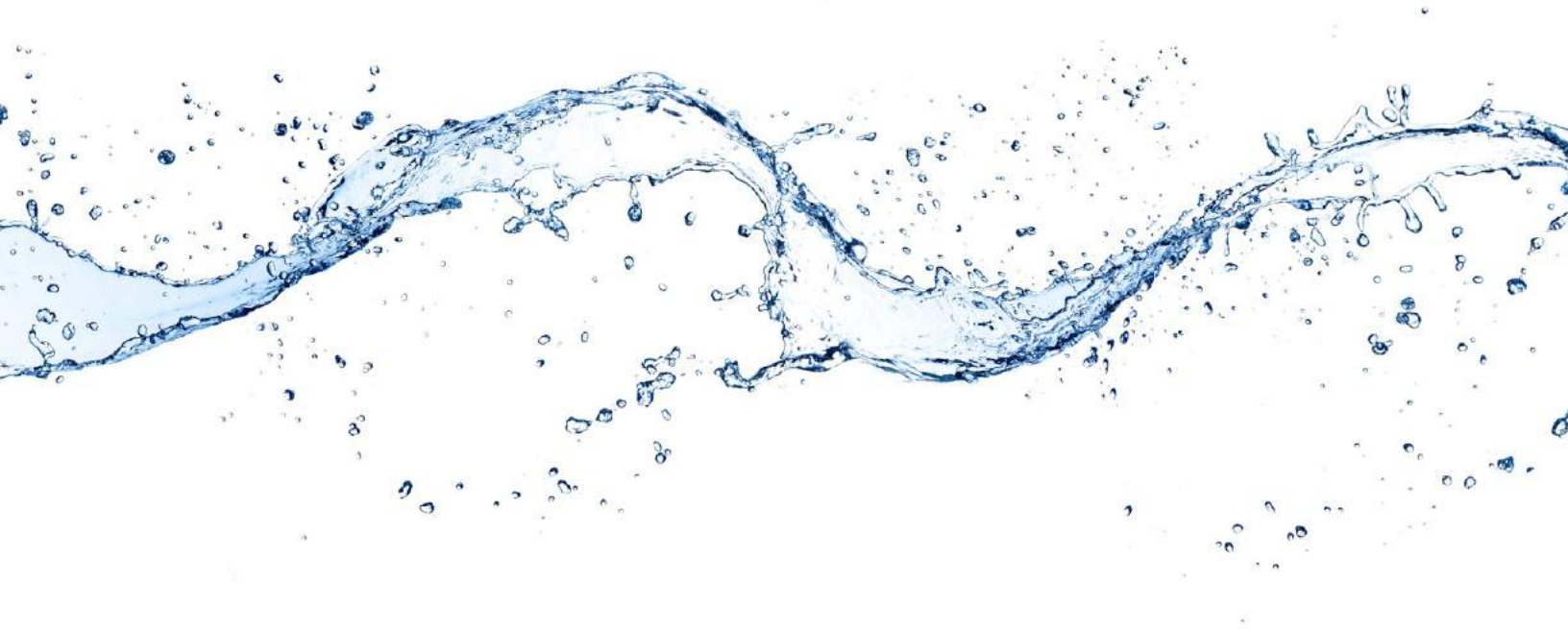
RKIN WATER SYSTEMS

Flash RO System
Owner's Manual



CUSTOMER SERVICE IS AVAILABLE MON-FRI 9AM-5PM EST 1-800-803-4551

www.RKIN.com

Table of Contents

Safety Guides

- Follow all steps exactly to correctly install the system. Reading this manual will also help you to get all the benefits from the reverse osmosis system.
- Do not attempt to use this product to make safe drinking water from non-potable water sources.
- Do not use the system on microbiologically unsafe water, or water of unknown quality without adequate disinfection before or after the system.
- This system is certified for cyst reduction and may be used on disinfected water that may contain filterable cysts.
- Check with your local public works department for plumbing and sanitation codes. You must follow their guides as you install the system.
- Follow your local codes if they differ from the guides in this manual.
- This system shall only be used for an arsenic reduction on chlorinated water supplies containing detectable residual free chlorine at the system inlet. Water systems using an inline chlorinator should provide a one-minute chlorine contact time before the RO system.
- Flash RO works on water pressures of 40 psi (minimum) to 100 psi (maximum). If your house water pressure is over the maximum, install a pressure reducing valve in the water supply pipe to the reverse osmosis system.
- Do not install the reverse osmosis system outside, or in extreme hot or cold temperatures. The temperature of the water supply to the reverse osmosis system must be between 40 F and 100 F.
- Do not connect to a hot water supply.
- Be sure to flush the system as instructed before consuming filtered water.

What Your Reverse Osmosis System Does

Your Reverse Osmosis (RO) Drinking Water System is a water treatment unit. It uses household water pressure to reverse a natural physical process called osmosis. Water, under pressure, is forced through a semipermeable membrane where minerals and impurities are filtered out. The clean drinking water goes to the faucet or storage, while minerals and impurities are sent to the drain with the RO wastewater. The minerals and impurities in water are measured as total dissolved solids (TDS). The system includes replaceable sediment and carbon pre-filter cartridges and a polishing post-filter cartridge. The pre-filter reduces sand, silt, dirt, rust particles, other sediments, and chlorine from the water supply before it can enter the RO membrane. Depending on the postfilter that you have, it may add beneficial minerals, calcium, and magnesium, to your water and/or reduce any tastes and odors that may remain in the water, after passing through the RO membrane and just before going to the RO faucet. To prevent water waste, an automatic shutoff valve closes when the RO faucet is closed and the storage tank is full. Your reverse osmosis system gives you a continuous supply of sparkling clear, delicious water for drinking, cooking, and other uses. Foods will look and taste better too. Having high-quality RO product water at your fingertips eliminates the need to buy bottled water.

Components

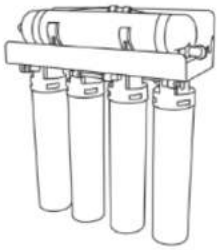
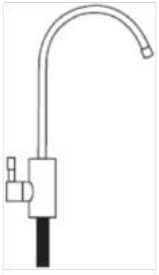
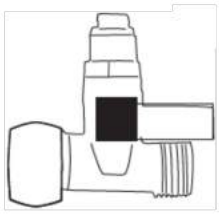
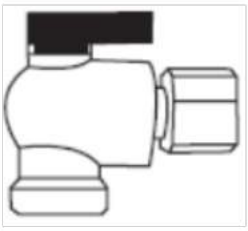
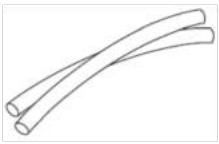
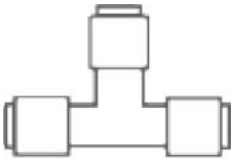
 Reverse Osmosis System with Filters	 Lead-Free Faucet	 3.2G Water Storage Tank
 Feedwater diverter valve for ⅜" or ½" water supply lines	 Faucet Adapter	 Tank Ball Shut-Off Valve
 ¼" and ⅜" Tubing	 Drain saddle	 ¼" Tee for refrigerator connection

Figure 1

INSPECT SHIPMENT

Your Reverse Osmosis Drinking Water System is shipped complete in one carton. Remove all items from your shipping carton. Check all items against the parts list. See Figure 1. Note any items lost or damaged in shipment. Note any damage to the shipping carton. If problems exist, refer to the website or the toll-free number listed throughout this manual. Keep the small parts in the parts bag until you are ready to install them.

Plan Your Installation

It is recommended to read through the entire manual before beginning your installation. Follow all steps exactly. Reading this manual will also help you get all the benefits from your system. Your Reverse Osmosis Drinking Water System can be installed under a sink or in a remote location. Typical remote sites are a laundry room or utility room. Review the location options below and determine where you are going to install your system.

TOOLS NEEDED

Review the tools needed list. See Figure 2. Gather needed tools before proceeding with the installation. Read and follow the instructions provided with any tools listed here.

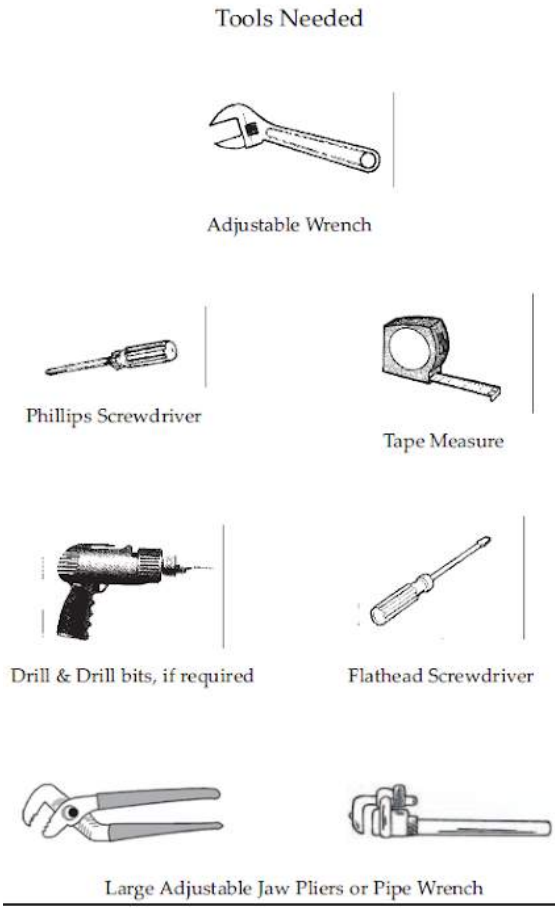


Figure 2

UNDER THE SINK LOCATION

The Reverse Osmosis Filter Assembly and storage tank are normally installed in a kitchen or bathroom sink cabinet. A suitable drain point is needed for the rejected water from the Reverse Osmosis filter.

OVERVIEW

There are seven easy steps to installing your Drinking Water system:

STEP 1 - Install Reverse Osmosis Faucet
STEP 2 - Install Cold Water Supply Diverter
STEP 3 - Install Drain Adapter
STEP 4 - Install Reverse Osmosis Assembly
STEP 5 - Install Storage Tank
STEP 6 - Connect Tubing
STEP 7 - Purge System

These steps are explained in detail over the next few pages. It is recommended to read through the entire manual before beginning your installation. Follow all steps exactly. Reading this manual will also help you receive and use all the benefits your Reverse Osmosis System can give you.

PREPARE SITE FOR INSTALLATION

- Before starting, close the hot and cold water shutoff valves.
- Temporarily place tank and filter assembly into the cabinet. Double-check the position of items and space required for proper installation.
- Remove the tank and filter from the cabinet and set aside.

SYSTEM LOCATION

Your RO system may be installed under a sink or in a basement. Do not install the unit where it would be exposed to freezing temperatures. Connecting to an ice maker or other remote location can also be considered if a connection can be made without using more than 12" of tubing, otherwise, a delivery pump may be needed. Farther runs can be attempted and a pump can be added later if needed.

GUIDELINES FOR COMPONENT PLACEMENT

The faucet should be placed on, or near the sink where drinking/cooking water is normally required. A 2" flat surface area is required to mount the faucet if an existing hole is not available. The thickness of the mounting surface should not exceed 1-1/4" or a faucet extension (not supplied) will be needed.

The Bladder Tank may be placed where it is convenient, within ten feet of the faucet. Under the sink or in a nearby cabinet or in basement rafters are excellent choices. Full tanks can weigh more than thirty pounds; so make sure any shelving used is secure. The bladder tank can be placed on its side or upright.

RO Unit may be mounted on either side of the sink, in the back of a cabinet, or in the basement. Mounting the unit on the left or the right side of the cabinet under the sink provides for easier access to the unit for future maintenance.

A Drain Saddle Valve is used to make a wastewater connection with your drain under the sink. This is designed to fit around a standard 1-1/2" OD drainpipe. The drain saddle valve should always be installed before (above) the p-trap and on the vertical or horizontal tailpiece. Do not install the drain saddle near garbage disposal to avoid clogging the drain line with debris.

Installation

FAUCET

If the sink has a sprayer, it may be disconnected for faucet installation. A pipe cap or plug will be necessary to seal the sprayer connection or the sprayer can be left connected under the sink. To make the faucet-mounting hole (if sprayer hole or other existing hole is not used), check below to make sure the drill will not interfere with anything below. A 2" flat surface area is required, not exceeding 1-1/4" thickness.

The faucet should be positioned so it empties into the sink and the spout swivels freely for convenience. If the sink has a hole that can accommodate the RO faucet, no drilling is required. Proceed with mounting the faucet. See Figures 3.1-3.3

PROCEDURES

Precautions must be taken to penetrate the porcelain through to the metal base and prevent chipping or scratching.

- Mark the center with a center punch for the 1/4" pilot hole.
- Carefully drill the pilot hole with masonry bit through porcelain and stop when metal shows. (Use light pressure and slow speed)
- Switch the bit to a standard metal cutting bit to continue to cut through the metal below the porcelain surface.
- Continue to enlarge the pilot hole with larger masonry & metal cutting bits until the hole is 15/32"(12mm).

INSTALLATION PROCEDURES FOR STAINLESS STEEL SINKS

- Mark the center with a center punch for the 1/4" pilot hole.
- Drill the pilot hole.
- Use Holepunch or continue to enlarge the hole with a larger size drill bit until it is 15/32"(12mm).
- Clean up sharp edges.

MOUNTING THE FAUCET

Refer to the diagram on the faucet box for more visual representation.

1. Slide the chrome base (escutcheon) plate and the black rubber washer up the shank to the faucet body. See Figure 3.1
2. Feed threaded shank through the sinkhole and orient the faucet. From below sink, slide black locating washer, stainless steel washer, and star washer threaded shank in said sequence.
3. Tighten with Locknut.
4. Thread the quick-connect faucet adapter at the end of the faucet's threaded shank. See Figure 3.2 (additional parts are included for non-quick connect attachment options).
5. Connect the filtered water outlet tube to the quick-connect faucet adapter at the end of the faucet's threaded shank. See Figure 3.3

Note: It is best to have someone hold the faucet from above the sink to keep it from moving out of place. If this is not possible then tighten the hex nut until it is just slightly less than completely tight. Then turn the faucet base from above the sink, tightening it while orienting the faucet in the desired location.

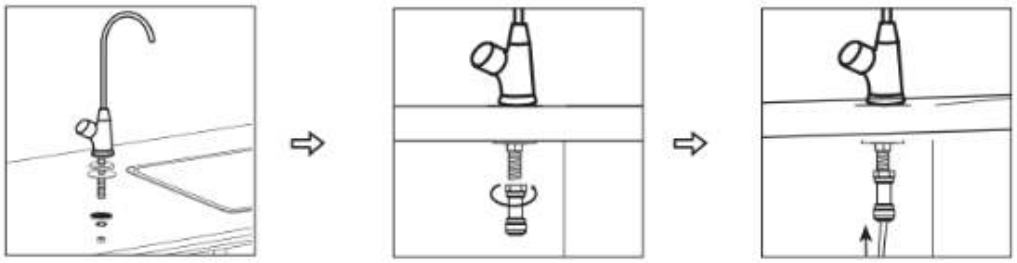


Figure 3.1 Figure 3.2 Figure 3.3

CONNECTING THE FEED WATER DIVERTER VALVE TO THE COLD WATER SUPPLY

The size of the inlet/outlet of the Feed Water Diverter Valve is convertible and can be attached to either ⅜" or ½" water supply line. To convert the size of the inlet/outlet of the diverter valve, remove the detachable fitting and attach it to the other side.

1. Make sure that the cold water supply is turned off. See Figure 4.1
2. Remove the cold water line from the cold water supply. See Figure 4.2
3. Attach the Feed Water Diverter Valve to the water supply and tighten snug.
4. Connect the cold water line to the attached Feed Water Diverter and tighten snug. See Figure 4.3
5. Connect RO system inlet line to the quick connect part of the Feed Water Diverter Valve.

The valve on the Water Diverter is the shut-off valve for your RO system. If the handle is turned perpendicular to the waterline, this is the "OFF" position for your RO system.

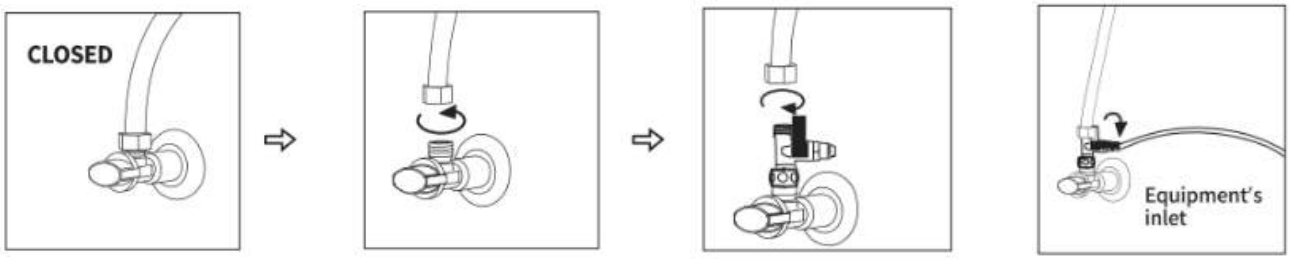


Figure 4.1 Figure 4.2 Figure 4.3 Figure 4.4

NOTE: Never install a water supply connector on a hot water line.

DRAIN SADDLE VALVE INSTALLATION

A Drain Saddle is used to make a wastewater connection with the drain under the sink and is designed to fit around a standard 1-1/2" OD (outside diameter) drainpipe. The drain saddle valve should always be installed before (above) the p-trap and on a vertical or horizontal drain. Do not install the drain saddle near garbage disposal to avoid clogging the drain line with debris. See Figure 5.

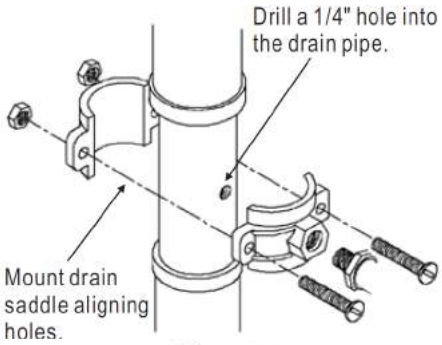


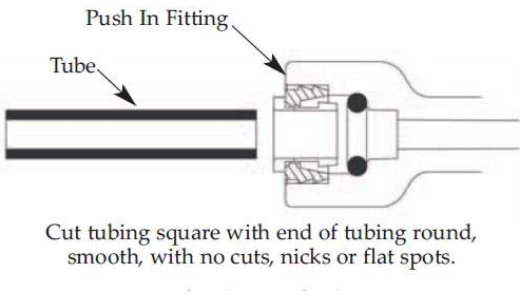
Figure 5

PROCEDURES

- Position the drain saddle valve at a selected location and mark for the opening.
- Drill 1/4" to 5/8" hole at mark through one side of the pipe.
- Remove backing from the gasket and place the adhesive side to the fitting half of the drain clamp around the hole.
- Position both halves of drain saddle on drain pipe so the opening aligns with drilled hole. Use a small drill bit to verify that the drain clamp is properly aligned.
- Secure drain saddle clamp on the valve with bolts and nuts provided. (Do not over tighten and make sure there is equal space between saddle halves on each side)

HOW TO CUT AND CONNECT THE TUBES

Your Reverse Osmosis Water System includes push-in fittings for quick tubing connection. Review the following instructions before connecting the tubes in the next step.



Cut tubing square with end of tubing round, smooth, with no cuts, nicks or flat spots.

Figure 6

Cut tubes to length

- Use a sharp cutter or knife to cut the end of the tubing. Always cut the tubing square. See Figure 6.
- Inspect the end (about 1") of the tubing to be sure there are no nicks, scratches, or other rough spots.
- If needed, cut the tubing again. See Figure 6.

Connecting the tubes

- Push tubing through collet, until it engages the o-ring. See Figure 6. Continue pushing until the tube is flush against the back of the fitting. See Figure 7. A common mistake is to stop pushing when the tube engages the o-ring. This will lead to future leaks. When a 1/4" tube is fully engaged, 11/16" of the tube has entered the fitting. When a 3/8" tube is fully engaged, 3/4" of the tube has entered the fitting. See Figures 6-7.
- If using tubing other than tubing supplied with the system, be sure it is of high quality, exact proper size, roundness, and has a smooth surface.

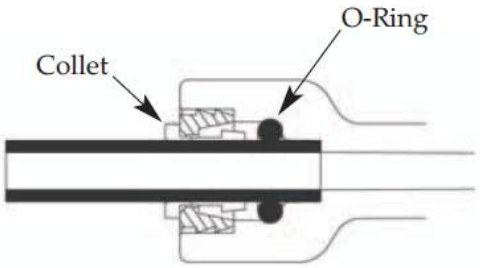


Figure 7

Disconnecting the Tubes

- Push the collet inward with a supplied Quick connect fitting removal tool. See Figure 8.
- Continue holding the collet inward while pulling the tubing. See Figure 8.

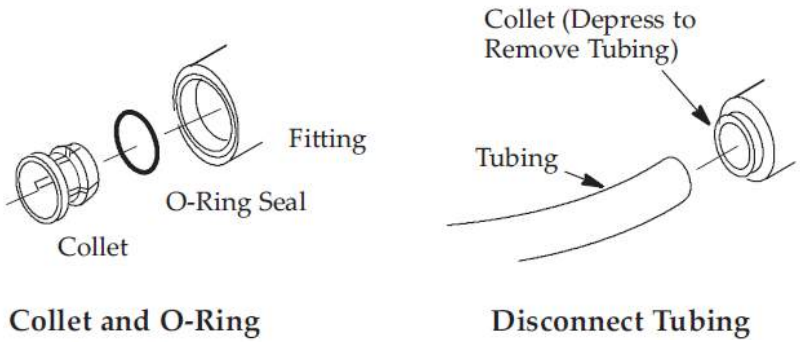


Figure 8

SUPPLY TANK PLACEMENT AND CONNECTION

The supply tank should be placed under the counter or within 10 feet of the RO unit.

Figure 9

PROCEDURES

- Apply thread sealing tape to the threads on the nipple at the top of the tank (max. 2 wraps).
- Locate the Tank Ball Shut Off Valve. Tighten the Tank Ball Shut Off Valve with a wrench into the tank nipple 7-8 turns, being careful not to cross-thread or over tighten. See Figure 9.
- Place the storage tank next to the Reverse Osmosis Assembly. The tank can be placed upright or on its side.

TUBING CONNECTIONS

For convenience with under sink installations, it may be advisable to complete under sink tubing connections at this time. See Figure 10.

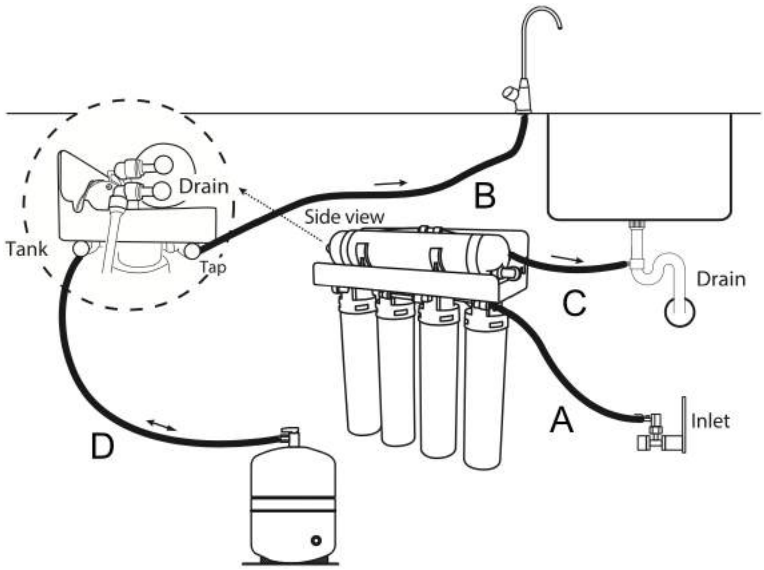


Figure 10

PROCEDURES

- Connect the tubing “A” to the water supply connector.
- Connect the tubing “B” to the sink top faucet.
- Connect the tubing “C” to the drain saddle.
- Connect the tubing “D” to the storage tank.

RO UNIT INSTALLATION

The RO unit is normally mounted to the right or left sink’s cabinet sidewall, depending on where the supply tank is to be located. Generally, the unit is installed at the front of the cabinet and the tank at the rear.

To mount the unit, elevate it at least 2" off the floor, level it, and mark the location of mounting holes needed. Drill hole for mounting screws and install screws allowing the mounting bracket slots to slip over them.

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

REFRIGERATOR CONNECTION

Cut tubing marked “B” at the convenient location and connect the included ¼" tee connector to the refrigerator supply line.

SYSTEM START-UP PROCEDURES

- Check all fitting connections.
- Open water supply delivery valve, allow the system to pressurize, and check for leaks.
- Open the valve on the bladder tank and open the faucet until water flows.
- Close the faucet, wait five minutes, and check for leaks.
- Allow the system to produce a full tank of RO water. (1-2 hours)

FLUSHING SYSTEM AND CHECKING OPERATION

Turn the faucet lever down and this will keep the faucet on. Do this and allow the tank to completely drain of all water. Close faucet and re-inspect system for leaks. Allow the system to produce water for 2-3 hours, at this point the bladder tank will be full. Open the faucet again and allow the tank to empty for a second time.

Do not use this water! Close the faucet and allow the unit to produce another tank of water. At this point supply line to ice maker connection (optional) may be opened and RO water is ready to be consumed.

REPLACING FILTERS AND RO MEMBRANE

First Stage Filtration (marked as 1 on figure 11) - 5 Micron Sediment Filter. MPN: RC-FT-82. Replace every 12 months or as needed.

Second Stage Filtration (marked as 2 on figure 11) - Carbon Block Filter x 2. MPN: RC-FT-92. Replace every 12 months or as needed.

Third Stage Purification (marked as 10 on figure 11) - 75 Gallon Per Day RO Membrane. MPN: ZIPM75. Replace every 24 months or as needed.

Hardness over 10 gpg (171 mg/L) may reduce the lifespan of the RO membrane. If the filtered water production decreases over time, please replace the RO membrane and substitute one of the 2nd stage Carbon Block filters with PPH Anti-Scale Carbon filter, MPN: RC-FT-90, to prevent premature RO membrane failure due to hardness build-up.

Fourth Stage (marked as 3 on figure 11) - AlcaPure Post Filter, MPN: RC-FT-87. Replace every 12 months or as needed. OnliPure Post Filter, MPN: RC-FT-OP. Replace as needed.

Carbon only post-filter, MPN: RC-FT-86, is also available on our website - rkin.com

Unusual tasting filtered water is a good indication that it’s time to replace the post filter.

FILTER REPLACEMENT PROCEDURES

- Turn off valve on RO bladder tank.
- Turn off the water supply by shutting off the inlet valve. See figure 4.
- Open RO faucet to relieve pressure.
- Grab the filter by hand, or use a filter strap wrench, and twist clockwise to detach See figure 11.
- Discard old filters.
- Install new filters in the system in the following sequence from right to left: Sediment Filter (marked as 1 on figure 11), Carbon Filter (marked as 2 on figure 11), Carbon Filter (marked as 2 on figure 11), Post Filter (marked as 3 on figure 11).
- Turn on feed pressure.
- Open tank valve.
- Allow the water in the tank to flush out post-filter and run to drain until empty. Run 2 more complete batches to drain before using water.

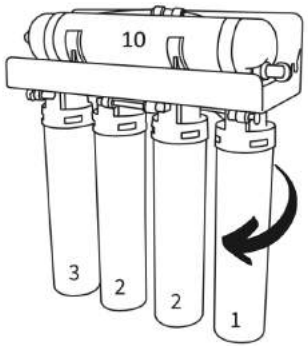


Figure 11

MEMBRANE REPLACEMENT PROCEDURES

- Turn off valve on RO bladder tank.
- Turn off the water supply by shutting off the delivery valve. See figure 4.
- Open RO faucet to relieve pressure.
- Remove the three quick connect elbow fittings attached to both ends of the RO membrane (marked as 10 on figure 12). Remember correct attachment locations for the new membrane.
- With the elbow fittings still attached to tubing, connect them to the new membrane.
- Please make sure the flow restrictor located inside the drain tube is also transferred to the new membrane.

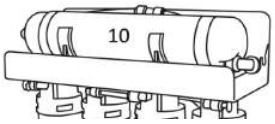


Figure 12

Troubleshooting

Problem: Chlorine taste and/or odor in the RO product water.	
Cause: The level of chlorine in your water supply exceeds maximum limits, and has destroyed the Reverse Osmosis membrane	***Correction:*** If the water supply contains more than 4.0 ppm of chlorine, additional filtering of the water supply to Reverse Osmosis is needed. Correct this condition before doing maintenance on the Reverse Osmosis system.
Cause: The prefilter is no longer reducing chlorine from the water supply.	***Correction:*** Replace the prefilter, postfilter, and Reverse Osmosis membrane cartridges.
Problem: Other taste and/or odor.	
Cause: Postfilter expended.	***Correction:*** Replace the post-filter cartridge. If taste and odor persist, replace the prefilter cartridge and Reverse Osmosis membrane cartridge.
Cause: Reverse Osmosis membrane cartridge expended.	***Correction:*** Replace the Reverse Osmosis membrane cartridge.
Cause: Contamination in product water storage tank	***Correction:*** Replace pre and post-filter cartridges.
Problem: System makes product water too slowly.	
Cause: Water supply to the Reverse Osmosis system not within specifications.	***Correction:*** Increase water pressure, precondition the water, etc. as needed to conform before doing maintenance on the Reverse Osmosis system.
Cause: Prefilter or Reverse Osmosis membrane cartridges plugged with sediments.	***Correction:*** Replace the prefilter cartridges. If the rate does not increase, replace the postfilter cartridge and Reverse Osmosis membrane cartridge.
Problem: System makes lower amount of product water than usual.	
Cause: Storage tank air-charge less than 5-7 psi.	***Correction:*** Open Reverse Osmosis faucet and drain the tank until the flow slows to a drip. Keep the faucet open and check tank pressure. If low, pressurize to 6 psi. Close faucet to refill the tank.
Problem: High total dissolved solids (TDS) in the product water	
Cause: Water supply to the Reverse Osmosis system not within specifications.	***Correction:*** Increase water pressure, precondition the water as needed to conform before doing maintenance on the Reverse Osmosis system.
Problem: Continual water flow to drain and no product water.	
Cause: Missing flow control insert in the drain tube or its corresponding port.	***Correction:*** Replace the flow control insert.
Cause: Airlock within filters, the water unable to pass through one or all stages of filtration.	***Correction:*** Remove and reinstall post and pre-filters to break the airlock within the system.
Problem: Water leaks at push connect fittings	
Cause: Tubing not cut square.	***Correction:*** Cut tubing square.
Cause: Tubing not pushed in all the way.	***Correction:*** Push tubing in all the way.
Cause: Tubing nicked.	***Correction:*** Remove the tube from the connection. Remove nicked portion by cutting the tube to a shorter length. Re-insert in connection.
Cause: Outer tubing surface finish not smooth.	***Correction:*** Remove tube from connection. Remove problem area by cutting tube to shorter length. Re-insert in connection.

Limited Warranty

What your Warranty Covers:
If any part of your RKIN Reverse Osmosis system is defective in workmanship RKIN will repair, send replacement parts for the system, or at RKIN option, replace the system at no charge within 1 year of original retail purchase. A return authorization is required to return the defective system.

How to obtain warranty service:
For warranty service, call 1-800-803-4552 for a return authorization number and return address. Then, ship your reverse osmosis unit to the address provided, freight, and insurance prepaid, with proof of date of original purchase. Please include a note stating the problem. RKIN 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 RKIN 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 does not cover consumables such as replacement filter cartridges and membranes. This warranty does not cover any equipment that is installed or used outside the United States of America and Canada.

Limitations and exclusions:
RKIN will not be responsible for any implied warranties, including those of merchantability and fitness for a particular purpose. RKIN will not be responsible for any incidental or consequential damages, including travel expenses, 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 RKIN responsibilities regarding this equipment.

Other conditions:
If RKIN chooses to replace the equipment, RKIN 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 that vary from state to state.