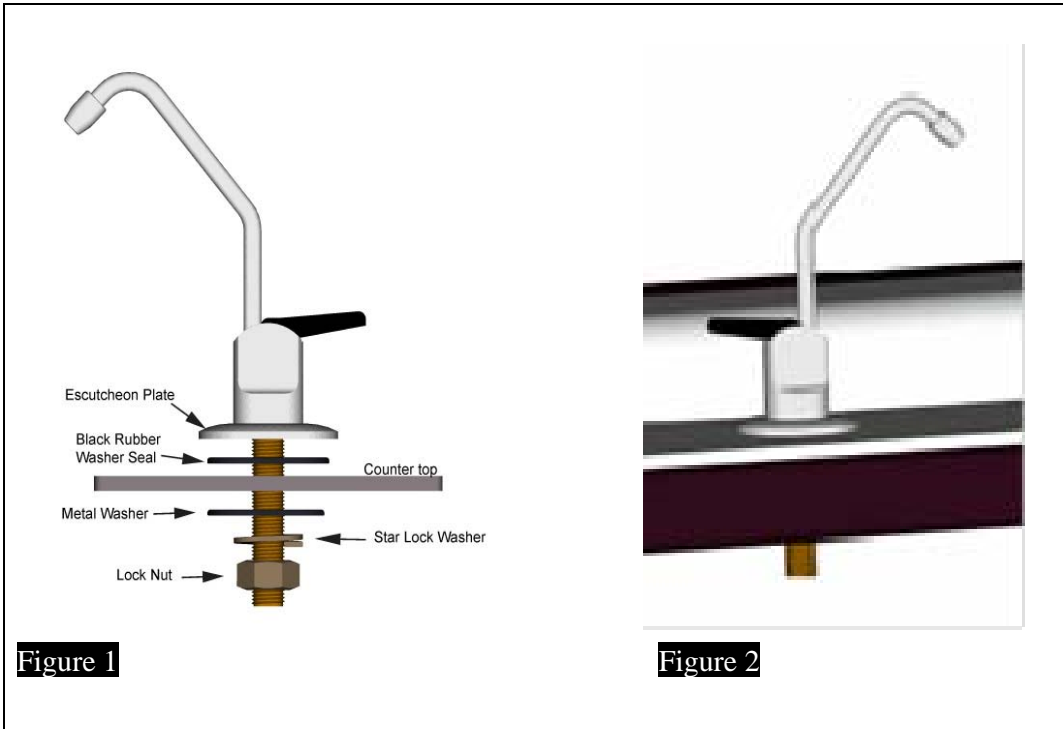
DO NOT USE WATER THAT IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY WITHOUT ADEQUATE DISINFECTION BEFORE OR AFTER THE SYSTEM.

Installation

A. RO Faucet Installation

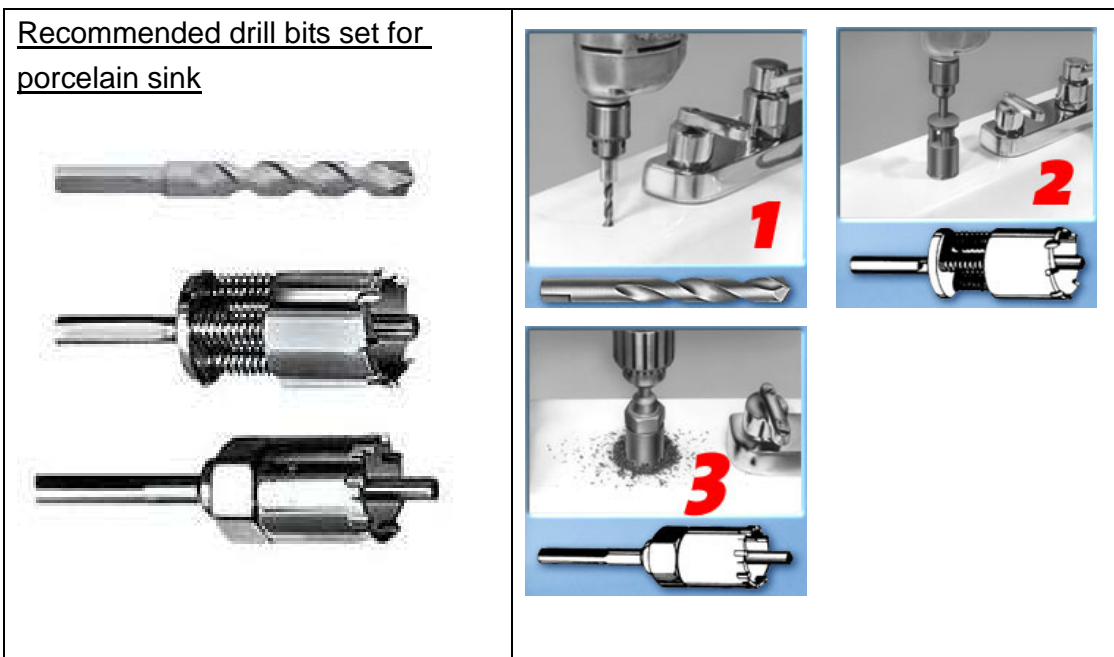
The RO faucet may be installed on any flat surface. Check the underside of the location for interference. You may use the existing predrilled hole on the sink. Make sure the washer is big enough to cover the hole. If you drill a new hole on the countertop or sink, make sure that drilling the hole will not damage any pipe or wiring underneath the countertop or sink.

1. Determine the desired location for your RO faucet (P/N: F-01-CHR-NAG) on your sink surface.
2. Place masking tape or duct tape on the determined location for the hole to be drilled.
3. Use a variable speed drill set on slow speed and drill with a 1/8 inch (3mm) drill bit to make a center hole at the select location. Use lubricating oil to keep the drill bit cool while drilling.
4. Enlarge the hole using a 1/4 inch (6.4mm) drill bit. Use factory-approved method or approved plumbing practice to drill hole in sink.
5. Enlarge the hole to 7/16-inch (11mm) diameter. Keep bit well oiled and drill slowly.
6. On top of the sink, insert the small rubber washers, chrome base plate (Escutcheon plate), and the large rubber washer in that order over the threaded mounting tube at the base of the faucet.
7. Under the sink, install the large metal (or plastic) washer and the star washer (or lock washer) over the threaded stem. Screw on the nut and tighten.
8. Connect the freshwater line sleeve over the brass compression nut and the white plastic ferrule (do not use the brass ferrule) over blue tubing, then push to the end of the threaded stem. Screw on the compression nut and tighten. Please see illustration below (Figure 1 and 2).



Porcelain Sink

To drill on a porcelain sink, a spring-loaded Relton style drill set is strongly recommended to prevent chipping. Avoid high speed drilling during the initial cutting of porcelain as this can cause chipping. See following figures.

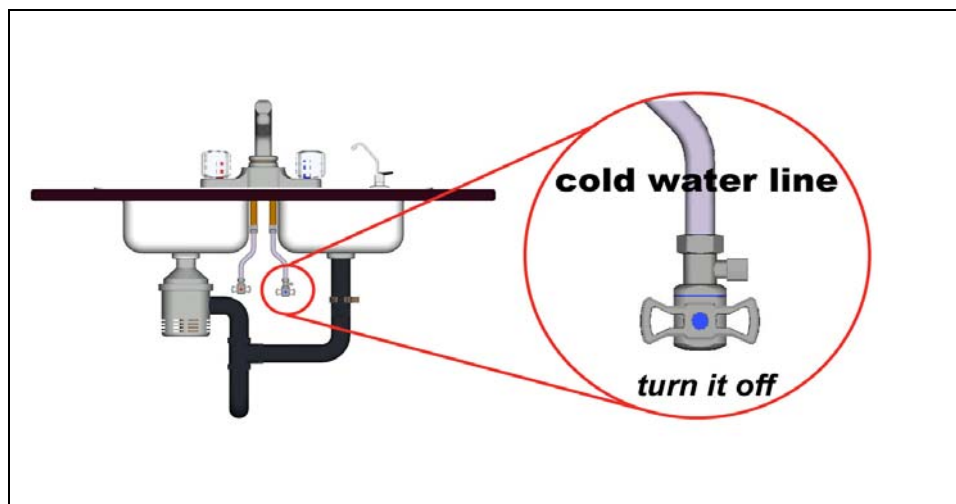


B. Feed-Water Supply Installation

Tapping into COLD WATER line

CAUTION: The water supply to the unit **MUST** be from the **COLD WATER LINE**. **HOT WATER** will severely damage your R.O. System.

1. Locate the cold water (angle) shut off valve (see picture below) underneath the sink and turn it off. Open the cold water faucet to release the pressure. On single-handle kitchen faucets, the hot water may have to be turned off to prevent any hot water cross over. If water continues to come out of faucet with angled valve turned off, the house main must be turned off.



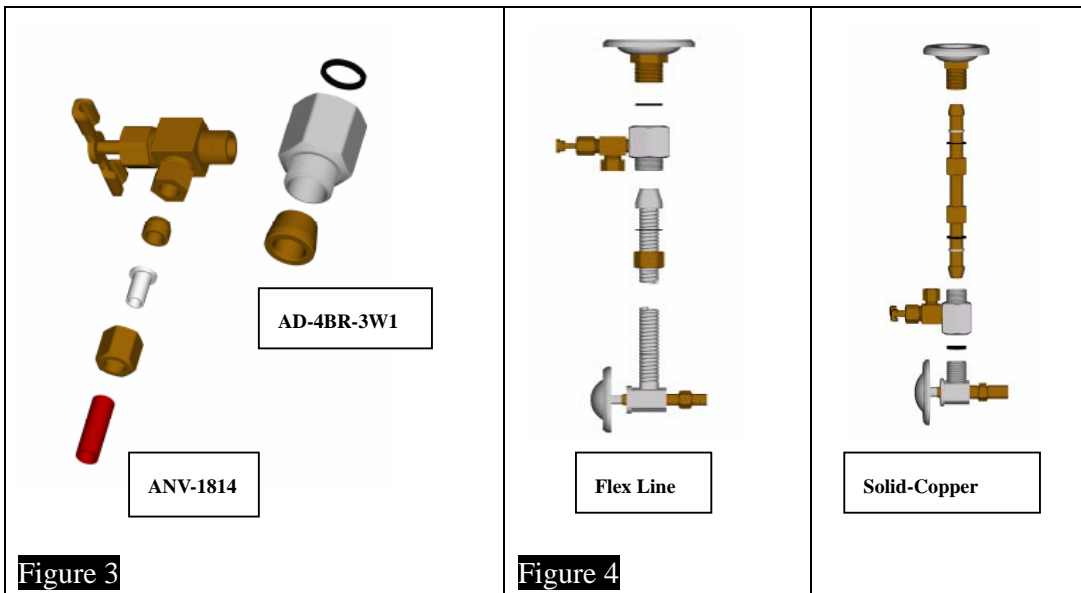
2. Locate the feed-water adapter in the installation kit.

Option 1: Using Angle Needle Valve to get feed water

- The angle needle valve should be installed into slip joint adapter (ANV-1814; AD-4BR-3W1) before assembly is connected to feed-water line. See Figure 3 below. (Teflon tape must be used on angle valve to prevent leaks).
- Disconnect the cold-water riser tube and install the slip joint adapter.
- Please follow Figure 4 for the flex line and solid-copper riser installation.
 - a. **Flex Line:**

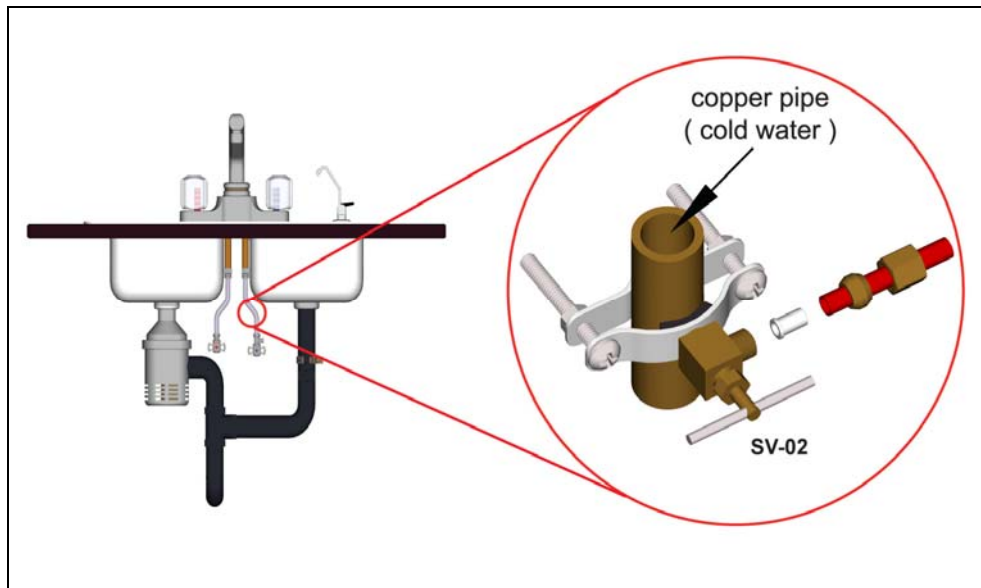
Loosen nut and separate the cold water riser tube from faucet shank. Gently bend riser tube so that slip joint fits into faucet shank. Replace the existing cone washer with new washer provided in installation kit into cold-water riser tube. Reinstall riser tube onto slip joint adapter and tighten.
 - b. **Solid-Copper Riser Tube:**

Follow same procedure as for flex tubing above, except cut a piece of the riser tube about $\frac{3}{4}$ or 1 inch so the slip joint adapter can fit between faucet and riser tube. (Use Teflon tape on slip-joint adapter to prevent leaks.)

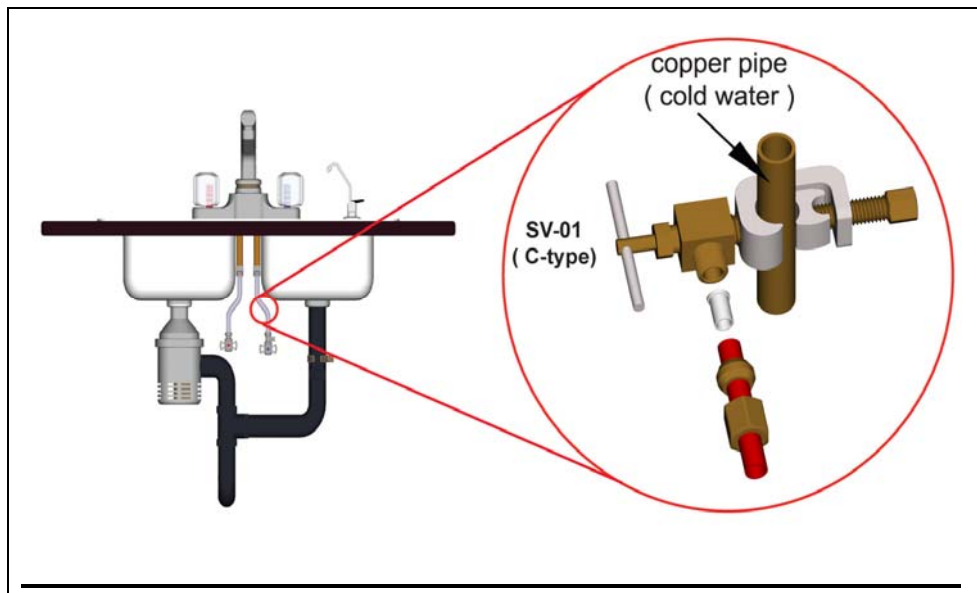


Option 2: Using Self-Piercing Saddle Valve (SV-02) to get feed water

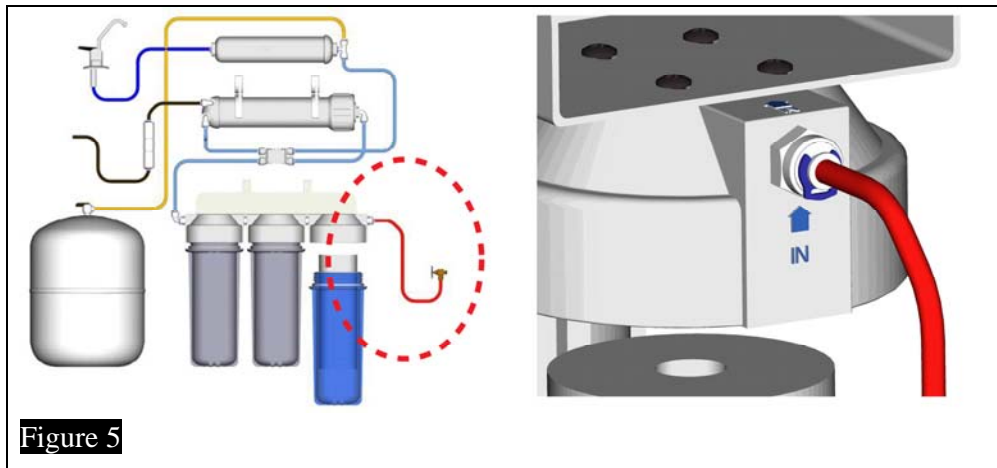
- Back up the piercing pin all the way by turning the handle counterclockwise. It should be retracted slightly past the rubber gasket.
- Position the valve over the pipe, and turn the loose clamp piece appropriately to fit the shape of the pipe.
- Firmly snug the valve to the pipe by turning the screw/bolt. This should be done by hand to avoid over tightening.
- Slide compression nut on RO (RED) tube. Slide on compression sleeve.
- Insert plastic (or brass) tube insert into tubing end.
- Tighten compression nut to valve to attach tubing. Do not over tighten.
- Slowly turn valve handle clockwise to pierce pipe.
- Turn on water supply and check for leaks.



Option 3: Using Self-Piercing Valve (SV-01, C-type) to get feed water

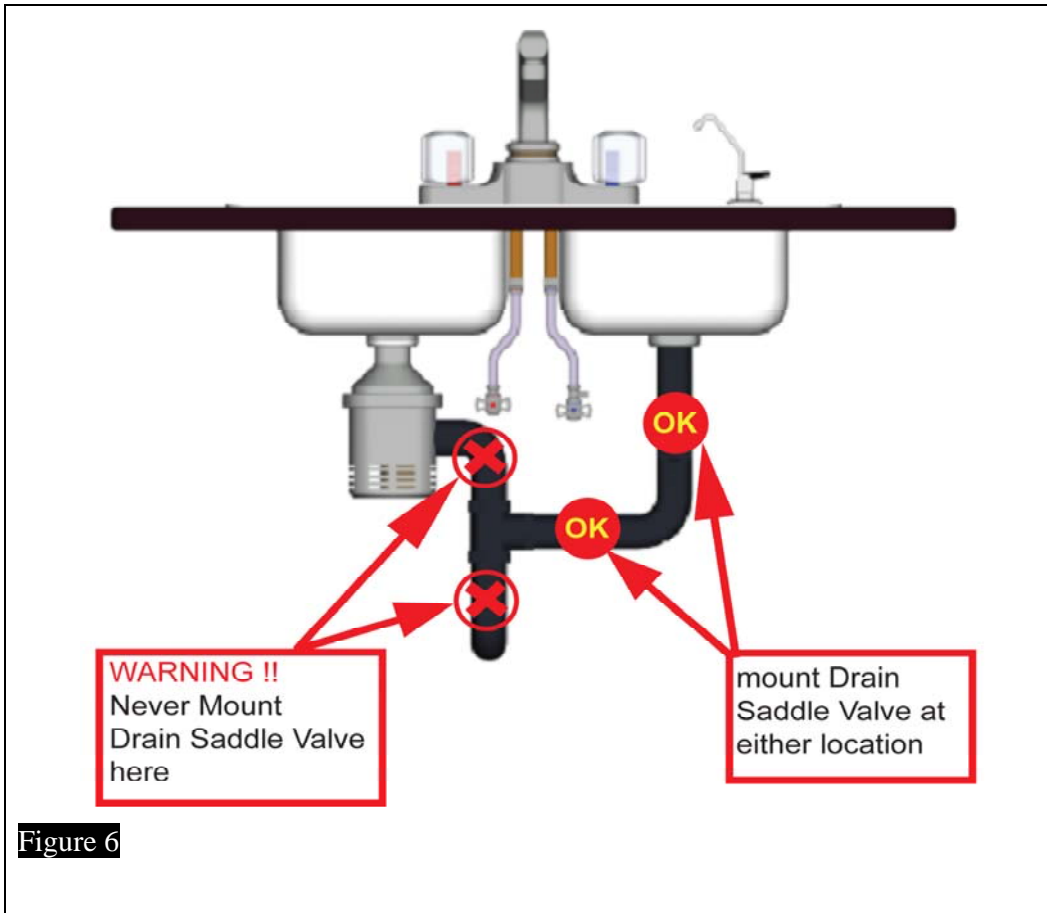


3. Connect the feed-water tubing to RO system. Once the feed water adapter has been installed, connect the tubing (RED) to first stage (clear sump) of RO system. See Figure 5 below.



C. Mounting the Drain Saddle Valve

A Drain Saddle Valve (DC-14J-BLK) is used to make a wastewater connection with the drain under the sink, and is designed to fit around a standard 1 1/2-inch OD drainpipe. The drain saddle valve should always be installed before (above) the p-trap and on a vertical or horizontal drain. To avoid clogging the drain line with debris, do not install the drain saddle near a garbage disposal. See Figure 6 below.



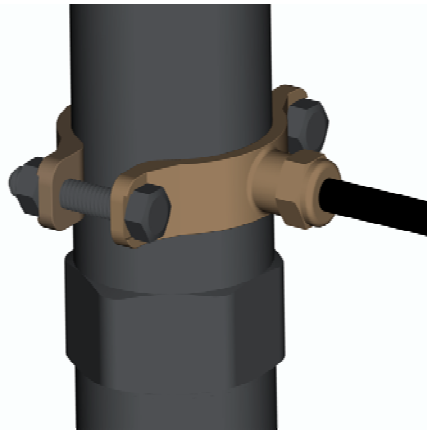
1. Position the drain saddle valve at selected location and mark for the opening.
2. Drill 1/4-inch (6.3mm) hole at mark through one side of pipe.
3. Remove backing from gasket and place adhesive side to the fitting half of drain clamp around hole.
4. Position both halves of drain saddle on drain pipe so the opening aligns with drilled hole. Use a small drill bit to verify that drain clamp is properly aligned.

Secure drain saddle clamp on valve with bolts and nuts provided. (Do not over tighten, and make sure there is equal space between saddle halves on each side.) See Figure 7 below.

P/N: DC-14J-BLK



Figure 7

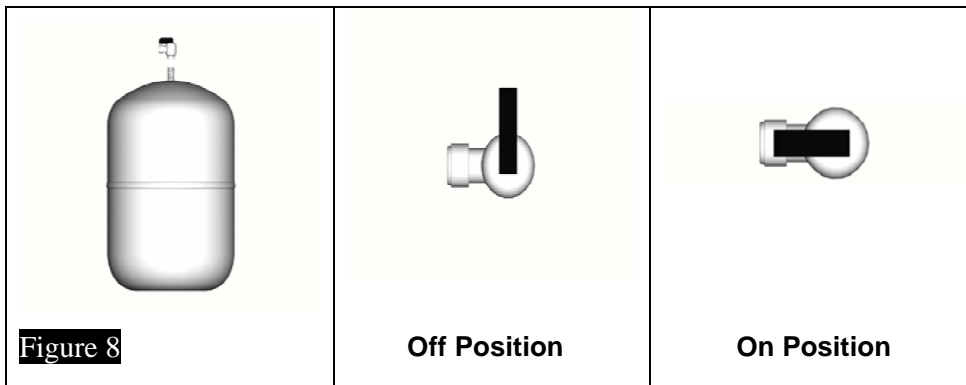


D. Install Tank Ball Valve

**NOTE: Do not tamper with the air valve on low side of storage tank.
It has been preset at 8–10 psi by the manufacturer.**

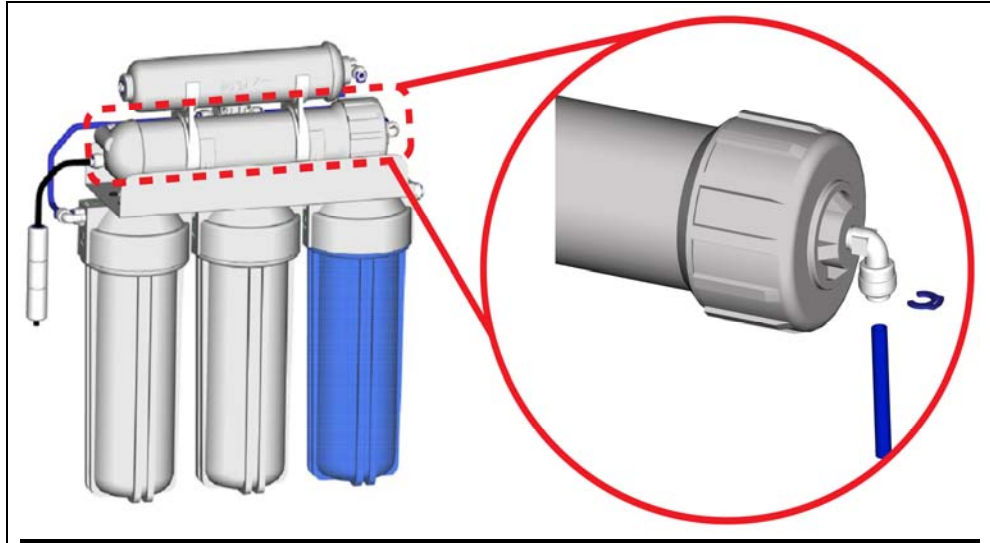
1. Unplug the plastic cap on the top of the tank.
2. Wrap the thread 3 times with plumbers (Teflon) tape only.
3. Connect the ball valve (BV-102) to the thread. Make sure it is tight but not overly tight.
4. Place the storage tank in desire location. Since it is the pressure storage tank, it can stand up straight or lie down.
5. Connect the (yellow) tubing from inline filter (5th stage) to the tank ball valve. (See 5-Stage RO system diagram.)
6. Turn the tank ball valve off.

See Figure 8 below.

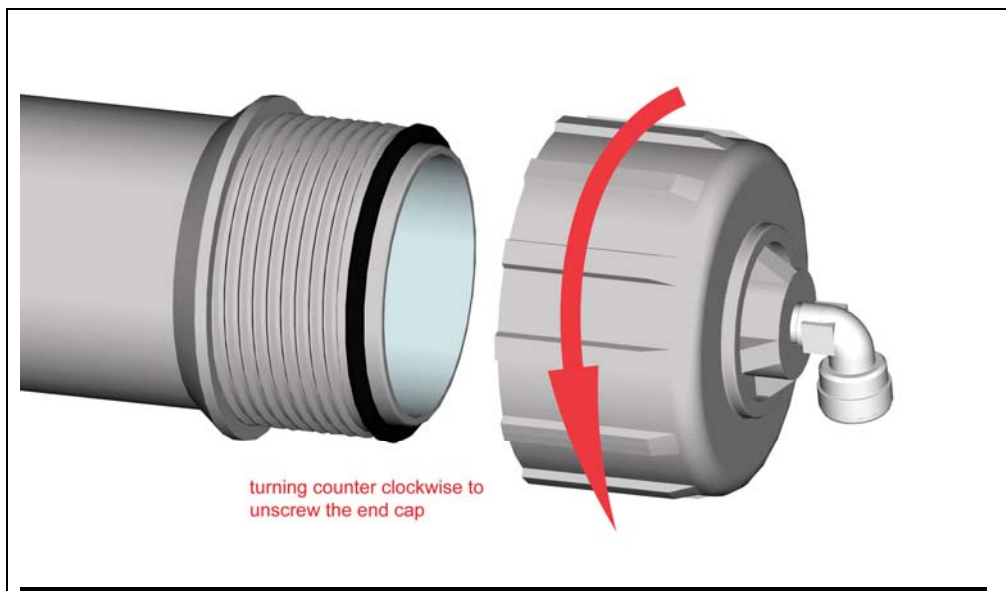


E. RO Membrane Cartridge Installation

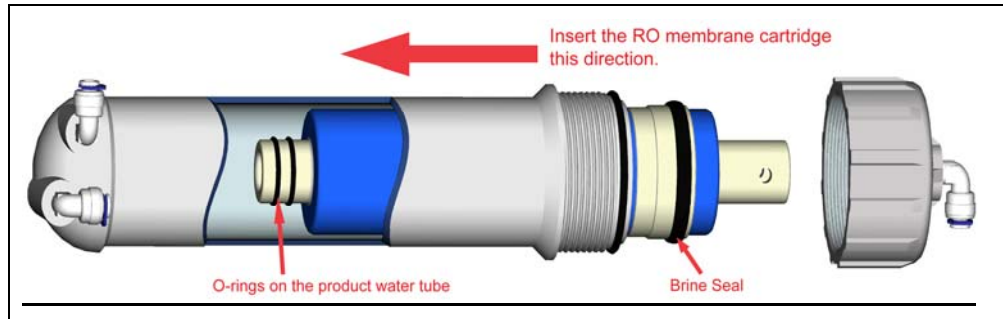
- 1.) Disconnect the tubing from the fitting as shown in the diagram below.



- 2.) Remove the membrane housing from the plastic mounting clip, and remove the membrane housing end cap by turning counterclockwise as shown in the diagram below.

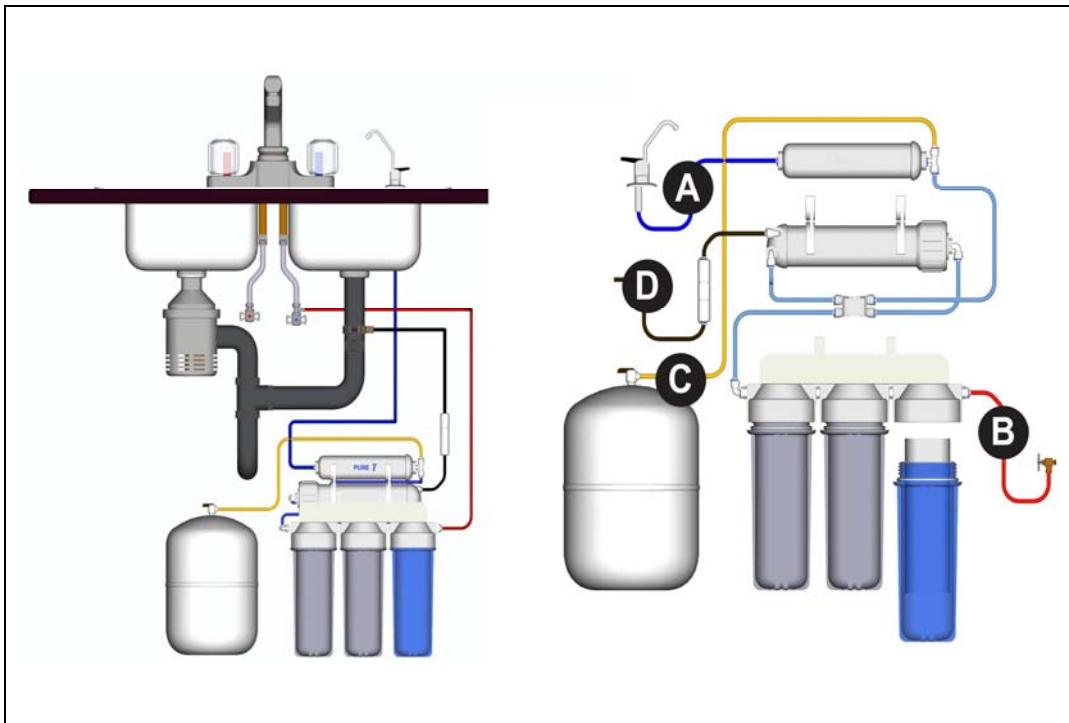


- 3.) Insert the RO membrane cartridge into the housing as shown in the diagram below. The O-rings on the product water tube of the RO membrane cartridge **MUST FULLY SEAT** in the membrane housing for proper operation. Also, make sure that the Brine Seal on the membrane seals with no gaps or wrinkles inside the membrane housing. Once the RO membrane cartridge is installed, replace the end cap and reconnect the tubing.



System Start-Up

Make sure ALL the tubing is connected to the correct location. Double-check security of all connections before **TURNING ON** the water supply. See the following checklist.

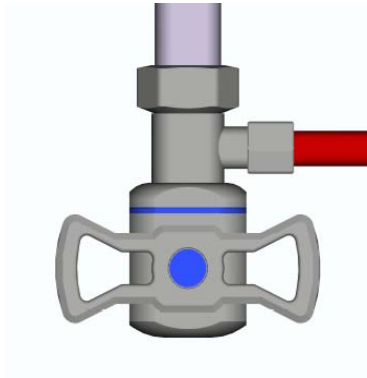


- A.) The faucet tubing connects to the inline filter (5th stage). One end of the inline filter is marked “connect to faucet.”
 - B.) The feed-water tubing connects to the 1st stage of the unit.
 - C.) The storage-tank tubing connects to the other end of the inline filter (5th stage) at the Union Tee fitting.
 - D.) The wastewater tubing from the Drain Saddle Valve connects to the Flow Restrictor.
1. Turn on both the cold water supply and the undersink feed-water valve (ANV-1814), but close the tank ball valve (BV-102). If any leaks are noted, turn off valve and correct before proceeding.
 2. Open RO faucet (F-01-CHR-NAG) (black lever to the UP position) for continuous flow.
 3. Check system for leaks; tighten when necessary.
 4. After 5 minutes, the water will start to drip out of the RO faucet. Let it drip for about 10 minutes and then flip the handle to the closed position. Turn on the tank ball valve. It will take several hours (2-3) for the storage tank to fill, depending on the local water pressure.

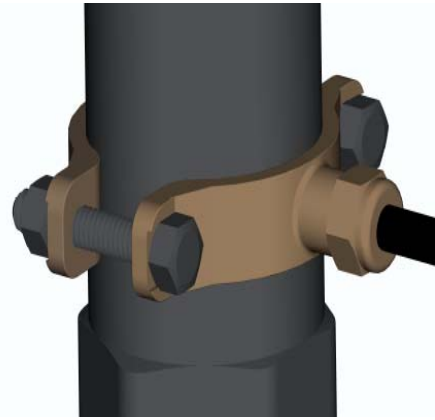
DO NOT DRINK THE WATER FROM THE FIRST TANK PRODUCED BY YOUR NEWLY PURCHASED SYSTEM.

5. After the tank is full (you will hear the water stop), flush the system by placing the RO faucet in the open position until the water is completely discharged.
6. Upon complete discharge of storage tank, flip handle to closed position on RO faucet and let the refilling process begin. This process could take 2-3 hours to complete.
7. After the second tank is filled, you may enjoy the pure water.
8. Check for leaks daily during the first week of use and periodically thereafter.
9. You may notice that the water may be milky colored during the first week. This is an indication of air bubbles in the water; it is normal and safe.

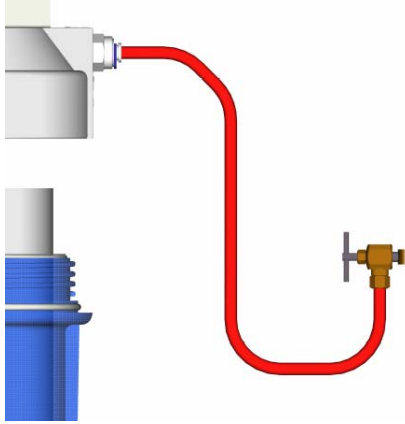
Tube, Components, and Connection Assembly



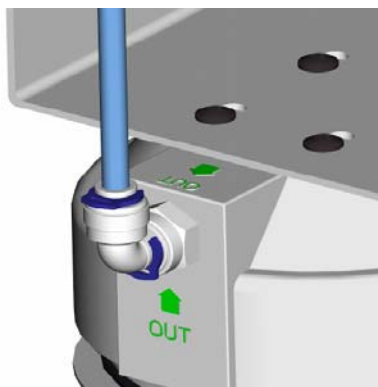
Tap Water Line Connection



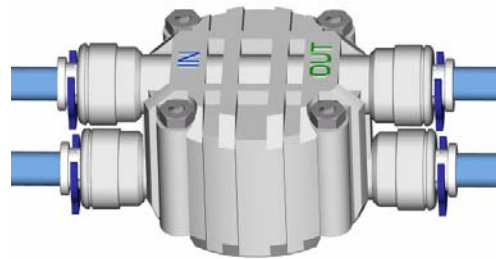
Drain Saddle Valve Tube Connection



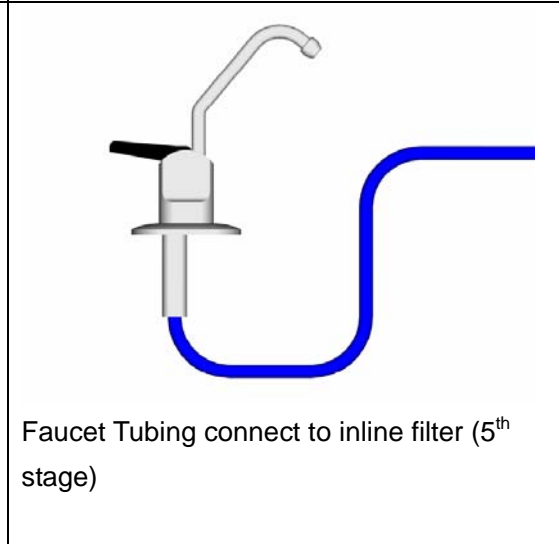
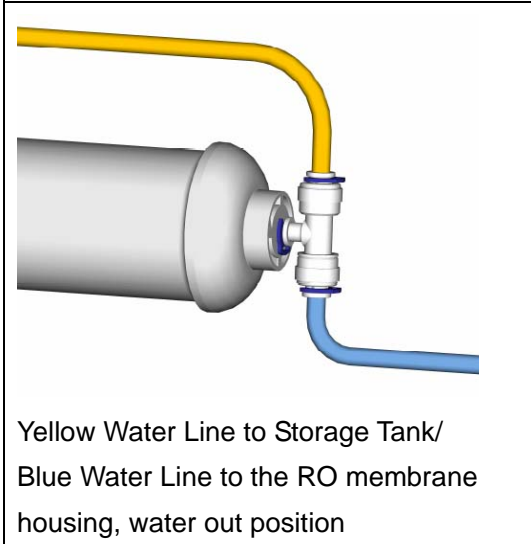
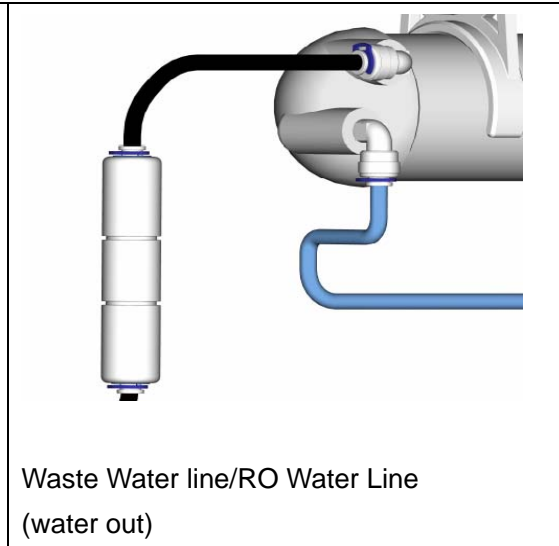
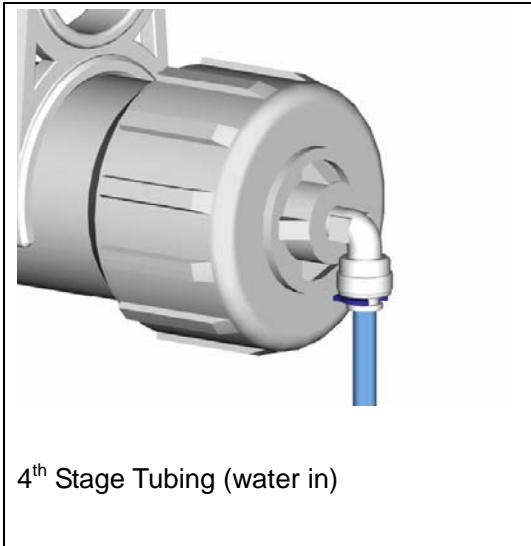
Tap Water Line Connect to 1st Stage of RO unit



3rd Stage Tubing (water out)



Auto Shut-Off Valve



Preventive Maintenance

This recommendation is intended for maximum efficiency of RO water production by your system.

1. Filter maintenance

- a. It is OK to store filters for several years.
- b. To keep the unopened filter sealed, place it into an airtight container, preventing it from absorbing air. This prolongs the shelf life of the carbon filter and avoids any possible odor from the air.

2. Membrane maintenance

- a. The dry-packed membrane usually has a two-year shelf life. To prolong the shelf life, keep unopened dry membrane in the refrigerator.
- b. Once used, run the RO system every day for at least 10–15 minutes (about 1 gallon or 4 liters of drinking water). This helps maintain the membrane performance.
- c. If you will not be using the RO system for weeks, drain the storage tank completely. Fill the tank and drain it twice before using the RO system again.

3. Filter and membrane change procedures:

NOTE: THIS RO SYSTEM CONTAINS FILTERS THAT MUST BE REPLACED AT REGULAR INTERVALS TO MAINTAIN PROPER PERFORMANCE. USE ONLY FACTORY-APPROVED FILTERS.

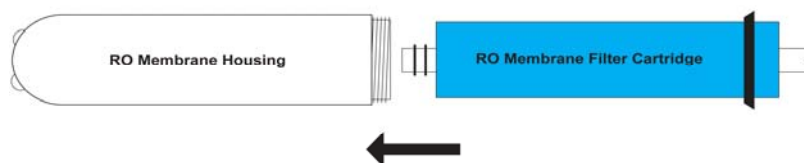
Please see page 3 for the recommended interval for changing the filters. Local conditions may dictate more frequent changes.

Use a drip pan to catch any water that may spill when the filter housing is removed.

- a. **Shut off** the water supply.
- b. **Turn off** the tank ball valve by turning 90 degrees.
- c. Open RO faucet to the UP position for continued flow.
- d. Lift the filter housing up 1 inch and slide the housing wrench in. Use one hand to hold the system and the other hand to turn the wrench clockwise to open the housing.

Note: If it is too tight to open the housing, try unplugging the fitting or tubing in order to release the air and water pressure inside the housing.

- e. After opening the housing, remove the used filter and put the new filter into the housing. Make sure the O-ring is in place, and turn the housing counterclockwise to close. Make sure it is tight.
- f. Repeat previous step on the second filter change.
- g. Turn on the water supply and make sure there are no leaks.
- h. Let the water drip from the faucet for about 10 minutes. If the water flow is less than 1 cup (8 oz. or 240 ml) per minute, it may be a signal to replace the RO membrane cartridge.
- i. Membrane change procedures:
 - Unscrew the cap of the membrane housing.
 - Slide out the used membrane and discard.
 - Insert the new membrane with 2 O-rings into housing first, then the black brine seal around membrane. Be sure it is fully seated into bottom end. See following picture. Or see step E.) [RO Membrane cartridge Installation](#) for more details.



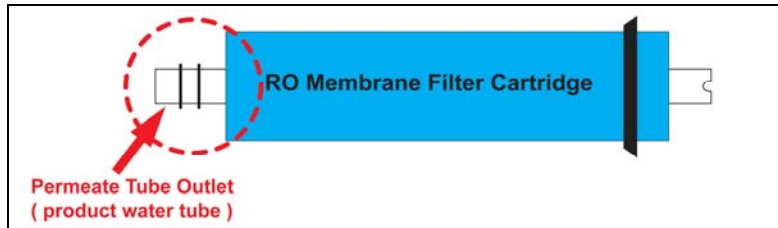
- Screw cap back onto the membrane housing making sure the O-ring is still in place.
- It may take 10–20 minutes for new membrane to run to normal flow.

If the water flow is OK, turn on the tank ball valve. After 1 minute, turn off the RO faucet and complete the filter change procedures.

Cleaning Procedures

The following system and tank cleaning procedures are recommended every 12-18 months.

1. Shut off the source water supply to the RO system.
2. Open the RO faucet and depressurize the RO system and storage tank.
3. Remove pre-filter cartridges, post-filter cartridges, and RO membrane. Discard or prepare for cleaning. If the RO membrane element is to be reused, disinfectant solution should be introduced into the permeate tube outlet (see below picture) sufficient to remove bio-film in this vulnerable area before reinserting the membrane into the housing.



4. Wash the internal housing areas with warm soapy water using clean brush (do not scratch the surface of the housings). Be sure to clean O-ring grooves thoroughly. Remove the existing O-ring. or prepare for cleaning.
5. Rinse off all housing pieces with clean water to remove soap.
6. Replace O-rings and lubricate per manufacturer's instruction.
7. Pour recommended amount of disinfectant solution into each of the clean housings and replace housing on the RO system.
8. Disconnect RO storage tank from the system.
9. RO storage tank cleaning procedure:

Recommended items:

- Tank sanitizer feeder or small filter housing with fittings and tubing (see Figure 8)
 - Disinfectant solution
 - Pressure gauge and air pump
- a. The tank should be empty. Check the air pre-charge pressure with an accurate gauge (low pressure type 0-12 lbs.) The average tank pressure should be 6–8 psi (when the tank is empty).

- b. Fill the tank sanitizer feeder with the recommended disinfectant dosage, and connect the feeder to the water supply and RO storage tank.
 - c. Turn on water supply and force water and disinfectant solution into the RO storage tank. The storage tank should feel heavy when filled.
 - d. The disinfectant solution should remain in the tank a minimum of 10 minutes. If the tank has not been sanitized in over a year, leave the solution in for 20 to 30 minutes. Turn off the water-supply valve and the RO storage-tank valve. Disconnect the sanitizer feeder and connect the RO storage tank to the RO unit (the tank ball valve should remain closed).
10. Open the feed-water valve and open the RO faucet until water flows freely from the spout. Close the RO faucet. Hold the disinfectant solution in the RO system, including the tubing and faucet, for a minimum of 10 minutes. Open the tank ball valve.
 11. Shut off the feed-water valve and open the RO faucet. Let water run out until the flow stops at the RO faucet.
 12. Open the feed-water valve. Let water flow freely from the faucet for three minutes. Shut off the water at the source water supply with RO faucet open.
 13. When the flow of water has stopped at the RO faucet, remove the filter housing sumps and membrane housing from the RO system. Replace the filters and membrane according to the service life.
 14. Replace the housings on the RO system. Open the source-water valve and allow the water to flow from the faucet.
 - Because some of the disinfectant may still be in the system, the system should be flushed prior to using the water for human consumption.
 - A maintenance record should be kept for the RO system, including information about the replacement parts, when service was performed, and by whom.

Trouble Shooting

Note: Turn off the system before servicing or inspecting.

PROBLEM	CAUSE	SOLUTIONS
Milky colored water	√ Air in system	<ul style="list-style-type: none"> ○ Air in the system is a normal occurrence with initial startup of the RO system. This milky look will disappear during normal use within 1 to 2 weeks.
Noise from faucet	<ul style="list-style-type: none"> √ Air gap faucet √ Location of drain saddle √ Restriction in drain line 	<ul style="list-style-type: none"> ○ Will disappear after system shut down ○ Relocate the drain to above water trap. ○ Blockage sometimes caused by debris from garbage disposal or dishwasher
Small amount of water from RO drinking faucet.	<ul style="list-style-type: none"> √ System just starting up √ Air pressure in the storage tank is low. 	<ul style="list-style-type: none"> ○ Normally it takes 2–3 hours to fill tank. Low water pressure and/or temperature can reduce production rate. ○ Add pressure to storage tank. The pressure should be 8–10 psi when the tank is empty
Slow production or no water from RO drinking faucet.	<ul style="list-style-type: none"> √ Low water pressure √ Crimps in tubing √ Clogged pre-filters √ Fouled membrane 	<ul style="list-style-type: none"> ○ Add a booster pump. ○ Make sure tubing is straight. ○ Replace pre-filters. ○ Replace membrane.
Water taste or smell offensive	<ul style="list-style-type: none"> √ Post carbon is depleted. √ Fouled Membrane √ Sanitizer not flushed out 	<ul style="list-style-type: none"> ○ Replace post carbon. ○ Replace membrane. ○ Drain storage tank and refill it overnight.
No drain water	√ Clogged flow restrictor	○ Replace flow restrictor.
Leaks	<ul style="list-style-type: none"> √ Fittings are not tightened. √ Twisted O-ring √ Misalignment of hole in the drain saddle valve. 	<ul style="list-style-type: none"> ○ Tighten fittings as necessary. ○ Replace the O-ring. ○ Realign drain saddle valve.