

# REVERSE OSMOSIS WATER PURIFICATION SYSTEM

INSTALLATION & SERVICE MANUAL  
RO-404 RO-405 RO-415 RO-415H



Distributor:



# WARNING

First of all, we appreciate you for choosing our Reverse Osmosis water system which has been passed Quality control strictly. If your R.O. water system is equipped with booster pump which has been switched into 24VAC or 24VDC in the lowest voltage. It will be assured safety for users. This R.O. water system is especially designed for using in running water, please read this installation manual carefully before installing and pay attention to the notice as following:

- (1) If this system equipped with booster pump, please make sure. The voltage is same as what you current have.
- (2) Don't use in unknow quality water or muddy water source.
- (3) Don't use in the serious polluted water source.
- (4) Don't use the salty water source. (not over 1000 ppm of TDS water).
- (5) Please use regulator if your inlet water pressure is over 60 psi(4 bars or 4 kg/cm<sub>2</sub>). Otherwise the housings will be broken.
- (6) Please install this system at a dry place and keep away from kids to reach.
- (7) This system need to install, maintain, and to change media by Technician.
- (8) Don't take apart this system except by technician.
- (9) To ensure the quality of pure water, make sure to change filters regularly and use TDS probe to test water quality.
- (10) If this system with booster pump, to ensure your safety, please install a green wire by earthed.
- (11) Don't install this system near by flammable or volatile Chmical.
- (12) This R.O. machine is to be used potable, biological safe water.

MFG DATE:



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# RO INSTALLATION GUIDE

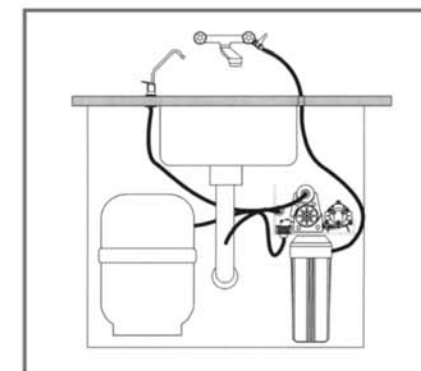
## INSTALLATION

### SELECT SYSTEM LOCATION

This reverse osmosis drinking water appliance is designed for under-counter installation. The appliance can also be installed in a remote position or other available place depending on space availability, ease of installation and servicing, and customers preference. Do not install on a location with high humidity. Do not place the system under direct sun light or any light sources.

include the reverse osmosis system assembly, faucet, components, installation hardware, and the storage tank.

(See figure 1.1 "hardware needed for Installation" and figure 1.2 "installation Kit" )



Select location for installation

### PREPARE THE HARDWARE AND THE AREA FOR INSTALLATION

1. Check components: Open the box and remove the components. Check for the presence of all installation parts, which

FIGURE 1.1 HARDWARE NEEDED FOR INSTALLATION (for reference only)

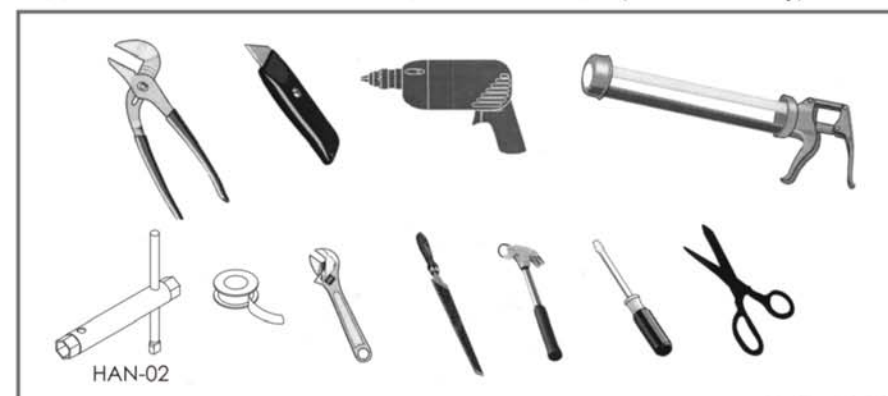
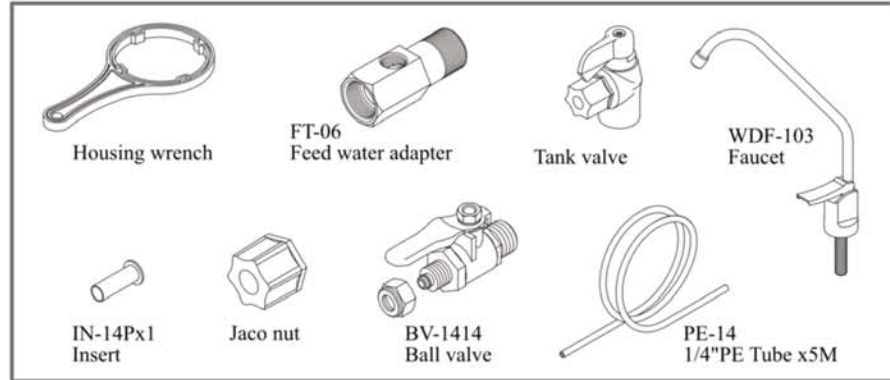


FIGURE 1.2 INSTALLATION KIT



2. Clear all objects from the working area. Determine where the components will be located and how they will be mounted.
3. Special hardware and mounting brackets may be needed.
4. Inspect the plumbing, cold water supply line, and drain to determine any special fitting required. If the condition of the piping is bad, the installer should advise the customer any possible problems that might occur.
5. Check that the air pressure in the tank is approximately 7 psi . Adjust it if necessary.
6. If the reservoir tank is more than 20 feet away from the dispensing faucet, 3/8" tubing and accommodating adapter are required.

### INSTALLATION PROCEDURES

Please read all instructions and diagrams to ensure proper installation.

### FAUCET WITH SHUT OFF VALVE (OPTIONAL)



### INSTALL THE FEED WATER ADAPTER VALVE

1. Different installation method is used depending on the type of water supply piping arrangement in your home.
2. Under-sink supply piping arrangement.
3. Turn off cold water valve or the main valve.
4. Loosen nut at the top of riser.
5. Install the feed water adapter valve.
6. Reconnect the nut with cone washer to the feed water adapter.
7. Connect 1/4" (3/8") tubing to the feed water adapter valve, using compression nut, plastic sleeve and insert.

### WALL MOUNT FAUCET

1. Turn off water main valve. Remove the Faucet.
2. Install feed water adapter valve on the cold water side only.
3. Install the extension piece on the hot water side.
4. Reinstall the faucet.

### INSTALL TANK VALVE, PREPARE FOR STORAGE TANK SANITATION

1. Connect tank valve to the tank.
2. Disinfect the tank with household bleach. Use about 1 ml bleach per gallon of tank capacity. Open the tank ball valve. Measure about 3.5 ml of bleach and pour into the tank ball valve.
3. Set the tank aside for later use.

### INSTALL THE DRAIN SADDLE ASSEMBLY

(Drain Saddle clamp is an optional device)

1. Inspect the condition of drain piping. If the condition is bad, inform the customer and possibly recommend the installation of new drain piping.
2. If the drain piping is in good condition, select the location to install the drain saddle assembly (optional equipment). The drain saddle assembly should always be installed above the trap and to the vertical or horizontal tailpiece.

3. Position the drain saddle assembly in selected location and mark the spot through threaded outlet.
4. Drill a 1/4" hole at the marked spot. Attach the drain saddle to pipe.
5. Align the drilled hole with the drain saddle using a drill bit or a narrow strait object. Tighten the clamp after alignment.

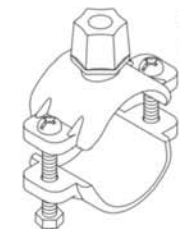
### INSTALL THE DISPENSING FAUCET

If the sink already has a hole for installation the faucet, skip to the section on mounting the faucet.

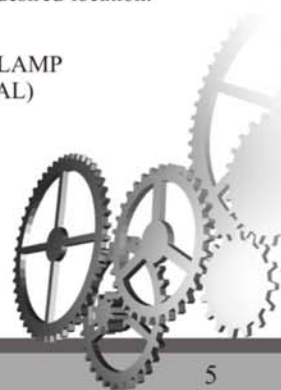
Make the Dispensing Faucet Mounting Hole

### Concrete Sink

If the thickness of the concrete is less than one inch, the dispensing faucet can be mounted on the sink. If the thickness of the concrete is more than one inch, the dispensing faucet should be mounted on a special bracket (optional) and the bracket should be mounted on the desired location.



DRAIN CLAMP (OPTIONAL)



**Tools Required**

Carbide Masonry drill bit 1/2"

**Procedures:**

1. Mark the center at the desired faucet location.
2. Use a 1/2" drill bit and drill a hole.

**Stainless Steel Sink**

Tools required-the same

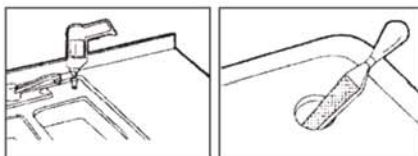
**Procedures:**

1. Mark a small indent at the desired Faucet location using the center punch.
2. Slowly drill a hole using stainless steel drill bit.
3. Dull the sharp edge with a file.

**Figure 1.3 Drilling**



A. Mark the spot B. Drill a bit hole



C. Enlarge the hole D. Sand the hole

Procelain/Enamel/Ceramic on sheet metal or cast iron base sink

**Tools Required:**

Variable speed drill.  
Procelain cutter tool set.

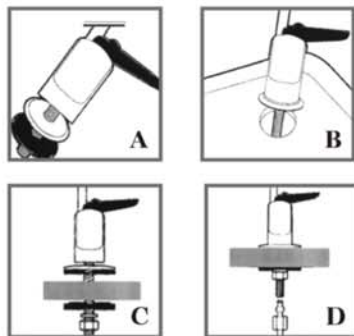
**Procedures:**

1. Mark the center for the hole.
2. Use carbide drill bit to drill a pilot hole.
3. Pour water on the hole frequently to lubricate the drill bit.
4. Use the metal cutter to drill through the sink.

**MOUNT THE FAUCET:**

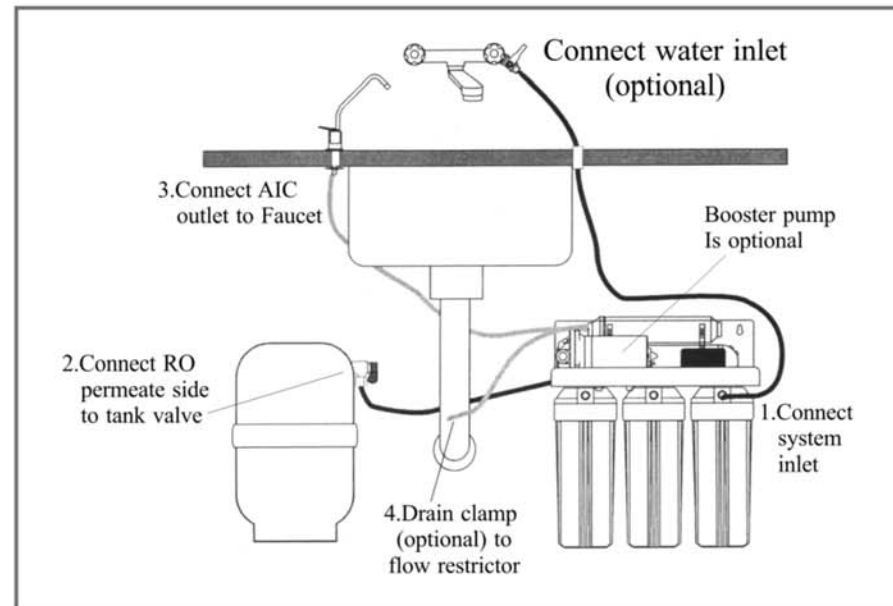
Refer to the Figure 1.4 Faucet Installation to ensure correct assembly of faucet Components.

**Figure 1.4 Faucet Installation**



**Connect Tubing to the System**

1. Connect 1/4" or 3/8" tube from feed water adapter valve to the filter housing water inlet hex nut. (Labeled "to water inlet")
2. Connect 1/4" tube from RO permeate side (Labeled "to tank") to the tank valve.
3. Connect 1/4" tube from AIC In-Line post carbon cartridge outlet side (Labeled "to faucet") to the faucet inlet.
4. Connect 1/4" tube from the end of flow restrictor to the Drain Clamp. (Labeled "to drain")

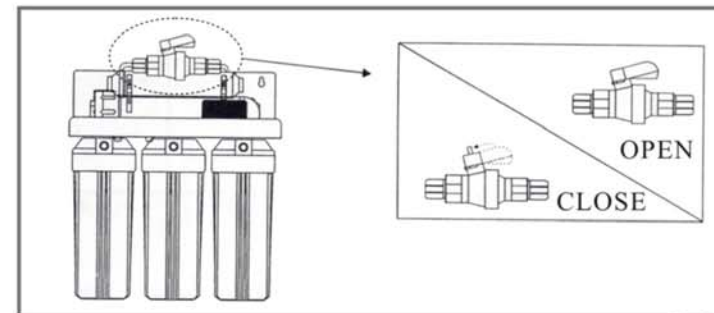


**Flushing device**

For protecting membrane of reverse osmosis system, the flush valve device is installed. The device should be operated for two minutes to flush membrane every week.

1. After installation for reverse osmosis system, the flush valve device should be opened as illustrated.
2. After finishing flushing, the flush valve can be closed.

\*Please note if the reverse osmosis is newly purchased, please flush ten minutes.



## START UP THE PURIFICATION SYSTEM

Make sure that all connections are secure.

1. Turn on feed water adapter valve and check for leaks. If any leaks found, do not proceed further until the leaks are fixed.
2. Insert the plug into a 110/220 Volts electrical outlet. The system will start running.
3. Let water flow into the system for minutes. Close storage tank valve and open the faucet until the product water dripping out of the faucet.
4. Check for leaks again.
5. Turn on tank ball valve and close the faucet. Let product water fill into the storage tank.

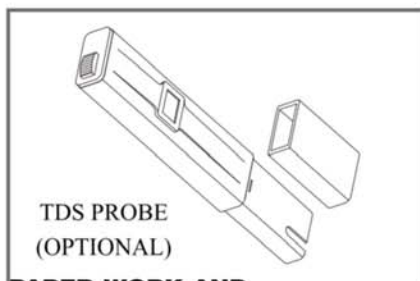
**Important Notice: Drain the first Tank of product water to flush away preservation chemical.**

## CHECK OPERATION STATUS

### Measure TDS and Recovery Rate

After flushing, use TDS meter to measure the TDS of purified water and compares the value to that of the feed water.

The purified water reading should fall around 5-8% of feed water reading.



## PAPER WORK AND CUSTOMER EDUCATION

1. Clean up the work area thoroughly. This will leave a good final impression with the customer.
2. Fill out the warranty card with the customer. Record the water pressure and TDS value for your own service file.
3. Determine the next service date and go over the recommended maintenance schedule as determined by local water conditions. Inform the customer about the importance of changing filter cartridge and testing system performance.
4. Educate the family members about operation and maintenance of the appliance. Remember to advise the customer to let the faucet run for at least forty-five seconds before first use of the Day.

## OPERATION

Operation of the Reverse Osmosis Water Purification Appliance is simple and easy. The appliance is fully automatic (automatic flushing model). You can enjoy the pure water without worrying about compliance operation procedures.

### First Time Operation

1. Plug in the power supply. Allow several minutes for the systems to flush and fill.
2. Use the built-in water monitor to make sure the system is functioning.
3. Do not drink the first tank of water. About two to three hours after system started, turn on the faucet and drain completely the first tank of water.
4. When abnormal conditions occur.
5. Shut off the system. Unplug power supply and turn off feed water adapter valve.
6. Call authorized service people or distributor. Try using the "troubleshooting chart" to determine what the problem you have encountered.

### Away From Home

If you know you are not using the system for more than two weeks.

1. Shut off the system and drain the stored water.
2. Turn off feed water adapter valve.

### Restarting the System

1. Turn on the feed water adapter valve.
2. Open the tank ball valve and plug in the power supply.

### Changing the filter cartridges

1. Contact your local authorized service people to change the filters for you or replace by yourselves.
2. Follow the proper procedure to shut off the system.
3. Use a housing wrench to open the housing. Make sure the appliance always stands upright during filter changes.
4. Replace the correct cartridge in the right housing and use the housing wrench to tighten.



## MAINTENANCE

Replacement of filter cartridge

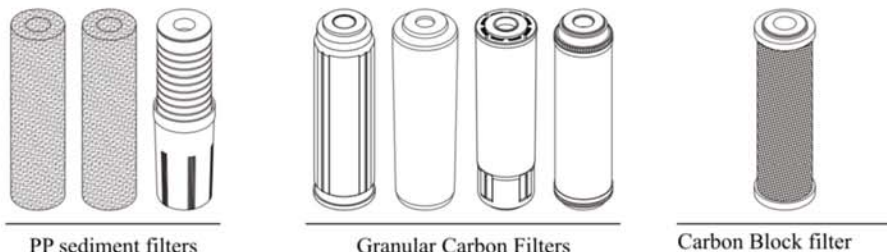
The replacement of filter cartridges is crucial to the system. It may vary depending upon the water condition in

your area. Use common sense and good judgement to determine the replacement time. To ensure that your reverse osmosis drinking water appliance performs at its maximum capacity, please follow the installation instructions.

Types of Filter Cartridges (Optional)

CARTRIDGE NO.	USAGE	NOMINAL LIFE
First stage	Sediment Filter (5 Micron)	3 months
Second Stage	Granular Activated Carbon Cartridge	3-6 months
Third Stage	Sediment Cartridge (1 Micron)	3 months
Fourth Stage	RO Membrane	2-3 years
Fifth Stage	In-Line Post Activated Carbon Cartridge	1 year

Samples for reference only:



⊙ Please call your dealer for buying above replacement filter

The replacement intervals here are based on normal operation. The real capacity of these filter cartridges can be calculated as follows:

Sediment filter cartridges:  
Pressure drop is over 5-6 psi.

Granular Activated Carbon Filter

Cartridges: Depends on water usage and chlorine concentration in your area.  
In-line Post Activated Carbon Filter Cartridges: 1,500 gallons or 1 year.

Membrane:  
\*High TDS value exists  
\*Membrane fouled, hydrolyzed, ruptured or attacked by bacteria.

## TROUBLESHOOTING TABLE

PROBLEM	POSSIBLE CAUSE	SOLUTION
No water production	<ul style="list-style-type: none"> <li>⊙ Feed water shut off</li> <li>⊙ Tank valve closed</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Turn on feed water</li> <li>⊙ Open tank valve</li> </ul>
Leak at filter housing or membrane vessel	<ul style="list-style-type: none"> <li>⊙ Defective or misaligned O-ring</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Shut off feed valve and tank valve. Turn on faucet. Change or realign O-ring</li> </ul>
Leak at threaded connection Leak at tubing	<ul style="list-style-type: none"> <li>⊙ Connecting nut loosen or not properly tightened</li> <li>⊙ There is a bend</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Tape the thread with Teflon tape and tighten evenly and firmly</li> <li>⊙ Realign and cut the tube</li> </ul>
Bad- odor water	<ul style="list-style-type: none"> <li>⊙ Tank contaminated</li> <li>⊙ Prefilters or membrane fouled</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Sanitize the tank</li> <li>⊙ Change prefilter cartridges first If bad-odor condition persists, replace membrane.</li> </ul>
High product water TDS	<ul style="list-style-type: none"> <li>⊙ Cross membrane pressure is too low</li> <li>⊙ Brine seal on membrane leaks</li> <li>⊙ Membrane expended</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Change prefilters and check pump output pressure; the pressure should be about 80 psi</li> <li>⊙ Determine if seal or O-ring is bad. Replace as needed</li> <li>⊙ Replace membrane</li> </ul>
Little or no purified water flow from faucet	<ul style="list-style-type: none"> <li>⊙ Loss of air pressure in the tank</li> <li>⊙ Check valve failed or membrane fouled</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Pump air into tank to 7 psi</li> <li>⊙ Change check valve or replace membrane</li> <li>⊙ It has to change flow restrictor while you change membrane at same time.</li> </ul>
Pump functioning but not producing purified water	<ul style="list-style-type: none"> <li>⊙ Prefilter carbon cartridge clogging</li> <li>⊙ Water inlet solenoid valve failed</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Check and replace cartridges</li> <li>⊙ Check and replace solenoid valve</li> </ul>
Pump not functioning	<ul style="list-style-type: none"> <li>⊙ Low water supply pressure</li> <li>⊙ Burnt boosting pump</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Replace pump</li> </ul>
Pump cycling abnormally on & off	<ul style="list-style-type: none"> <li>⊙ Pre filter clogging or feed pressure too low</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Change filters or adjust low pressure switch to 1 psi setting</li> </ul>
Pump on and off after a glass of water	<ul style="list-style-type: none"> <li>⊙ Inadequate high pressure switch setting</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Set high pressure switch to 40 psi</li> </ul>

