



WATTS GTS450C Under the Counter Reverse Osmosis System Instruction Manual

[Home](#) » [WATTS](#) » WATTS GTS450C Under the Counter Reverse Osmosis System Instruction Manual 

WATTS GTS450C Under the Counter Reverse Osmosis System



This manual is used for several variations of the same system. Your system may vary slightly from the pictures or descriptions contained in this manual. It is the end users responsibility to ensure that this system is installed according to all local codes and regulations.

Contents

- 1 Thank you
- 2 Operational Parameters
- 3 Contents of the Reverse Osmosis (RO) System
- 4 INSTALLATION & STARTUP
 - 4.1 Tools Recommended For Installation
 - 4.2 4 Stage Reverse Osmosis System Plumbing
 - 4.3 Parts List
 - 4.4 Drill a Hole for the Reverse Osmosis Faucet
 - 4.5 Marble Counter-top
 - 4.6 Counter Top / Porcelain & Stainless Steel Sink
- 5 Adapt-a-Valve Installation
 - 5.1 How to use the Quick Connect Fittings
- 6 Mount the Reverse Osmosis Faucet
 - 6.1 Drain Saddle Installation – Fits standard 1 ¼” 1 ½” drain pipes
- 7 Drain Saddle Tube Connection
 - 7.1 Step 13A 1/4” Tube Fitting Drain Saddle
 - 7.2 Step 13B-1 3/8” Tube Fitting Drain Saddle
 - 7.3 Step 13B-2 Black 3/8” Tube from RO Faucet
- 8 Green Tube Connection – Feed Water
- 9 Blue Tube Connection – RO System
- 10 Tank Valve Installation
- 11 Yellow Tube Connection – RO System
- 12 Yellow Tube Connection – Storage Tank
- 13 Reverse Osmosis Module Mounting
- 14 Start up Instructions
- 15 MAINTENANCE & TROUBLESHOOTING
 - 15.1 6 Month System Maintenance
- 16 Annual Maintenance
- 17 Membrane Replacement
- 18 Check Air Pressure in the Tank
- 19 Procedure for Extended Non-Use (More than 2 months)
- 20 TROUBLE SHOOTING
- 21 TECHNICAL & WARRANTY INFORMATION
- 22 Arsenic Fact Sheet
- 23 Limited Warranty
- 24 Documents / Resources
 - 24.1 References
- 25 Related Posts

Thank you

for your purchase of a state of the art Reverse Osmosis (RO) water treatment system. Water quality concerns are becoming more of a focus for the public. You may have heard about contaminants in the drinking water, such as Arsenic and Chromium. There may also be some local water issues such as high levels of Lead and Copper. This water treatment system has been designed and tested to provide you with high quality drinking water for years to come. The following is a brief overview of the system.

Your Reverse Osmosis System:

Osmosis is the process of water passing through a semi permeable membrane in order to balance the concentration of contaminants on each side of the membrane. A semi permeable membrane is a barrier that will pass some particles like clean drinking water, but not other particles like arsenic and lead.

Reverse osmosis uses a semi permeable membrane; however, by applying pressure across the membrane, it concentrates contaminants (like a strainer) on one side of the membrane, producing crystal clear water on the

other. This is why RO systems produce both clean drinking water and waste water that is flushed from the system. This reverse osmosis system also utilizes carbon block filtration technology, and can therefore provide a higher quality drinking water than carbon filtration systems alone.

Your system is a four stage RO which is based upon separate treatment segments within the one complete water filtration system. These stages are as follows:

Stage 1 Sediment filter, recommended change 6 months.

The first stage of your RO system is a five micron sediment filter that traps sediment and other particulate matter like dirt, silt and rust which affect the taste and appearance of your water.

Stage 2 – Carbon filter, recommended change 6

months. The second stage contains a 5 micron carbon block filter. This helps ensure that chlorine, chloramines and other materials that cause bad taste and odor are greatly reduced.

Stage 3- Membrane, recommended change 2-3 years.

Stage three is the heart of the reverse osmosis system, the RO membrane. This semi permeable membrane will effectively take out TDS & Sodium and a wide range of contaminants such as Perchlorate, Chromium, Arsenic, Copper and Lead. Because the process of extracting this high quality drinking water takes time, your RO water treatment system is equipped with a storage tank.

Stage 4- Carbon post filter, recommended change 6 – 12 months.

The final stage is an in-line granular activated carbon (GAC) filter. This filter is used after the water storage tank, and is used as a final polishing filter.

Note: Filter & Membrane life may vary based upon local water conditions and/or use patterns.

System Maintenance

Just because you can not taste it, does not mean that it is not there. Contaminants such as Lead, Chromium and Arsenic are undetectable to the taste. Additionally, over time if you do not replace the filter elements, other bad tastes and odors will be apparent in your drinking water. It is important to change out your filters at the recommended intervals as indicated in this system manual. When replacing the filter elements, pay special attention to any cleaning instructions.

With proper installation and maintenance, this system will provide you with high quality water for years to come. All of our water enhancement products are rigorously tested by independent laboratories for safety and reliability.

Operational Parameters

Installation must comply with State and local plumbing regulations. Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. System is intended to be installed using the cold water supply only.

Operating Temperatures:	Maximum 100°F (37.8°C)	Minimum 40°F (4.4°C)
Operating Pressure:	Maximum 100 psi (7.0 kg/cm ²)	Minimum 40 psi (2.80 kg/cm ²)
pH Parameters:	Maximum 11	Minimum 2
Iron:	Maximum 0.2 ppm	
TDS (Total Dissolved Solids)	< 1800 ppm	
Turbidity	< 5 NTU	
Hardness	Maximum 10 Grains Per Gallon *	

Hardness: Recommended hardness not to exceed 10 grains per gallon, or 170 parts per million. * System will operate with hardness over 10 grains but the membrane life may be shortened.

Addition of a water softener may lengthen the membrane life.

Water Pressure: The operating water pressure in your home should be tested over a 24 hour period to attain the maximum pressure. If the incoming water pressure is above 100 psi then a water pressure regulator is required. A booster pump is needed for incoming water pressure under 40psi.

Copper Tube: Reverse Osmosis water should not be run through copper tube as the purity of the water will leach copper causing an objectional taste in water and pin holes may form in the tube.

Contents of the Reverse Osmosis (RO) System

- Tank – White (Plastic or Metal)
- Module – White (Filters Pre-Installed) Parts Bag
- Faucet Box/Bag Manual

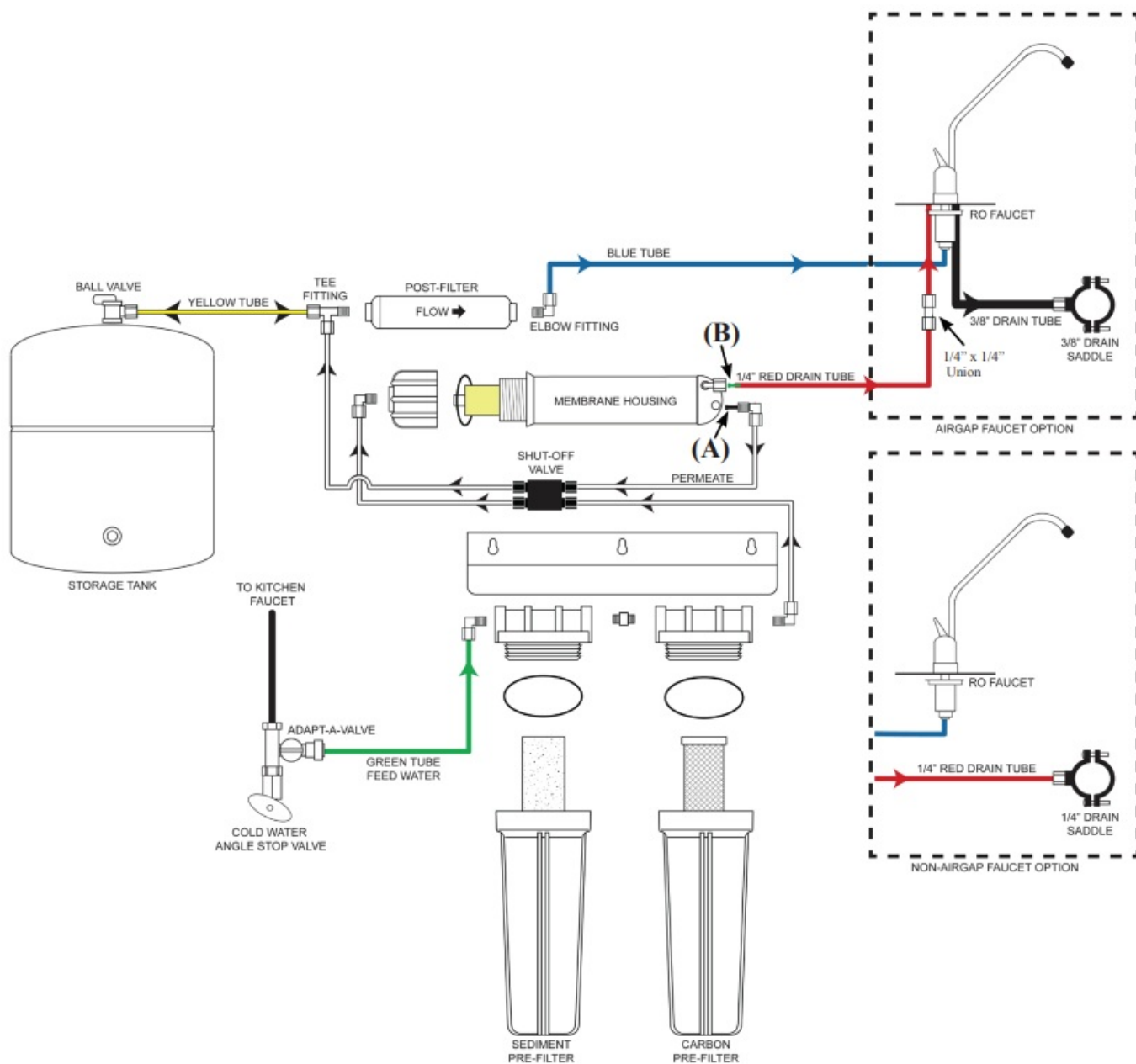
INSTALLATION & STARTUP

Tools Recommended For Installation

- √ 1 1/4" Diamond Tipped Hole Saw bit for faucet opening (Counter Tops/ Porcelain & Stainless Sinks)
- √ 1 1/4" Adjustable Wrench
- √ 1/2" Open End Wrench
- √ Electric Drill
- √ 1/8" diamond tip bit, pilot hole
- √ 1/4" drain saddle hole
- √ Phillips bit for electric drill
- √ Needle Nose Pliers
- √ Adjustable Pliers
- √ Sharp Knife
- √ Phillips Screw Driver

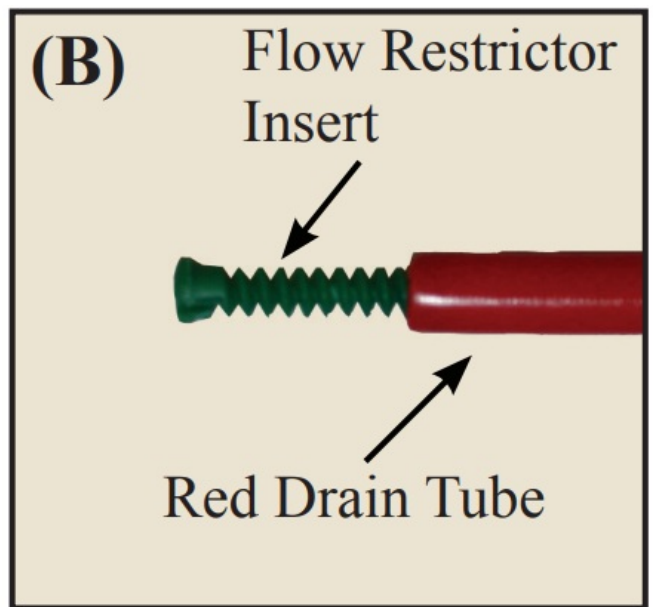
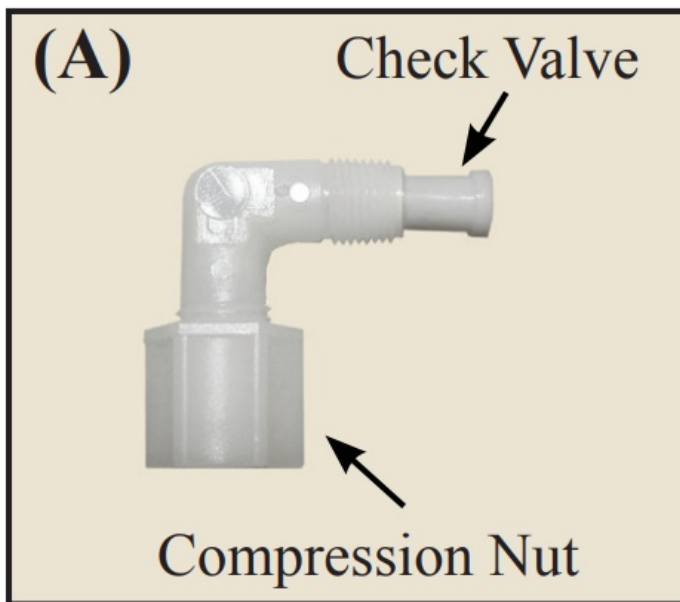


4 Stage Reverse Osmosis System Plumbing



Parts List

Pre-Filter, sediment	FPMB5-978
Pre-Filter, carbon	WCBCS975
Membrane	W-1812-50
Post Filter	AICRO
Faucet	FU-WDF-103NSF
Metal Tank	FRO-132-WH
Plastic Tank	ROPRO4-W
Feed water valve	F560080



Drill a Hole for the Reverse Osmosis Faucet

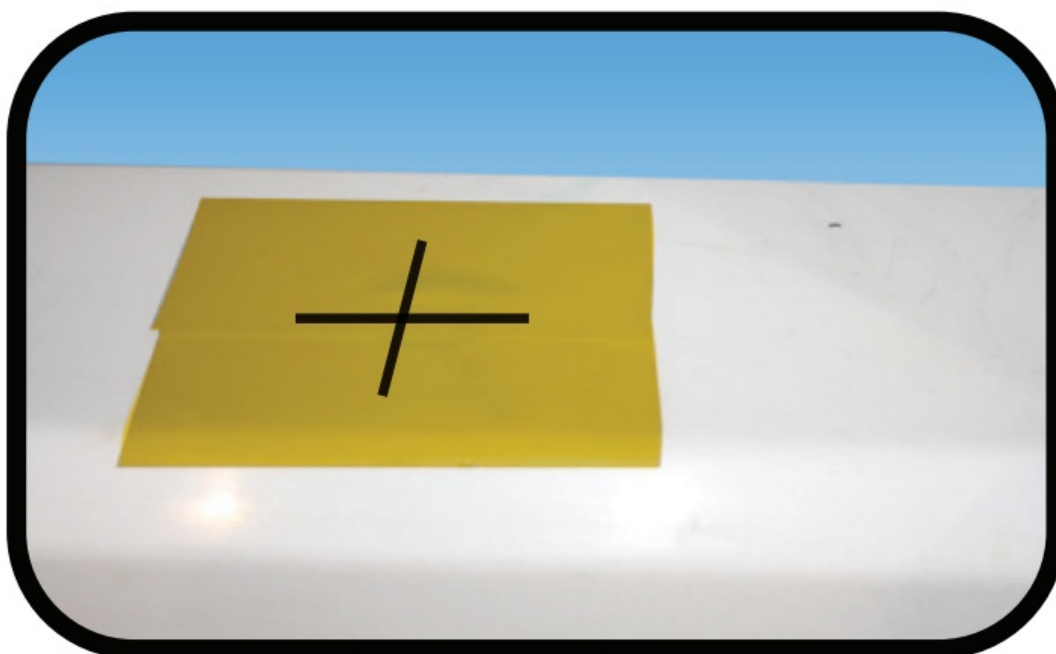
Marble Counter-top

We recommend contacting a qualified contractor for drilling a hole in a marble counter-top.

Counter Top / Porcelain & Stainless Steel Sink

Note: Most sinks are pre drilled with 1 ¼" diameter hole that you can use for your RO faucet. (If you are already using it for a sprayer or soap dispenser, see step 1)
Porcelain sinks are extremely hard and can crack or chip easily. Use extreme caution when drilling. Watts accepts no responsibility for damage resulting from the installation of faucet. Diamond tip bit recommended.

Step 1 Determine desired location for the RO faucet on your sink and place a piece of masking tape over where the hole is to be drilled. Mark the center of the hole on the tape.



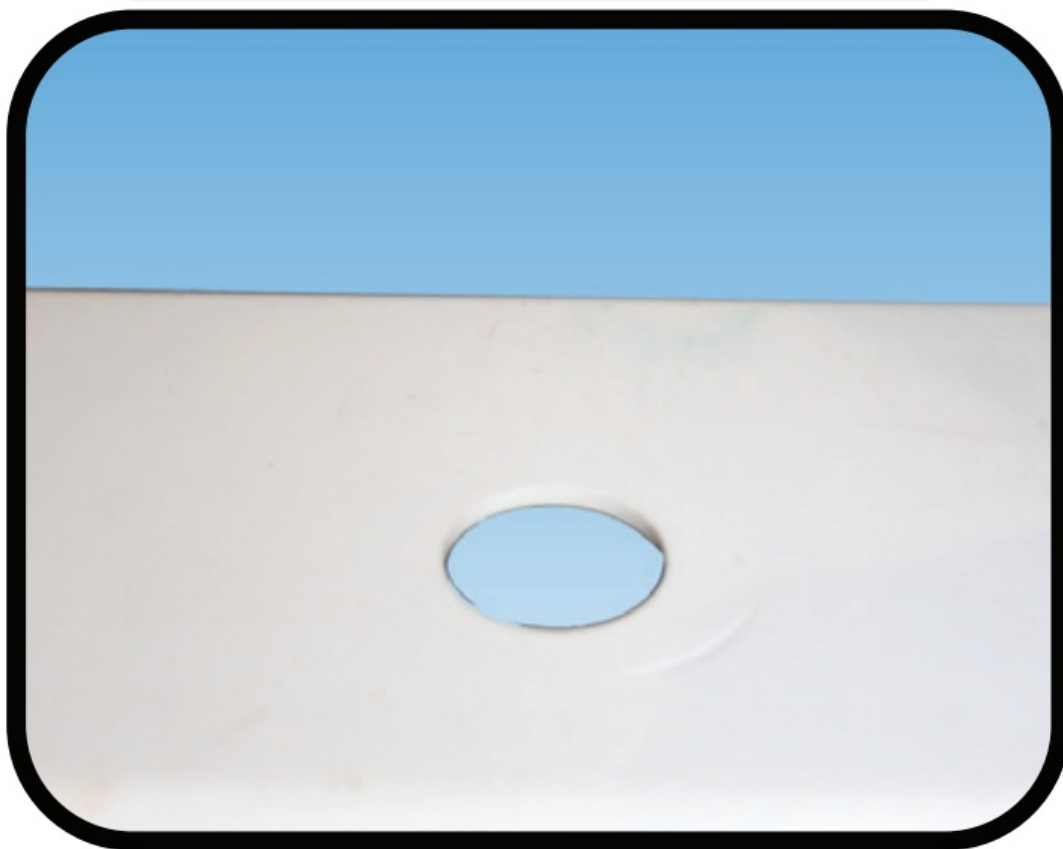
Step 2 Using a variable speed drill set on the slowest speed, drill a 1/8" pilot hole through both porcelain and metal casing of sink at the marked center of the desired location. Use lubricating oil or liquid soap to keep the drill

bit cool (If drill bit gets hot it may cause the porcelain to crack or chip).



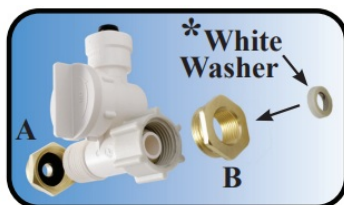
Step 3 Using a 1 1/4" diamond tip hole saw, proceed to drill the large hole. Keep drill speed on the slowest speed and use lubricating oil or liquid soap to keep the hole saw cool during cutting.

Step 4 After drilling, remove all sharp edges and make sure the surroundings of the sink are cooled before mounting the faucet.



Adapt-a-Valve Installation

Caution: Water supply line to the system must be from the cold water supply line only. Hot water will severely damage your system



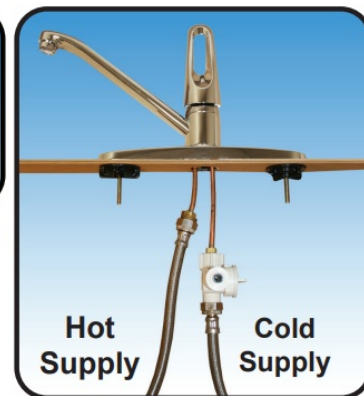
**3/8" Configuration
(With Brass Fittings)**
* Insert White Washer



**Hot
Supply Cold
Supply**



**1/2" Configuration
(Without Brass
Fittings)**



**Hot
Supply Cold
Supply**

WARNING: Do not use Teflon tape with the Adapt-a-Valve.

Step 5

Step 6 Choosing the configuration that fits your plumbing, attach the adapt-a valve as illustrated in the four photos above.

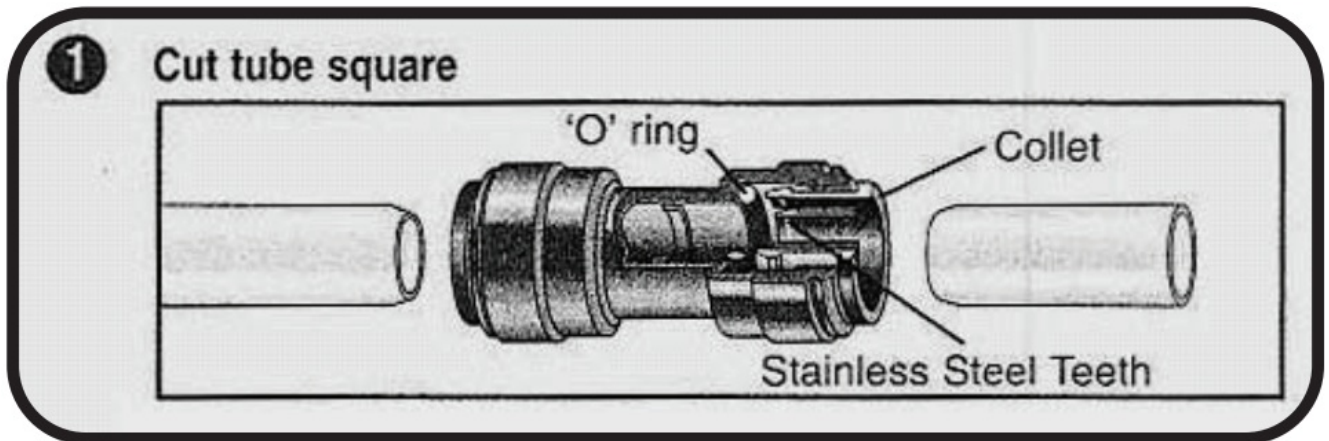
***Do not forget to install the white compression washer for 3/8" configuration.**

***Brass adapter B does not need to be tightened with a wrench, only finger tight.**

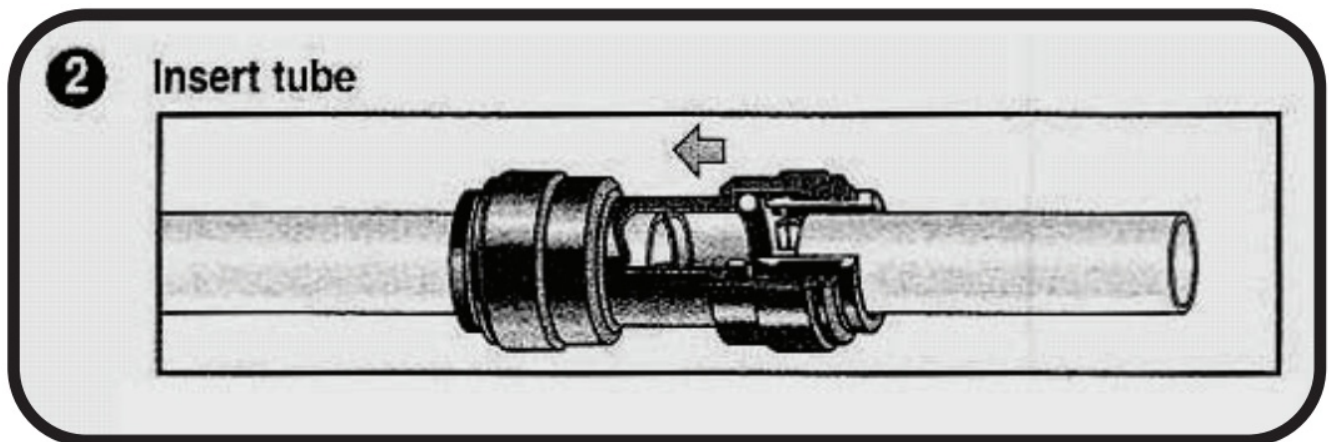
How to use the Quick Connect Fittings

To make a connection, the tube is simply pushed into the fitting. The unique locking system holds the tube firmly in place without deforming it or restricting flow. Use the steps below in reference to any quick connect tube connections.

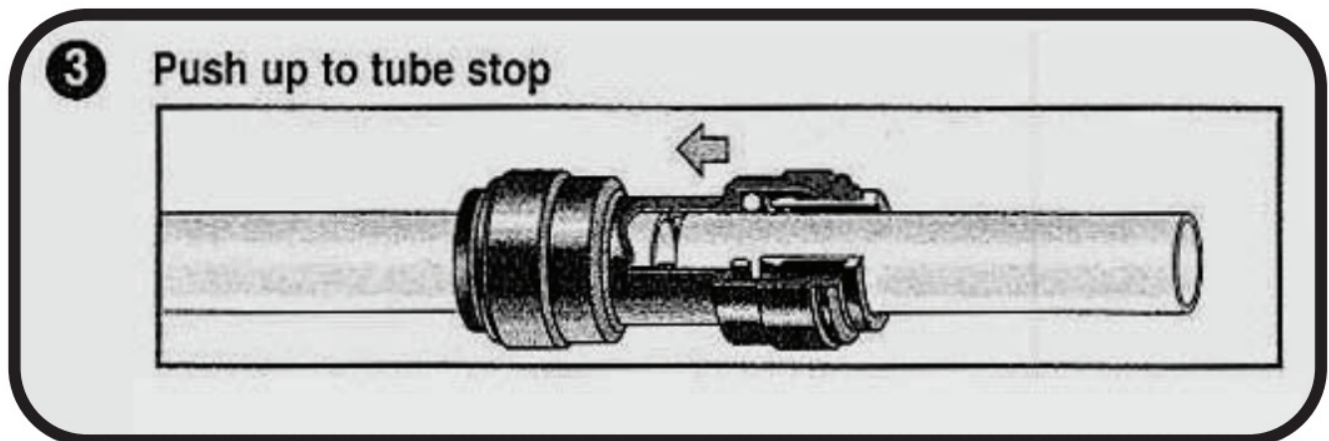
1. It is essential that the outside diameter be free of score marks and that burrs and sharp edges be removed before inserting into fitting.



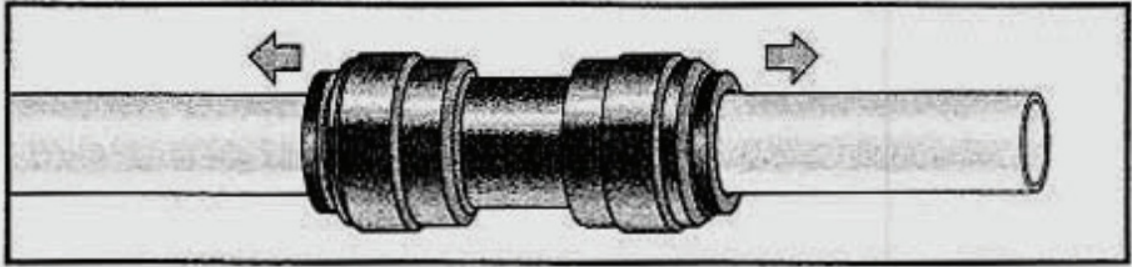
2. Fitting grips before it seals. Ensure tube is pushed into the tube stop.



3. Push the tube into the fitting, to the tube stop. The collet (gripper) has stainless steel teeth which hold the tube firmly in position while the O-ring provides a permanent leak proof seal.

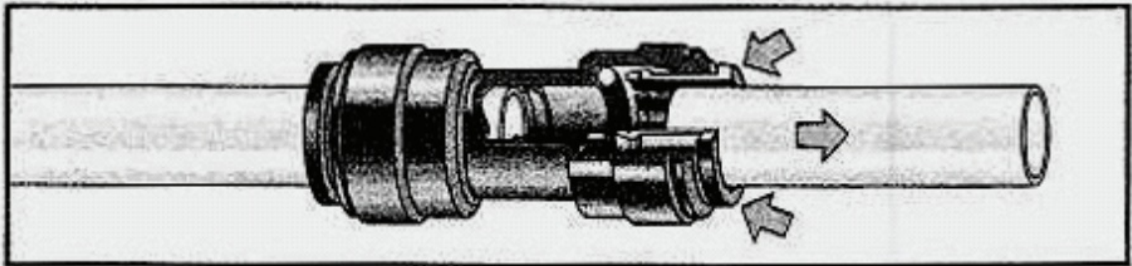


4. Pull on the tube to check that it is secure. It is a good practice to test the system prior to leaving site and /or before use.

4**Pull to check secure**

To disconnect, ensure the system is depressurized before removing the tube. Push in the collet squarely against face of fitting. With the collet held in this position, the tube can be removed. The fitting can then be reused.

Disconnecting

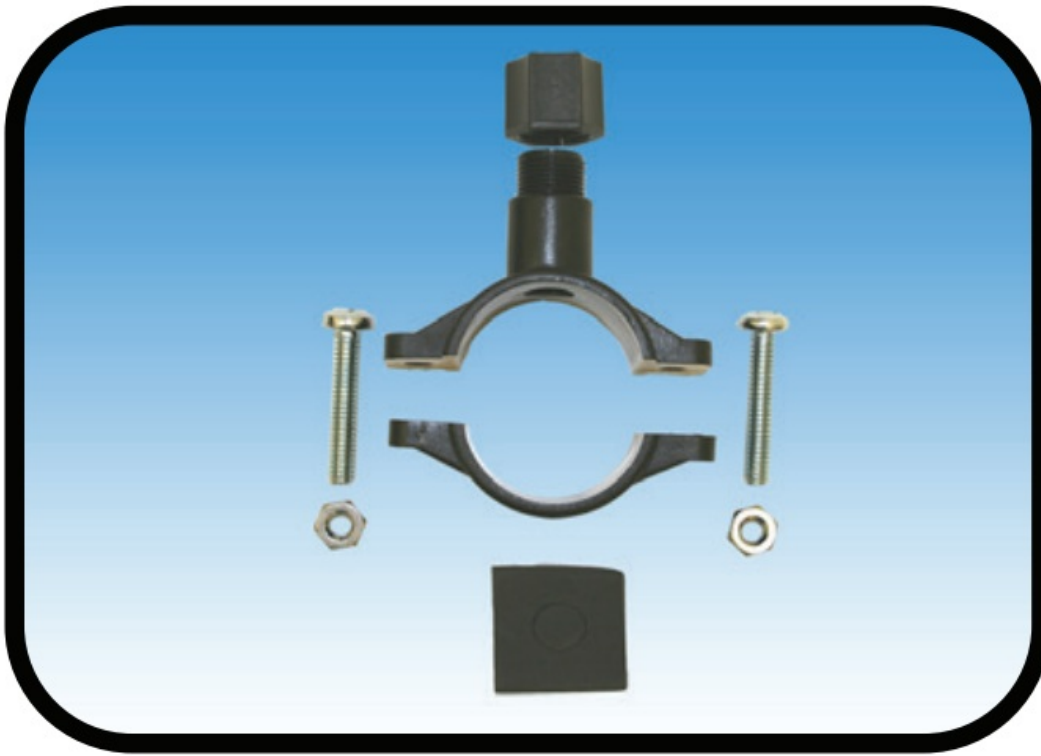
Push in collet and remove tube

Mount the Reverse Osmosis Faucet

Refer to installation instructions found on faucet box.

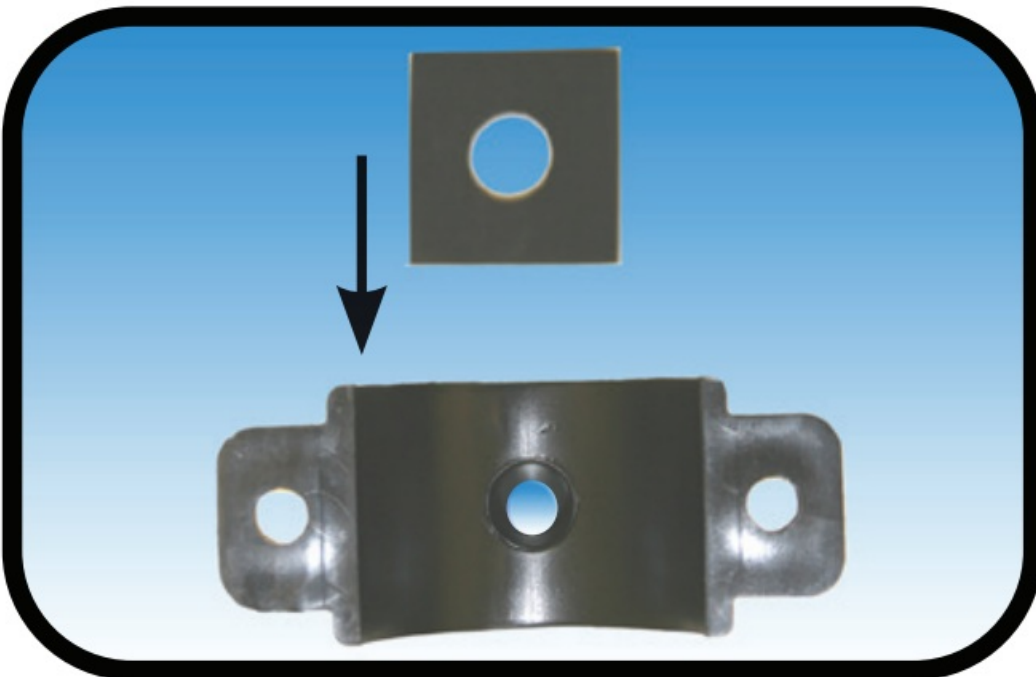
Drain Saddle Installation – Fits standard 1 ¼" 1 ½" drain pipes

Caution: If you have a garbage disposal, do not install the drain saddle near it. Installation of the drain saddle must be either above the garbage disposal, or if a second sink drain is available, install it above the cross bar on the second drain. Installation of the drain saddle near a garbage disposal may cause the drain line to plug.

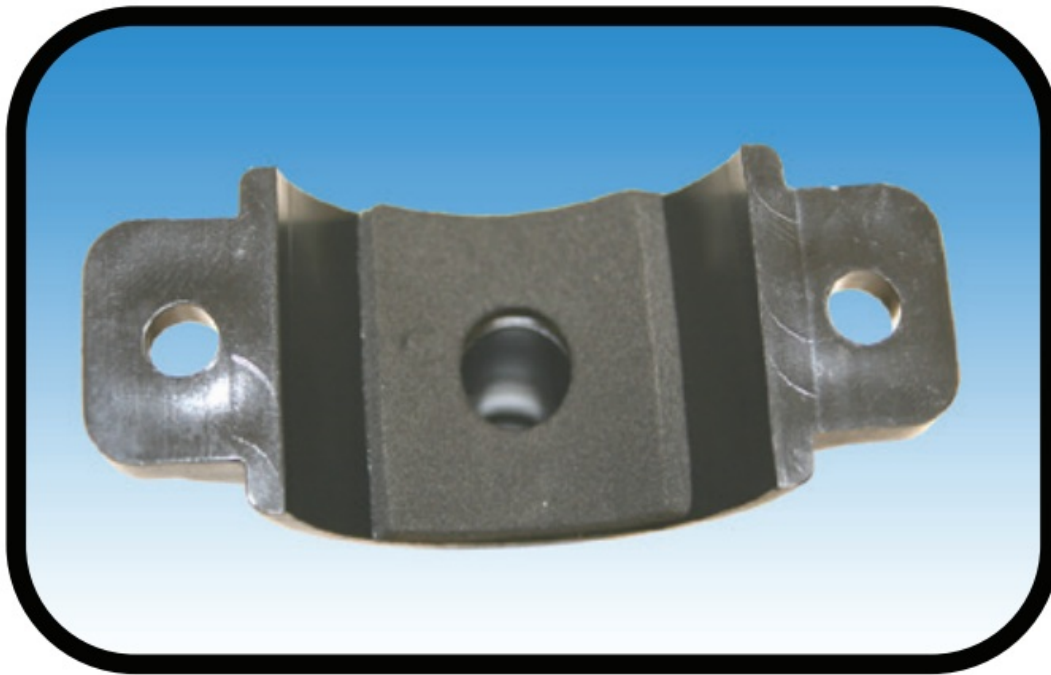


Follow all local plumbing codes for your installation.

Step 7 Determine if a 1/4" tube connection or 3/8" tube connection drain saddle should be installed. For air-gap RO faucets (3 tubes) use larger 3/8" tube connection drain saddle. For non air-gap RO faucets (1 tube) use 1/4" tube connection drain saddle.



Step 8 Locate the correct drain saddle kit in the parts bag.

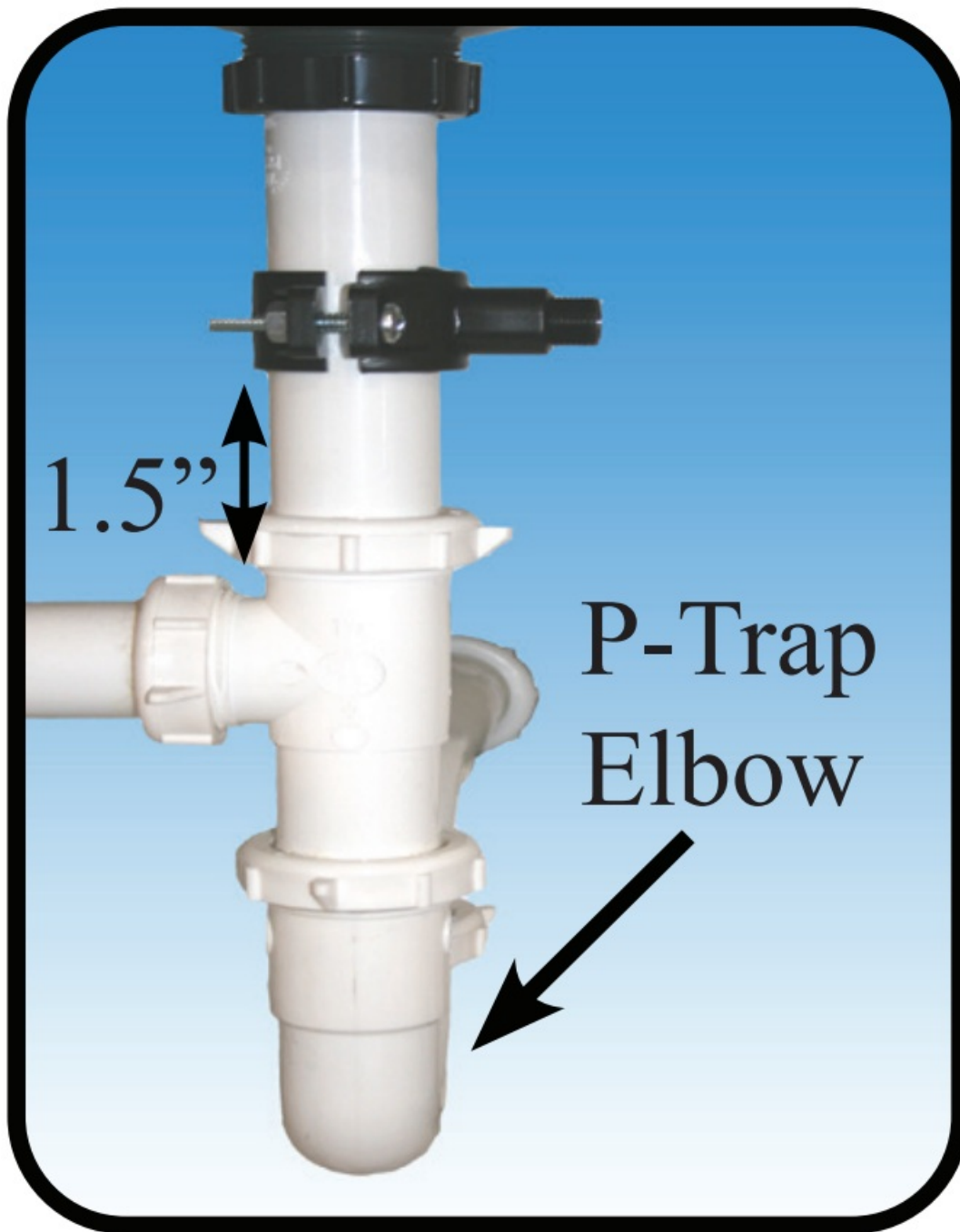


Step 9 The small square black foam gasket with a circle cut out of the middle must be applied to the inside of the drain saddle. Remove sticky tape backing and stick to the drain saddle. (See Picture to Right)

Step 10 The drain saddle must be installed at least 1 ½" above the nut of the P-Trap elbow or cross bar from the garbage disposal to insure proper drainage. Using the 1/4" drill bit, drill into the drain pipe at best available location as specified above, for drain saddle installation. **Take extreme caution to only drill through one side of the drain pipe.**

Step 11 Assemble the drain saddle around the drain pipe and align drain saddle fitting opening with the hole drilled in the previous step – you may use a small screwdriver to feed through the drain saddle into the drain pipe to aid with the alignment. Using a Phillips screw driver tighten the drain saddle bolts evenly and securely on both sides.

Caution: Do not over tighten the screws. It may crack the drain saddle.



Drain Saddle Tube Connection

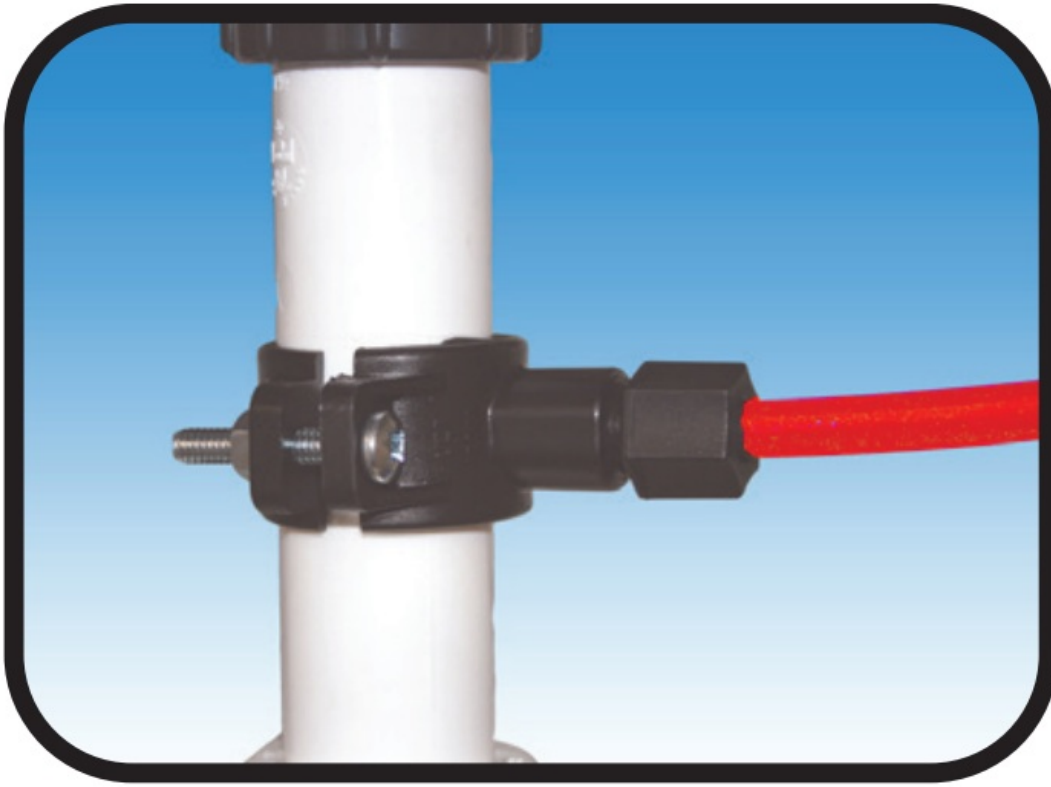
Step 12 Choose your configuration below (A – 1/4" or B – 3/8"):

Step 13A 1/4" Tube Fitting Drain Saddle

Red Tube from Reverse Osmosis System

Locate the 1/4" red drain tube that is connected to the membrane housing. Push the 1/4" red drain tube through the black compression nut included in the drain saddle kit. Insert the drain tube into the opening in the drain saddle, hand tighten the black nut and add 1/4 turn with a wrench. (Refer to diagram on page 5)

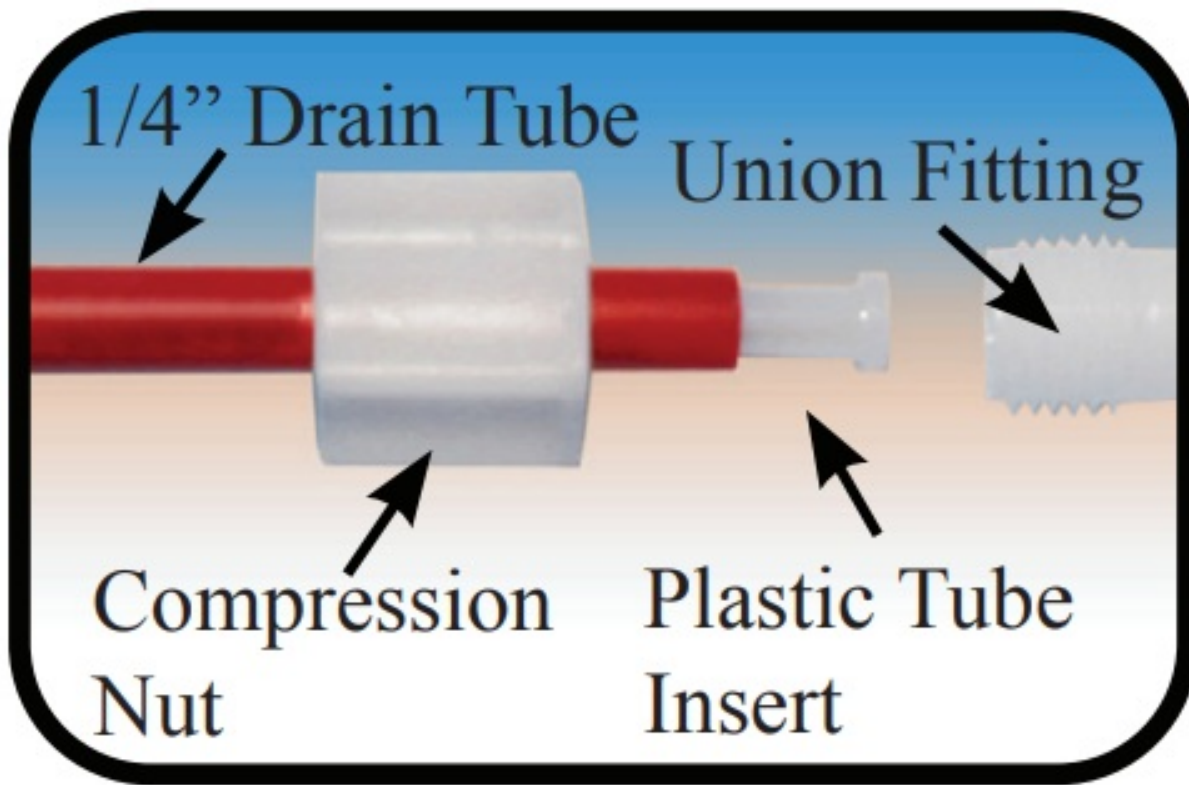
See next page if you have installed the 3/8" connection drain saddle.



Step 13B-1 3/8" Tube Fitting Drain Saddle

Red Tube from Reverse Osmosis System

Remove the white 1/4" x 1/4" plastic union and two plastic tube inserts from the parts bag. Locate the 1/4" drain tube from the RO faucet and the 1/4" red drain tube from the membrane housing. Remove the two white compression nuts from the union and push them onto the tubes. Next, push the entire plastic tube insert into each of the tube ends. Insert the assembled drain tube from RO faucet into one end of the white plastic union and the red drain tube from membrane housing into the other end threading the compression nuts on to the union. Use a 5/8" wrench to tighten both of the white plastic nuts securely.

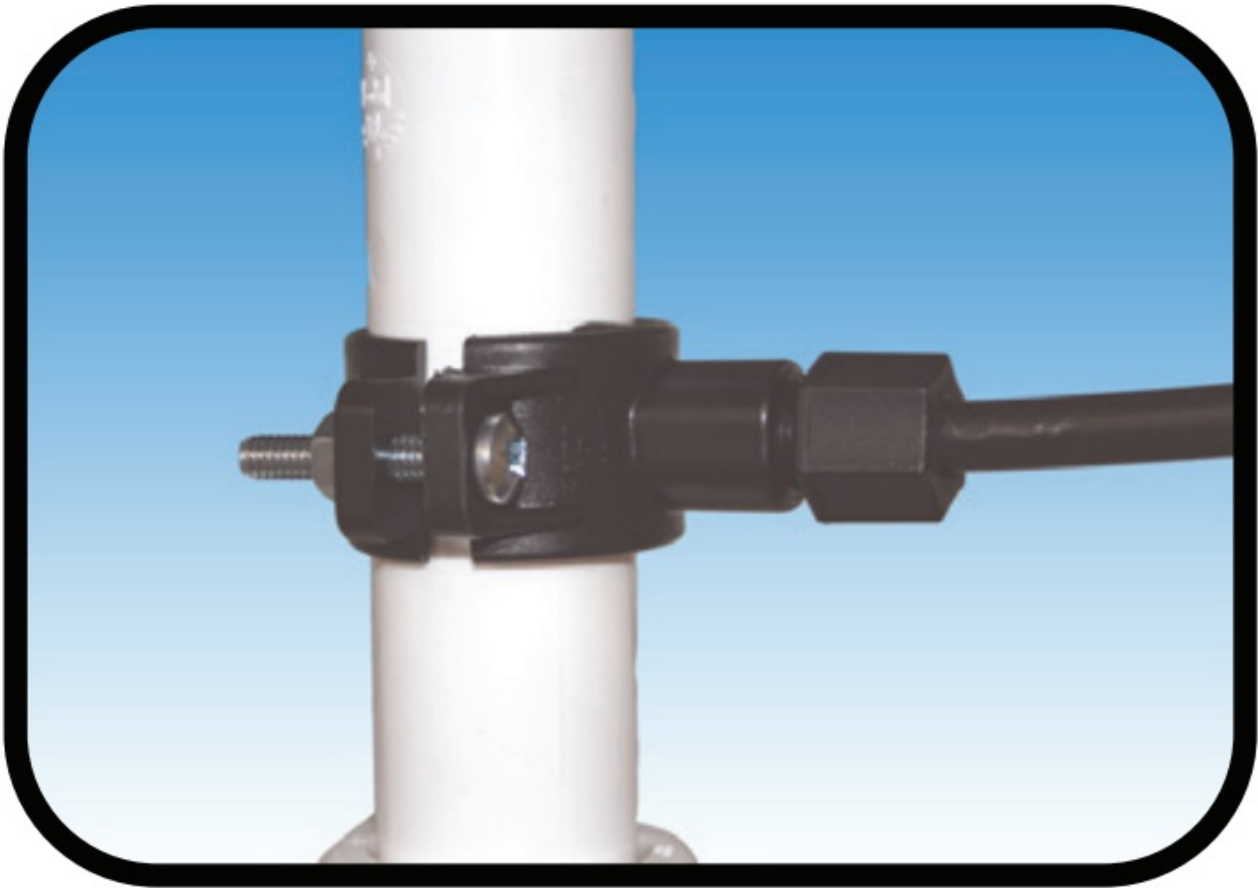


Step 13B-2 Black 3/8" Tube from RO Faucet

NOTE:

The 3/8" drain tube must be as **SHORT** and **STRAIGHT** as possible from the RO faucet to the drain saddle, making a downward slope from faucet to drain saddle to allow for proper drainage. This is a gravity fed line and if there is any bend or dip in the tube, the rinse water will not flow into the drain properly. Water may back up and come out the air gap hole in the back of the faucet.

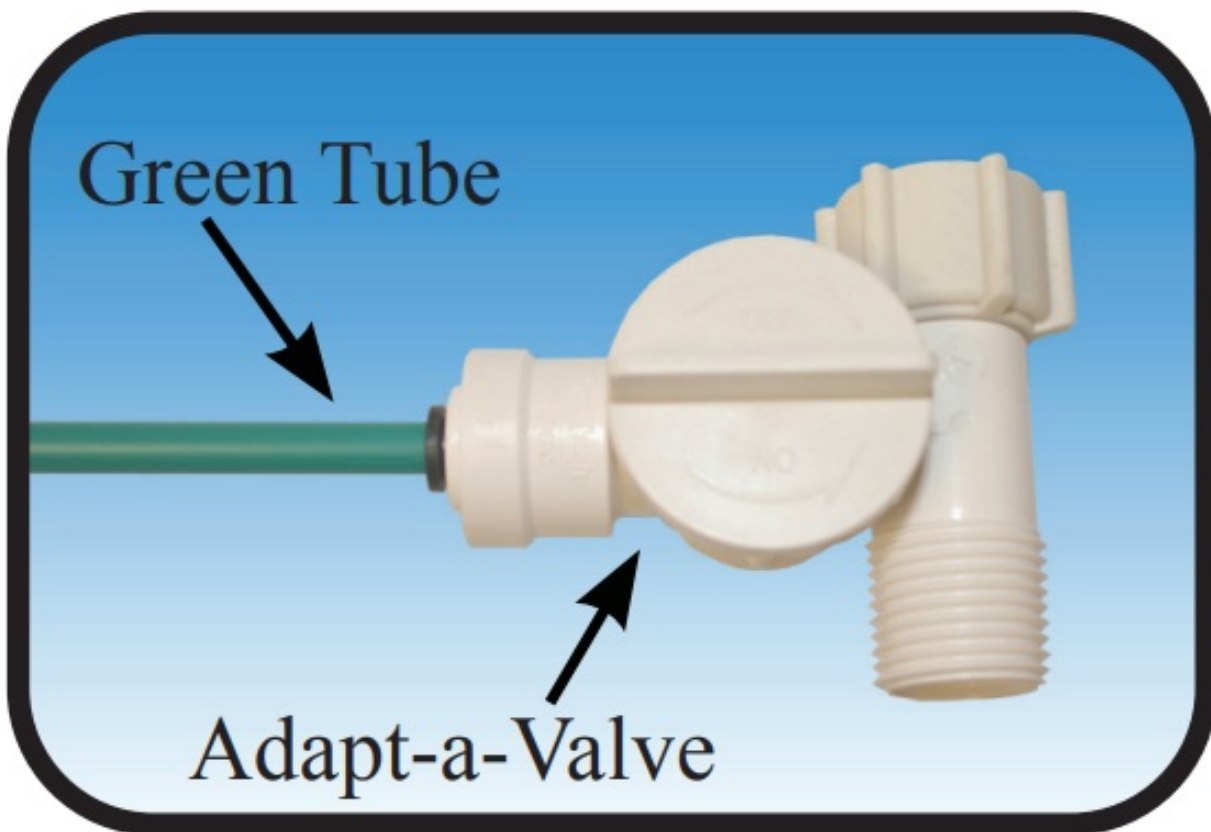
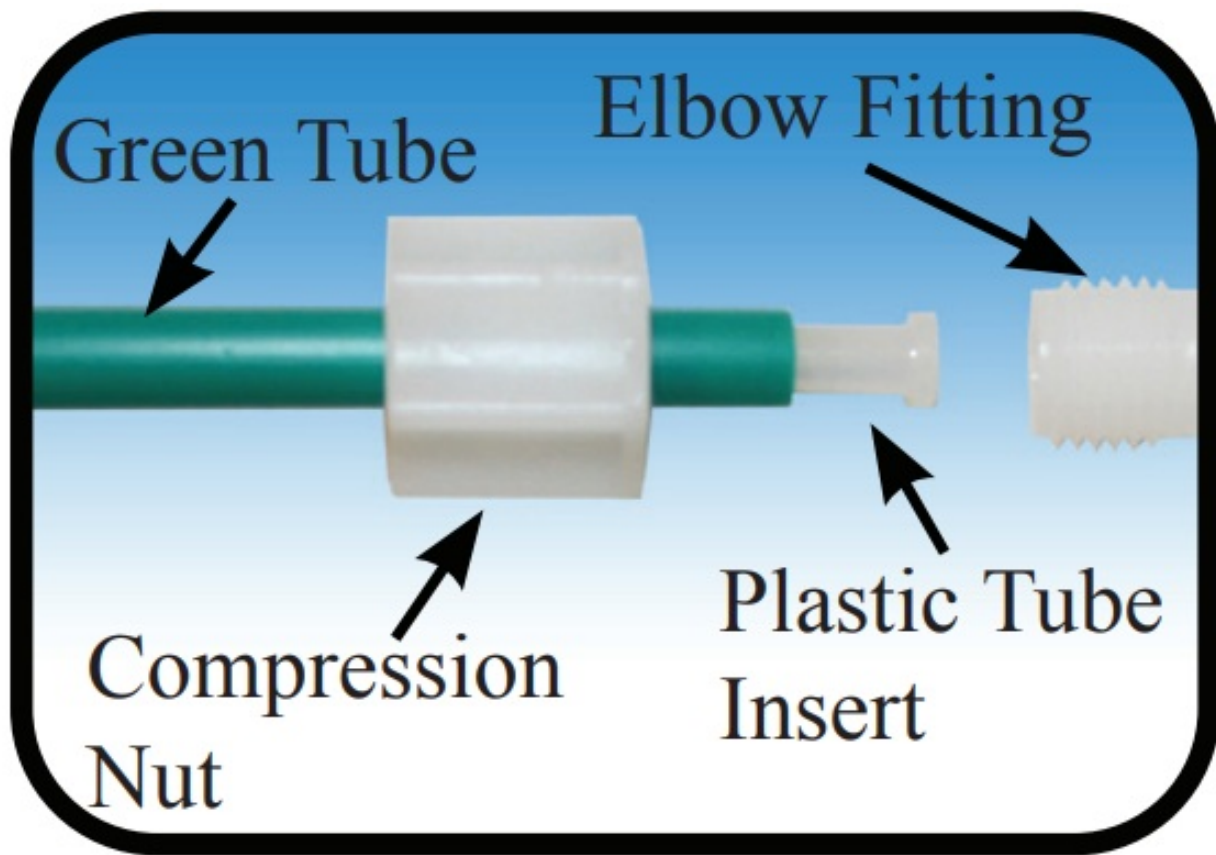
Locate the 3/8" drain tube attached to the RO faucet. Measure the 3/8" drain tube from the RO faucet to the drain saddle mounted on the drain pipe and make a straight cut to the correct length per note above. Slip the 3/8" tube open end through the black compression nut. Insert the 3/8" tube into the opening in the drain saddle and hand tighten the black nut, add 1/4 turn with a wrench.



Green Tube Connection – Feed Water

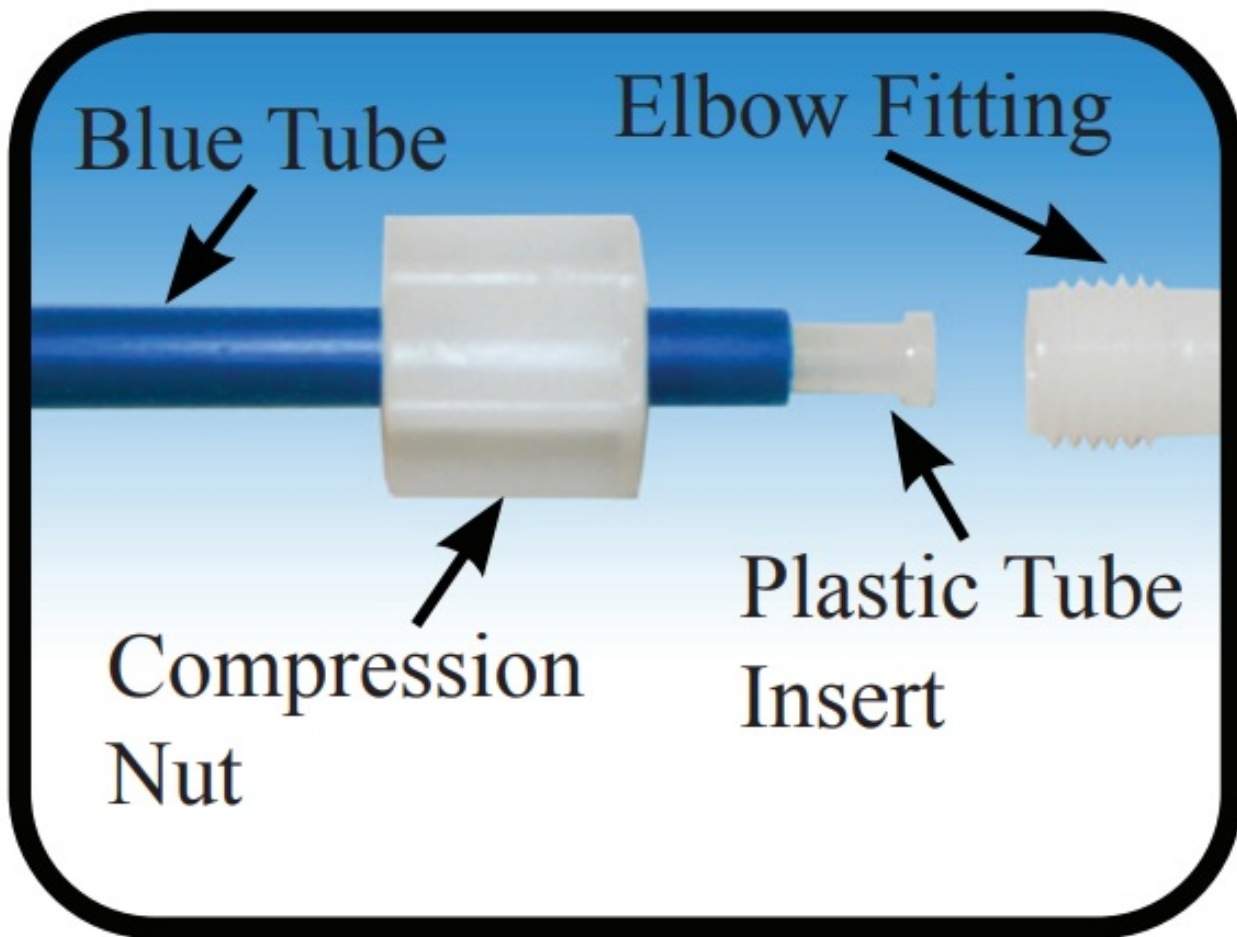
Step 14 Locate the green 1/4" tube and plastic tube insert in the parts bag. Push the entire plastic insert into green tube. To connect the tube to the elbow fitting on the sediment pre-filter housing lid, push the 1/4" green tube through the white compression nut. Hand tighten the nut to fitting and add 1/4 turn with a wrench. (See Picture to the right)

Step 15 Insert the other open end of the green 1/4" tube into the open 1/4" quick connect fitting on the plastic adapt-a-valve making sure the tube is pushed in all the way passed the o-ring to the tube stop. (**Refer to quick connect instructions on page 7**)



Blue Tube Connection – RO System

Step 16 Locate a plastic tube insert in the parts bag and the open end of blue tube connected to the RO Faucet. Push the entire plastic insert into the open end of the blue tube. To connect the tube to the elbow fitting on the outlet side (per flow arrow) of post filter which is clipped on to the membrane housing, slip the blue tube through the white compression nut, hand tighten the white nut to fitting and add 1/4 turn with a wrench. **(See Picture to right)**

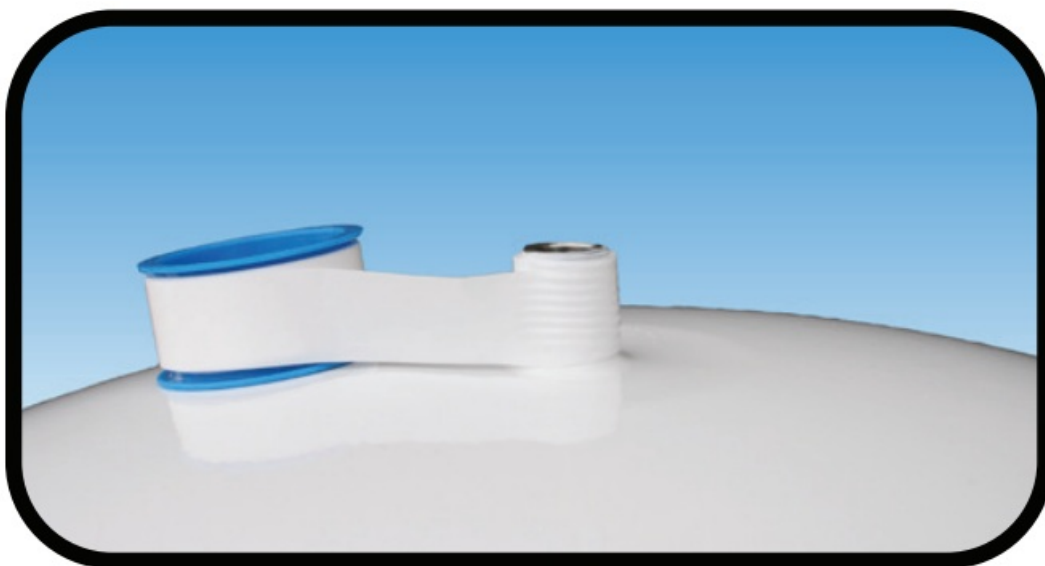


Tank Valve Installation

Step 17 Choose your configuration (A – Metal Tank or B – Plastic Tank):

Step 18A Metal Tank

Locate the Teflon tape roll in the parts bag. Teflon tape must be applied in a clockwise direction. Wrap 5 to 7 turns around the male pipe threads (MPT) on the Stainless Steel fitting on top of the tank. Thread the plastic ball valve onto the tank fitting. **Do not over tighten or the valve could crack.**



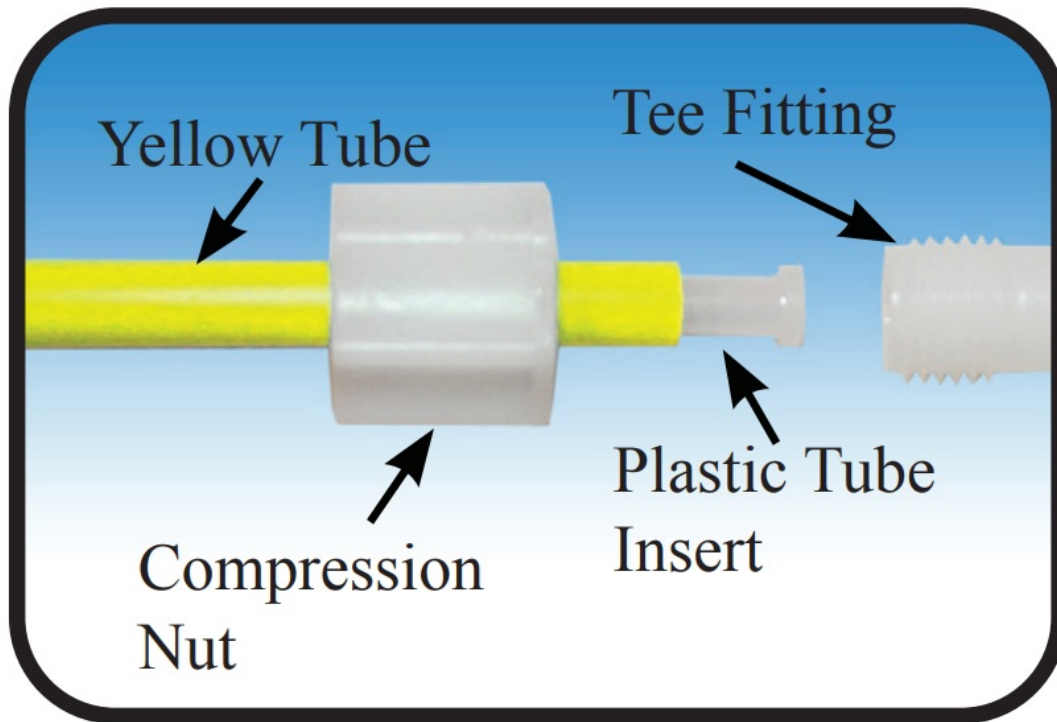
Step 18B Plastic Tank

Make sure the O-ring is located at the bottom of the recess for the tank connection. **Do not use Teflon tape!**

Thread the plastic ball valve onto the tank fitting – ball valve must seal against rubber **O-ring on tank. Do not over tighten or the valve could crack.**

Yellow Tube Connection – RO System

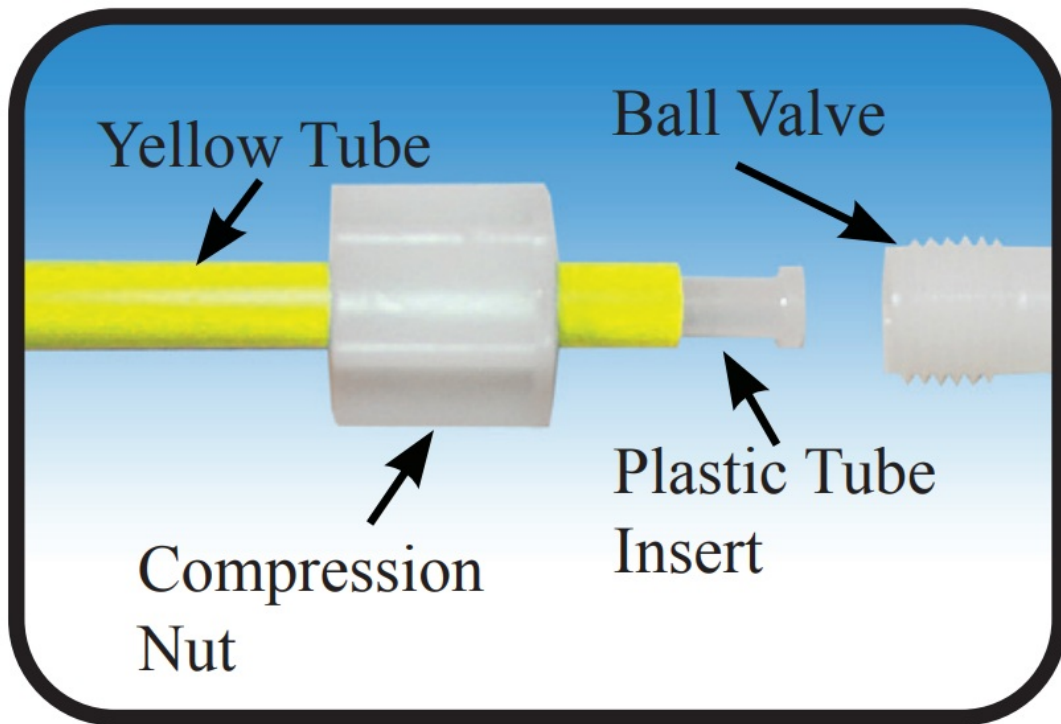
Step 19 Locate the yellow tube and a plastic tube insert in the parts bag. Push the entire plastic insert into yellow tube. To connect the tube to the Tee fitting on the post filter which is clipped on to the membrane housing, slip the yellow tube through the white compression nut, hand tighten the white nut and add 1/4 turn with a wrench. **(Refer to diagram on page 5)**



Yellow Tube Connection – Storage Tank

Step 20 Position the storage tank in desired location. Measure the yellow tube from Tee fitting to tank and cut it to desired length.

Step 21 Locate a plastic tube insert in the parts bag. Push the entire plastic insert into the yellow tube connected to the RO system in previous step. To connect the tube to the tank ball valve fitting on the storage tank, slip the yellow tube through the white compression nut, hand tighten the white nut and add 1/4 turn with a wrench. **(Refer to diagram on page 5)**



Reverse Osmosis Module Mounting

Step 22 Determine best location for the RO System to be mounted to allow for future system maintenance. The parts bag has 2 self tapping screws. Using an electric drill with a Phillips bit, screw them into the cabinet wall 6" apart and 16" from the bottom of the cabinet.

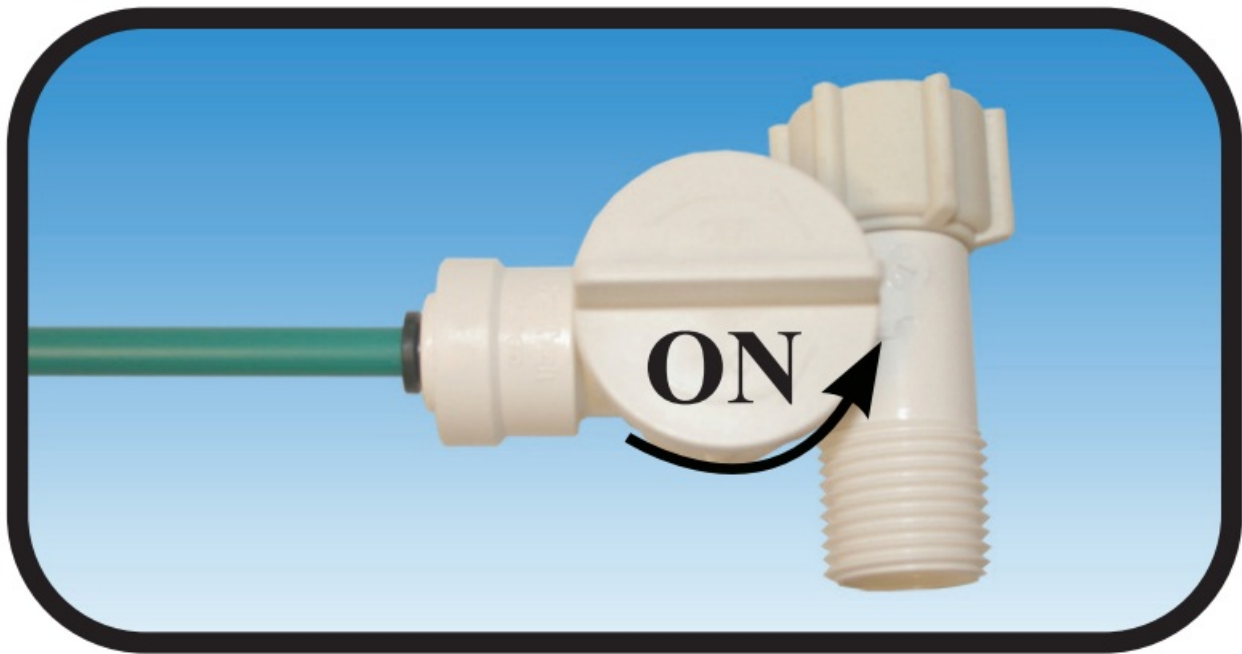


Congratulations!

**You have completed the installation of new your Reverse Osmosis system.
Please Follow the Startup Instructions.**

Start up Instructions

Step 1 Turn on the incoming cold water at the angle stop valve and the Adapt-a-Valve. Check the system for leaks and tighten any fittings as necessary. (Check frequently over the next 24 hours to ensure ON no leaks are present).



Note: If you have connected your RO system to a refrigerator / ice maker, make sure the ice maker is off (do not allow water to flow to the ice maker) until flushing (Step 4) is complete and the tank has been allowed to fill completely. Connection from the RO to the ice maker system should have an in-line valve installed before the ice maker so it can easily be closed to prevent water flowing to the ice maker during start up and periodic maintenance. Your storage tank must be allowed to fill up fully in order for the ice maker system to work properly.

Step 2 Open the RO Faucet and allow water to drain from the tank until it is completely empty.

Step 3 Close the RO faucet allowing the storage tank to fill with water. It may take 3 to 6 hours to fill the tank completely depending on the production capability of the membrane, local water temperature and water pressure.

Note: During the fill period you may hear water trickling which is a normal occurrence.

Step 4 After the storage tank has filled (the water trickling has stopped), open the RO Faucet to flush the tank completely. You will know that the tank is empty when the flow rate from the RO faucet is down to a trickle. Repeat this step two more times. The fourth tank can be used for drinking

The flushing process should take about a day to complete.

Note: Flushing of the tank 3 times is only necessary during the initial startup and after replacing the membrane.

MAINTENANCE & TROUBLESHOOTING

6 Month System Maintenance

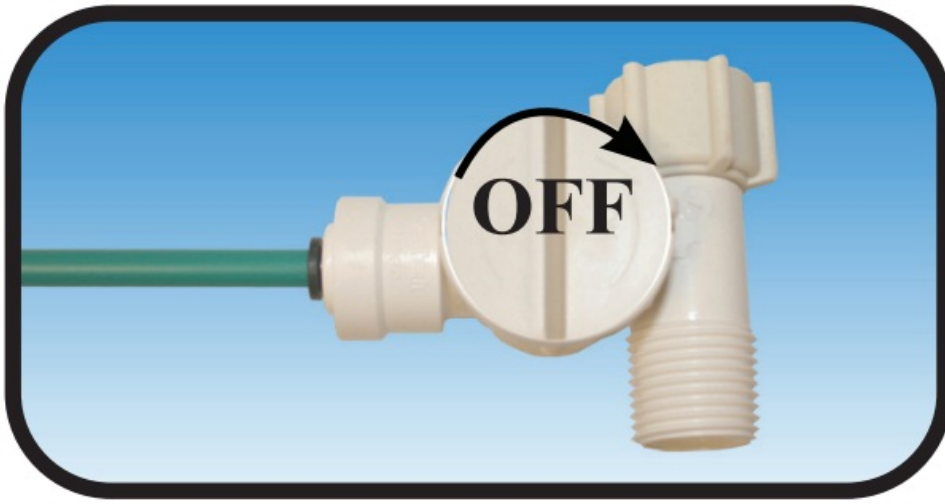
Items needed:

✓ Stage 1 – Sediment Filter

✓ Stage 2 – Carbon Block Filter

Step 1 Turn off the incoming water supply to the RO system at the adapt valve.

Step 2 Open the RO Faucet and allow water to drain from the tank until it is completely empty.



Note: Water may be saved in a container for drinking or to rinse system parts

Step 3 Let system sit for one minute after the tank is empty to let the system depressurize before attempting to remove filter housings.

Step 4 For more leverage you may leave the RO System attached to wall of cabinet. If you are unable to access the module while it is mounted, remove it prior to changing filters. Starting with the sediment pre-filter housing Stage 1, remove it by turning it clockwise (left), empty water, then discard filter. Continue on to the carbon pre-filter housing Stage 2.



Step 5 Clean the filter housings (bowls) with a mild soap solution and rinse with water. Check O-rings and lubricate with water soluble lubricant. KY Jelly® or other water based lubricants may be used. Petroleum based lubricants (such as Vaseline®) must not be used.



Caution: Before re-installing the filter bowls back on to the system, check O-rings to make sure they are still in place. *

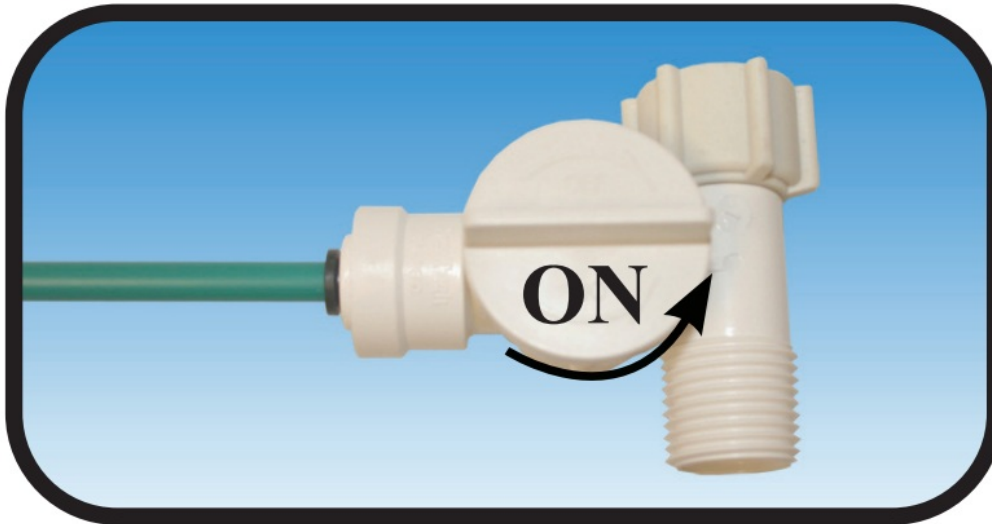
Step 6 Insert a new sediment filter (cloth like appearance) into the 1st Stage filter housing which is the one on the water inlet side (green tube from the adapt-a-valve) of the RO system and re-install housing.

Step 7 Insert the new Carbon Block filter (White end caps & plastic netting) into the second filter housing and re-install housing.



Step 8 Turn water supply on to the unit at the adapt-a-valve.

Step 9 Open the RO faucet and leave it open until water begins to trickle out (it will come out slowly)



Step 10 Close the RO faucet allowing the storage tank to fill with water. It may take 3 to 6 hours to fill the tank completely depending on the production capability of the membrane, local water temperature and water pressure.

Annual Maintenance

- ✓ Stage 1 – Sediment Filter
- ✓ Stage 2 – Carbon Block Filter
- ✓ Stage 4 – 10" Post Filter
- ✓ 1/2 Cup of hydrogen peroxide or common household bleach.

Note: Sanitizing of unit is recommended.

Step 1 Perform steps 1 through 5 in the Six Month System Maintenance (Page 12). **Note: If not sanitizing the system skip to step 8.**

Step 2 Remove the RO membrane from its housing and rest in a clean sanitary place. (Refer to "Membrane Replacement" section on page 14 for directions on removing the membrane). Replace cap onto empty membrane housing and re-connect white tube.

Step 3 Leaving the filters out, replace stage 2 empty filter housing and hand tighten onto unit. Measure & pour either 1/2 cup of hydrogen peroxide or common household bleach into the 1st filter housing (Stage 1) and hand tighten onto unit.

Step 4 With the RO faucet in the closed position turn on the incoming water supply to the system at the adapt-a-valve. Wait 1 minute for the unit to pressurize. Turn on the RO faucet and let the water run for 30 seconds. Turn off the RO faucet and let the unit rest for 2 minutes. Finally, open the RO faucet and let the water run for 5 more minutes.

Step 5 Turn off the incoming water supply to the system at the adapt-a-valve. Keep the RO faucet open until the storage tank is completely drained.

Step 6 Open the membrane housing and re-install the RO membrane while making sure not to kink the O-rings. (Refer to "Membrane Replacement" section on page 14 for directions on installing the membrane). Tighten the cap back on the housing and reconnect white tube.

Step 7 Remove filter housings Stage 1 and 2 and empty of water

Caution: Before re-installing the filter bowls back on to the system , check O-rings to make sure they are still in place and lubricate with water soluble lubricant.

Step 8 Insert the new sediment filter (cloth like appearance) into the 1st filter housing which is the one on the water inlet side (green tube from the adapt-a-valve) of the RO system and re-install housing.

Step 9 Insert the new Carbon Block filter (White End Caps) into the 2nd filter housing and re-install housing.

Step 10 The post filter is clipped on to the Membrane housing. Disconnect all of the tubes from the post filter, remove fittings on each end of the filter and remove filter from holding clips. Install fittings on to the new filter and re-connect tubes (new Teflon tape may need to be reapplied to the fittings). The flow arrow on the post filter must be pointing away from the RO storage tank. (Discard used post filter after sanitizing)

Tip: This is a good time to check the air pressure in your storage tank. For instructions please see page 15.

Step 11 Follow Steps 8 through 10 in the Six Month System Maintenance (Page 12) for startup directions.

Membrane Replacement

This reverse osmosis system contains a replaceable component (the RO membrane) which is critical to the efficiency of the system. Replacement of this reverse osmosis membrane should be with one of identical specifications to assure the same efficiency and contaminant reduction performance.

Membranes have a life expectancy between 2 and 5 years, depending on the incoming water conditions and the amount the RO system is used. This reverse osmosis membrane is critical for effective reduction of total dissolved solids (TDS). The product water should be tested periodically to verify that the system is performing satisfactorily.

Normally, a membrane would be replaced during a semiannual or annual filter change. However, if at any time you notice a reduction in water production or an unpleasant taste in the reverse osmosis water, it could be time to replace the membrane. Watts recommends replacing the membrane when TDS reduction falls below 75%.

Step 1 Turn off the incoming water supply to the RO at the adapt-a-valve

Step 2 Open the RO Faucet and allow water to drain from the tank until it is completely empty

Step 3 Remove the post filter with clips from the top of the membrane housing.

Step 4 Disconnect the white tube from the elbow on the end cap of the membrane housing.

Removing the membrane:

Step 5 Remove the end cap from the membrane housing by turning it counter clockwise to loosen.

Step 6 You may remove membrane housing from the holding clips. Using a pair of pliers, grip the PVC tube of the RO membrane and pull firmly on the membrane to remove from the housing and discard.

Installing the membrane:

Step 7 Lubricate the O-rings on the new membrane with a water soluble lubricant such as KY Jelly ®. Insert the end with the two black O-rings on the PVC tube first into the housing.



Step 8 Once membrane has been inserted into the housing you must take your thumbs and give a firm push to properly seat the membrane. Replace membrane housing cap and tighten.

Step 9 After replacing membrane housing into the holding clips, re-attach the white tube to the elbow fitting on the end cap of the membrane housing

Step 10 Clip the post filter back on to the membrane housing and follow the Start Up Instructions on page 11

Check Air Pressure in the Tank

Important: Check air pressure only when tank is empty of water!

Check air pressure in the storage tank when you notice a decrease in available water from the RO system. Air can be added with a bicycle pump using the schrader valve that is located on the lower side of the tank behind the blue plastic cap

Step 1 Turn off the incoming water supply to the RO at the adapt-a-valve
(Follow the green tube away from the RO system to find the adapta-valve.)

Step 2 Open the RO Faucet and allow water to drain from the tank until it is completely empty



Tip: When water from the RO faucet slows to a trickle, with the faucet still in the open position add air to the tank to purge any left over water, this will ensure that the tank is completely empty.

Step 3 Once all water in the tank is purged, check air pressure using an air pressure gauge, it should read between 5 – 7 PSI. (Digital air pressure gauge is recommended)

Step 4 Follow startup procedure on page 11.

Procedure for Extended Non-Use (More than 2 months)

Turn off the water supply at the adapt-a-valve and open the RO faucet to empty the storage tank (Save a few ounces of RO water). Once the storage tank is empty, remove the membrane and place it in a sealed plastic bag with the RO water saved earlier and store in your refrigerator

For restart, reinstall membrane (See page 14 for membrane installation procedure) and follow startup procedure on page 11.

TROUBLE SHOOTING

Problem	Cause	Solution
	Low Water Pressure	Assure a minimum of 40 psi incoming water pressure.

1. Low/Slow Production	Crimps in tube Clogged pre-filters Fouled membrane	Watts sells a booster pump if home water pressure is low. Make sure water supply is turned on and Adapta Valve is all the way open. Check tube and straighten or replace as necessary. Replace pre-filters. Replace membrane.
2. Milky colored Water	Air in system	Air in the system is a normal occurrence with initial start up of the RO system. This milky look will disappear during normal use within 1-2 weeks. If condition reoccurs after filter change, drain tank 1 to 2 times.
3. Water constantly running, unit will not shut off	Low water pressure Crimp in supply tube High water pressure High pressure in Tank Low Pressure in Tank	See #1 Above Check tube and straighten or repair as necessary. Check incoming water pressure to make sure it does not exceed 80 psi. A pressure relief valve may be necessary. Empty storage tank of water. Set tank air pressure between 5-7 psi. See previous page. Use a Digital Air Gauge for best results. The empty tank pressure should be 5-7 psi. See page 15.
4. Noise / Water from faucet vent hole or noise from drain.	Crimp or restriction in drain line Drain tube clogged	Check tube and straighten or repair as necessary. Straighten all drain lines. Clear blockage. Cut off any Excess tube Caused from dishwasher or garbage disposal. Disconnect the 3/8" black line at the drain, clean the 3/8" black line out with a wire, then reconnect. Blowing air through the line will not always remove the clog.
5. Small amount of water in storage tank	System starting up Low water pressure Too much air in tank	Normally it takes 3-6 hours to fill tank. Note: low incoming water pressure and/or temperature can drastically reduce production rate. See #1 above. Tank air pressure should be 5-7 psi when empty of water. If below 5 psi add air or bleed if above 7 psi. Check only when tank is empty of water. See previous page.
6. Water leaks from the blue or white filter housing	Not properly tightened Kinked O-ring	Tighten the bowl. Turn off the water supply and release the pressure. Replace the O-ring if necessary. Then lubricate it and make sure the O-ring is seated in the filter bowl properly before reinstalling the filter bowl.
7. Low water flow from faucet Check air pressure in tank Use a Digital Air Gauge for best results. The empty tank pressure should be 5-7 psi. See page 15.		

TECHNICAL & WARRANTY INFORMATION

GENERAL USE CONDITIONS:

1. System to be used with municipal or well water sources treated and tested on regular basis to insure bacteriological safe quality. DO NOT use with water that is micro biologically unsafe or unknown quality without adequate disinfection before and after the system. Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.
2. Operating Temperature: Maximum: 100°F (40.5°C) Minimum: 40° (4.4°)
3. Operating Water Pressure: Maximum: 100 psi (7.0kg/cm²) Minimum: 40 psi (2.8kg/cm²)
4. pH 2 to 11
5. Maximum iron present in incoming feed water supply must be less than 0.2 ppm.
6. Hardness of more than 10 grains per gallon (170 ppm) may reduce membrane life expectancy.
7. Recommend TDS (Total Dissolved Solids) not to exceed 1800 ppm.

RECOMMENDED REPLACEMENT PARTS AND CHANGE INTERVALS:

Note: Depending on incoming feed water conditions replacement time frame may vary.

Description	Part #	Change time Frame
Sediment Filter, 5 Micron, 9 7/8":	#FPMB5-978	6 Months
Carbon Block, 5 Micron, 9 3/4":	#WBCS975	6 Months
In-line Carbon Filter:	#AICRO	12 Months
TFC Membrane, 50GPD @60PSI:	#W-1812-50	2 to 5 years

Arsenic Fact Sheet

Arsenic (As) is a naturally occurring contaminant found in many ground waters.

Arsenic in water has no color, taste or odor. It must be measured by an arsenic test kit or lab test.

Public water utilities must have their water tested for arsenic. You can obtain the results from your water utility contained with in your consumer confidence report.

If you have your own well, you will need to have the water evaluated. The local health department or the state environmental health agency can provide a list of test kits or certified labs.

There are two forms of arsenic: pentavalent arsenic (also called As (V), As (+5)) and trivalent arsenic (also called As (III), As (+3)). In well water, arsenic may be pentavalent, trivalent, or a combination of both. Although both forms of arsenic are potentially hazardous to your health, trivalent arsenic is considered more harmful than pentavalent arsenic.

RO systems are very effective at removing pentavalent arsenic. A free chlorine residual will rapidly convert trivalent arsenic to pentavalent arsenic. Other water treatment chemicals such as ozone and potassium permanganate will also change trivalent arsenic to pentavalent arsenic. A combined chlorine residual (also called chloramine) where it does convert trivalent arsenic to pentavalent arsenic, may not convert all the trivalent arsenic in to pentavalent arsenic. If you get your water from a public water utility, contact the utility to find out if free chlorine or combined chlorine is used in the water system.

This Watts reverse osmosis system is designed to remove up to 98% of pentavalent arsenic. It will not convert trivalent arsenic to pentavalent arsenic. Under laboratory standard testing conditions, this system reduced 0.30 mg/L (ppm) pentavalent arsenic to under 0.010 mg/L (ppm) (the USEPA standard for drinking water). Actual performance of the system may vary depending on specific water quality conditions at the consumer's installation. The RO membrane component of this reverse osmosis system must be maintained according to its recommended maintenance cycle. Specific component identification and ordering information can be found in the installation/operation manual maintenance section.

California Proposition 65 Warning

WARNING: this product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (Installer: California law requires that this warning be given to the consumer). For more information: www.wattsind.com/prop65.

Limited Warranty

What your Warranty Covers:

If any part of your Reverse Osmosis System is defective in workmanship (excluding replaceable filters and membranes), return unit after obtaining a return authorization (see below), less tank, within 1 year of original retail purchase, WATTS will repair or, at WATTS option, replace the system at no charge.

How to obtain Warranty Service:

For warranty service, call 800-659-8400 for documentation and a return authorization number. Once the return authorization number has been created, ship your Reverse Osmosis unit (less tank) to our factory, freight and insurance prepaid, with proof of date of original purchase. Include a note stating the problem experienced and include your name, address and your return authorization number. No returns will be accepted without the proper return authorization number. WATTS will repair it, or replace it, and ship it back to you prepaid.

What this warranty does not cover:

This warranty does not cover defects resulting from improper installation, (contrary to WATTS printed instructions), from abuse, misuse, misapplication, improper maintenance, neglect, alteration, accidents, casualties, fire, flood, freezing, environmental factors, water pressure spikes or other such acts of God.

This warranty will be void if defects occur due to failure to observe the following conditions:

1. The Reverse Osmosis System must be hooked up to a potable municipal or well cold water supply.
2. The hardness of the water should not exceed 10 grains per gallon, or 170 ppm.
3. Maximum incoming iron must be less than 0.2 ppm.
4. The pH of the water must not be lower than 2 or higher than 11.
5. The incoming water pressure must be between 40 and 85 pounds per square inch.
6. Incoming water to the RO cannot exceed 105 degrees F (40 degrees C.)
7. Incoming TDS/Total Dissolved Solids not to exceed 1800 ppm.
8. Do not use with water that is micro biologically unsafe or of unknown quality without adequate disinfection before or after the system.

This warranty does not cover any equipment that is relocated from the site of its original installation.

This warranty does not cover any charges incurred due to professional installation.

This warranty does not cover any equipment that is installed or used outside the United States of America and Canada.

LIMITATIONS AND EXCLUSIONS:

WATTS WILL NOT BE RESPONSIBLE FOR ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. WATTS WILL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING TRAVEL EXPENSE, TELEPHONE CHARGES, LOSS OF REVENUE, LOSS OF TIME, INCONVENIENCE, LOSS OF USE OF THE EQUIPMENT, AND DAMAGE CAUSED BY THIS EQUIPMENT AND ITS FAILURE TO FUNCTION PROPERLY. THIS WARRANTY SETS FORTH ALL OF WATTS RESPONSIBILITIES REGARDING THIS EQUIPMENT.


OTHER CONDITIONS:

If WATTS chooses to replace the equipment, WATTS may replace it with reconditioned equipment. Parts used in repairing or replacing the equipment will be warranted for 90 days from the date the equipment is returned to you or for the remainder of the original warranty period, whichever is longer. This warranty is not assignable or transferable.

YOUR RIGHTS UNDER STATE LAW:

Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply. This warranty gives you specific legal rights, and you may have other legal rights which vary from state to state.

Documents / Resources

	<p>WATTS GTS450C Under the Counter Reverse Osmosis System [pdf] Instruction Manual GTS450C, Under the Counter Reverse Osmosis System, Counter Reverse Osmosis System, Reverse Osmosis System, GTS450C, Osmosis System</p>
---	---

References

- [Watts | Plumbing, Heating and Water Quality Solutions](#)
- [About Proposition 65 | Watts](#)