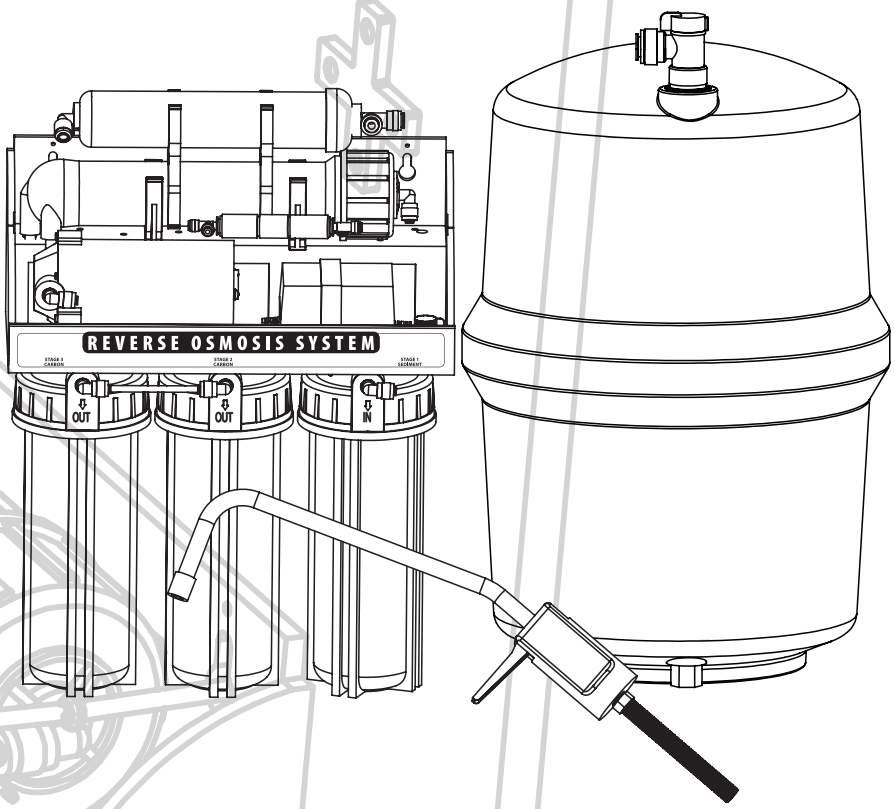
Owners Manual

Reverse Osmosis System



Model: ROS5

Attention Customer:

This system is intended for use on potable water supplies or disinfected water containing cysts. Do not use where water is microbiologically unsafe or with water of unknown quality. If bacterial contamination is present, a recognized method of water disinfection is required.

Check with your public works department for applicable local plumbing and sanitation codes. Follow your local codes if they differ from the standards used in this manual.

The RO Drinking Water System contains a replaceable reverse osmosis membrane filter which is critical for the effectifve reduction of Total Dissolved Solids. The filtered water should be tested periodically to verify that the system is performing properly.

Safe Practices

Throughout this manual there are paragraphs set off by special headings.

NOTE: Note is used to emphasize installation, operation or maintenance information which is important, but does not present any hazard. Example:

NOTE: *The nipple must extend no more than 1 inch above the cover plate.*

Caution!: Caution is used when failure to follow directions could result in damage to equipment or property. Example:

CAUTION! Disassembly while under water pressure can result in flooding.

WARNING!: Warning is used to indicate a hazard which could cause injury or death if ignored. Example:

WARNING! Electrical shock hazard! Unplug the unit before removing the timer mechanism or cover plates!

Symbols in the Manual

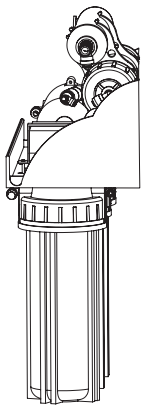
Please familiarize yourself with symbols in the manual:

1. Faucet

2. Drain

3. Inlet

4. Storage Tank



This publication is based on information available when approved for printing. Continuing design refinement could cause changes that may not be included in this publication.

WARNING! If incorrectly installed, operated or maintained, this product can cause severe injury. Those who install, operate, or maintain this product should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to install, operate or maintain this product.

Installation, Operation & Service Instructions with Part List

Reverse Osmosis Drinking Water System

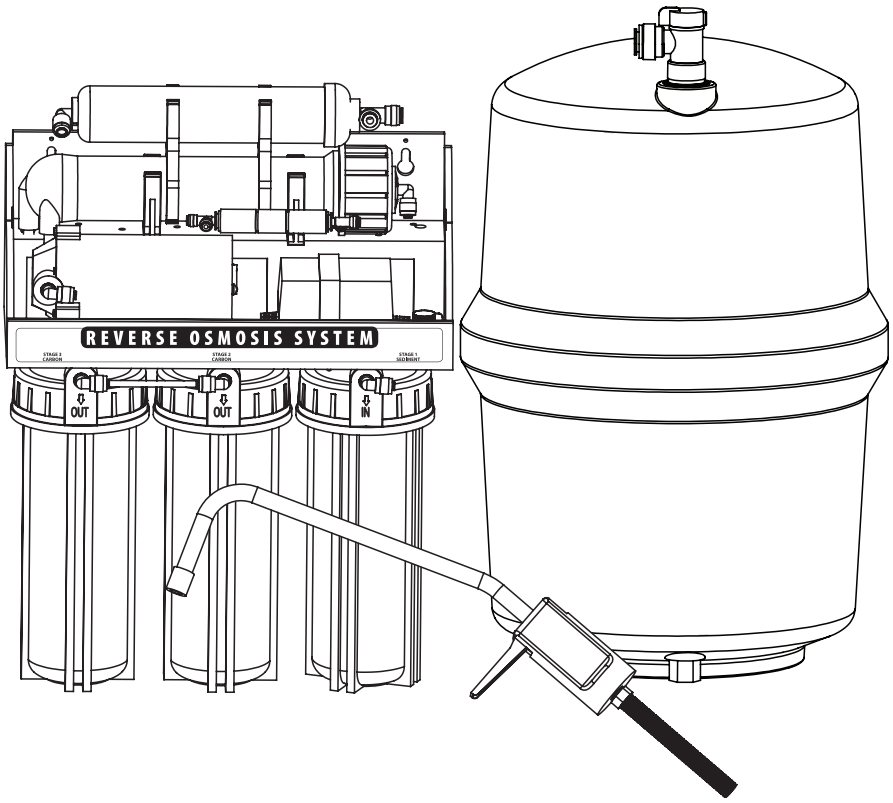


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Specifications and Performance Data Sheet

Model #	Stage 1	Stage 2 and 3	Stage 4	Stage 5	Storage Tank	Faucet
ROS5-50	Sediment Filter	Activated Carbon Block Filter	Reverse Osmosis Membrane	Activated Carbon Polishing Filter	Plastic Tank - 3.2 Gallons	Chrome
ROS5-75					Plastic Tank - 3.2 Gallons	Brushed Nickel

Daily Production Rate L/day (G/day) 50 / 75

Efficiency Rating%** 12%

Recovery Rating*** 21%

Average Reduction** %** 85%

Typical System Flow Sequence Sediment Filter → Activated Carbon Prefilter → Activated Carbon Prefilter → Reverse Osmosis Membrane → Storage Tank → Activated Carbon Postfilter → Dispensing Faucet

Sediment Filter (Stage 1). . . . . 5 Micron

Activated Carbon Prefilter (Stage 2 and 3) Carbon Block 5 Micron

Reverse Osmosis Membrane (Stage 4) Thin Film Composite

Polishing Filter (Stage 5) Granular Activated Carbon or Carbon Block

Production Rate[1] 50 / 75 gpd

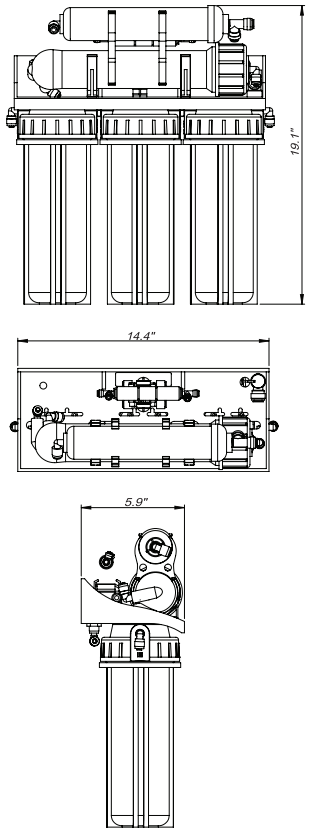
Ratio of Product to Flush Flow[2] Standard Applications 1:3 - 1:4

Storage Capacity Plastic - Capacity 3.2 Gallons

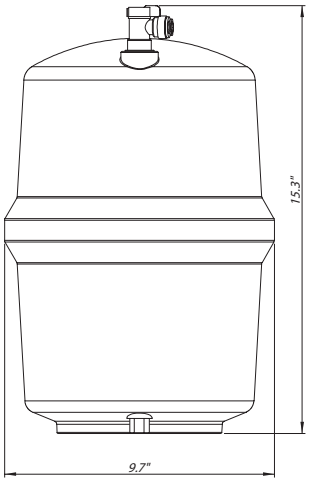
[1] Rating at 50 psi, 77°F, 750 mg/L TDS influent, without storage tank. [2] May vary with pressure.

Dimensions

ROS5



Product Water Storage Tank

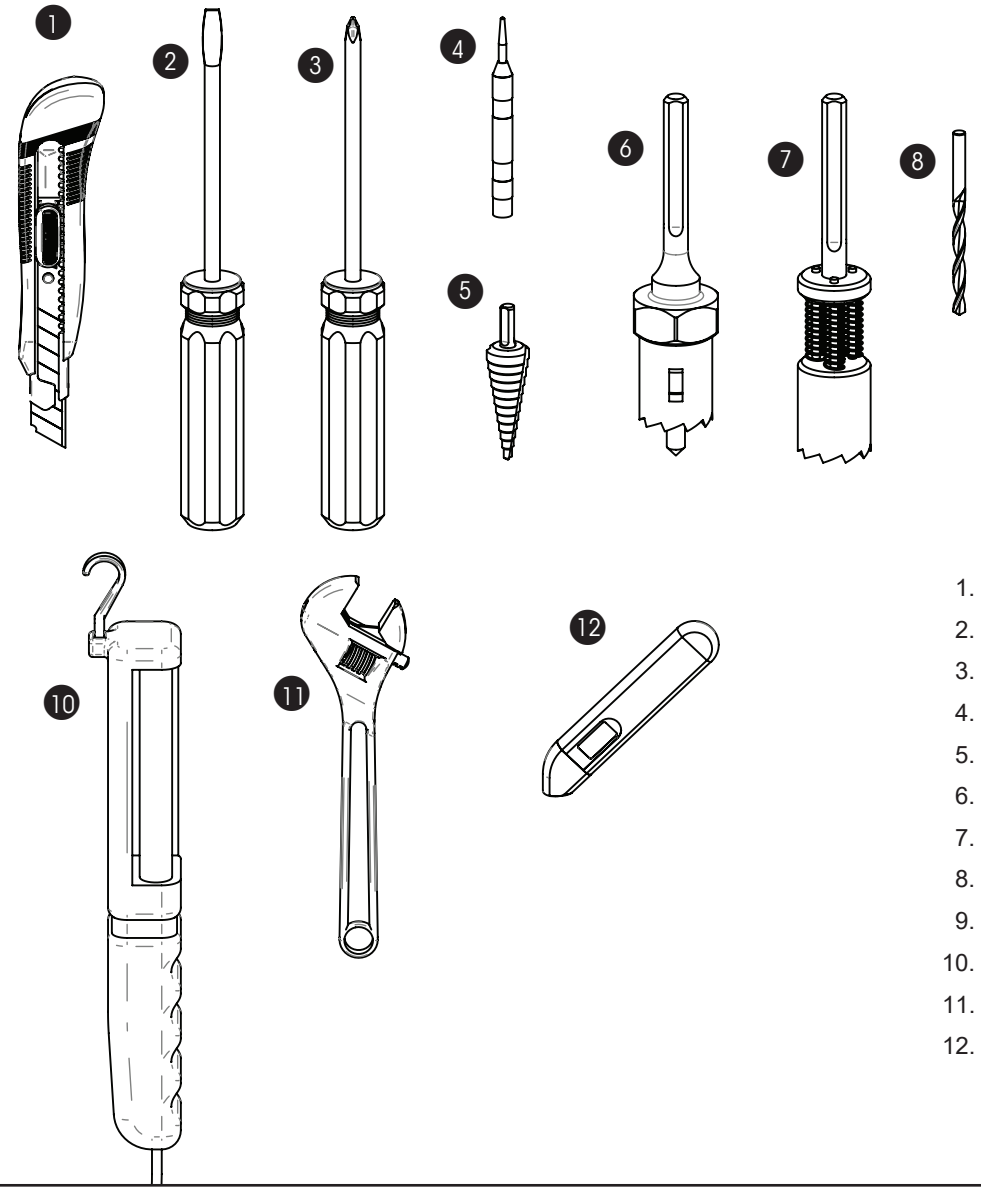


Recommended Influent Water Characteristic	
Pressure	40 - 100 psi
Temperature	40 - 77 °F
Total Dissolved Solids (TDS)[1]	0 - 2500 ppm (0 - 2500 mg/L)
pH	5 - 10
Chlorine[2]	0 - 3 ppm (0 - 3 mg/L)
Chloramine	0 - 3 ppm (0 - 3 mg/L)
Turbidity	0 - 10 NTU
Hardness[3]	0 - 10 gpg
Iron	0 - 1 ppm (0 - 1 mg/L)
Bacterial Quality	Potable

NOTES

1. *A booster is strongly recommended to improve the reduction of TDS. Higher pressures will help maintain the membrane's maximum rejection performance.*
2. *The reverse osmosis membrane used in these systems may be damaged by chlorine. These systems include activated carbon filters which protect the membranes by reducing chlorine. Influent chlorine should not exceed 3 mg/L.*
3. *A softener is strongly recommended for water over 10 gpg hard. Installing a system without a softener on water with hardness higher than 10 gpg will reduce the life of the membrane.*
4. *Additional information on factors that affect RO performance can be found in the "Performance & Technical Information" section.*

Suggested Installation Equipment



Recommended Tools

1. Utility Knife
2. Flathead Screwdriver
3. Phillips Screwdriver
4. Center Punch
5. 1/2" ~ 7/8" Stepped Drill Bit
6. Finish Hole Saw
7. Porcelain Saw
8. 1/8" & 3/8" Drill Bits
9. Heavy Duty Drill
10. Work Light
11. 2 Adjustable Wrenches
12. Pressure Gauge

Figure 1

Overview of the RO System's Components

1 Manifold Assembly
The manifold assembly serves as the functional hub of the RO system by directing the flow through each of the system's main components.

Sediment Filter
2 The sediment filter screens out particulate material, such as dirt, sand, or rust, which may clog the other filters in the system.

Activated Carbon Filter
3 The activated carbon prefilter reduces chlorine which may damage the RO membrane filter. It must be regularly checked and/or replaced to prevent premature membrane failure and poor water quality.

Reverse Osmosis Membrane
4 The RO membrane (4) reduces dissolved substances and other microscopic impurities. It consists of a membrane envelope wound around a perforated tube. Product water diffuses through the membrane to the inside of the envelope where it flows to and is collected by the tube. Impurities are flushed away in the drain stream.

The RO membrane featured in the RO system offers exceptional contaminant rejection, application versatility, and long life. The membrane material is sensitive to an attack by chlorine.
The activated carbon filter must be maintained properly to prevent premature failure of the RO membrane.

For long term storage the RO membrane should be refrigerated to maximize performance once used. **DO NOT ALLOW TO FREEZE.**

NOTE: *This preservative must be flushed from membrane before use. If ingested it may cause irritation of the gastrointestinal tract, colic, diarrhea, or other similar symptoms. The manufacturer recommends discarding all the product water for at least one hour of operation before drinking or use in food preparations. Canature WaterGroup highly recommends discarding the product water for a full 24 hours to flush the preservative and to properly hydrate the membrane for maximum performance.*

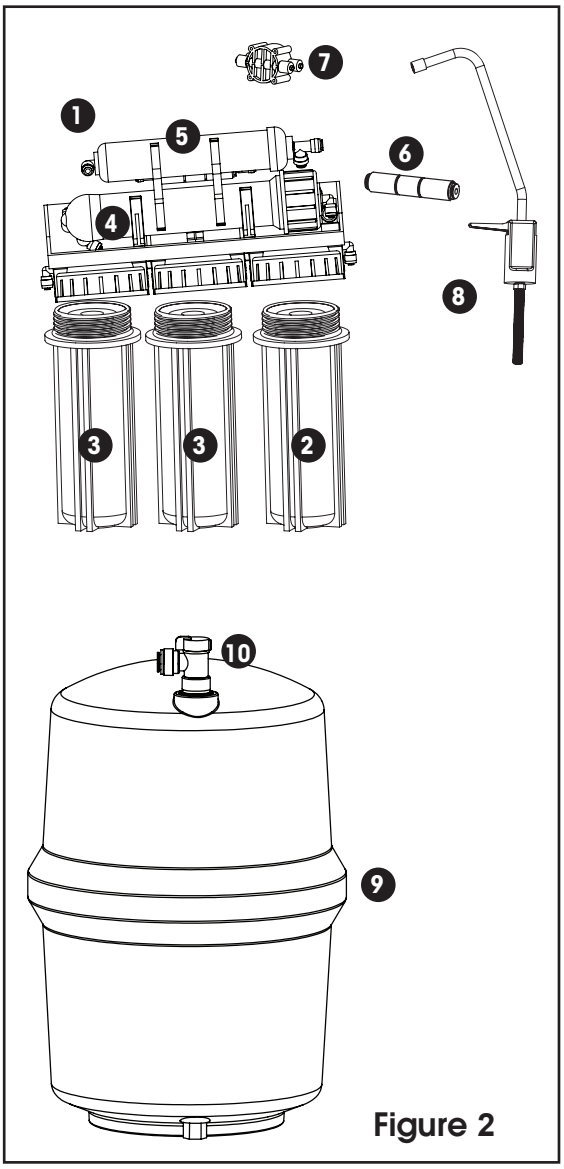


Figure 2

5 Polishing Filter
The polishing filter (5) adsorbs any residual tastes and odors just before the water is delivered through the faucet.

6 Drain Line Flow Control
The flow control assembly or concentrate flow control (6) regulates the flow rate of the flushing (drain) stream and to maintain pressure in the RO membrane filter. This is located inside the manifold assembly.

7 Automatic Shutoff
The automatic shutoff (7) automatically stops the flow of water through the O system when the storage tank is full. This is located inside the manifold assembly

8 Dispenser Faucet
The faucet (8) allows the product water to be drawn from the system with a simple rotation of the handle. There is an option of an air gap style faucet which prevents the unit from siphoning drain water back into the system. It features a built-in siphon break for concentrate discharge as required by most plumbing codes.

9 Storage Tank
The storage tank (9) collects and stores the water produced by the RO system. A compressed air diaphragm drives the water to the polishing filter and faucet. The ball valve (10) provides a convenient way to lock water in the tank during transport and filter changes.

10 Shut off Valve
To Control the flow from Manifold, Faucet to the tank.

NOTE: *Cleanliness is essential in the Preparation procedure. Be sure to wash your hands thoroughly before handling filters. The use of surgical gloves is strongly recommended.*

Package Contents

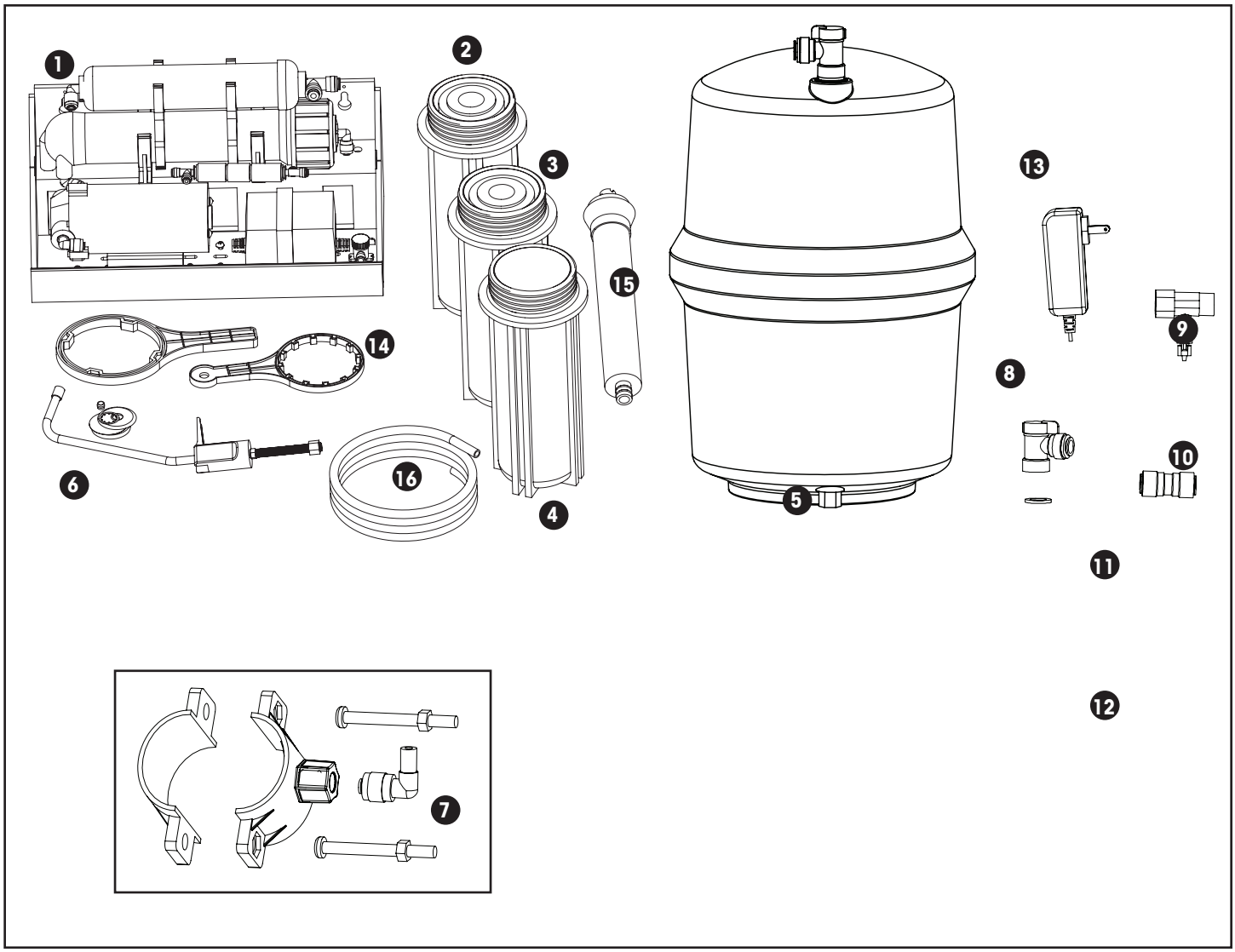


Figure 3

1. RO Manifold with Flow Control
2. Sediment Filter
3. Carbon Block Filter
4. Carbon Block Filter
5. Metal or Plastic Storage Tank
6. Faucet and Hardware
7. Drain Saddle (1/4” or 3/8”)
8. Tank Shut-off Valve
9. Inlet 3-Way Valve
10. Faucet Adapter
11. 1/4”or 3/8" Tubing (4 ft. White;
12. 1/4” or 3/8” Tubing (4 ft. White;
13. Transformer (for Booster pumpmodel only)
14. Wrenches
15. RO Membrane
16. 3/8” Tubing (4 ft. Blue)

Product Information

This manual covers the technical aspects of the RO drinking water systems. It is important to read this manual thoroughly so that you can properly apply, install, and service these systems.

The substances reduced by this system are not necessarily in the customer's untreated water.

Warranty

A limited warranty is extended to the original end user from Water Doctor Canada Inc.. This warranty is printed on the back cover of the Owner's Guide.

Application Guidelines

The system is designed for use on potable water supplies meeting the guidelines outlined in Table 1. The system should be installed on a home's cold water line. The flushing stream should discharge through an approved siphon break. Installation of this system must comply with state and local laws and regulations.

Package Content

The RO system is shipped from the factory in carton:

NOTE: *The filter elements are shipped in their own sealed packaging. This will help to simplify preparation of the system and to maximize the shelf life of the RO membrane element.*

Preparation

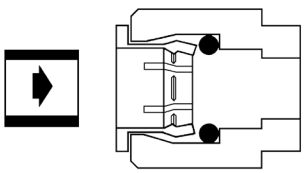
Tubing Connectors

The RO system features reliable and convenient push-to-connect tubing connectors. Tubing is easily connected and disconnected from these fittings as follows.

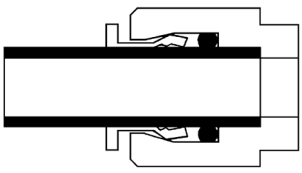
Quick-Connect Fitting

Insertion & Removal of Plastic or Copper Tubing

1. Simply push in tube to attach.



2. Tube is secured in position.



3. Push in collet from both sides to release tubing.

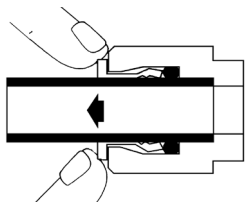


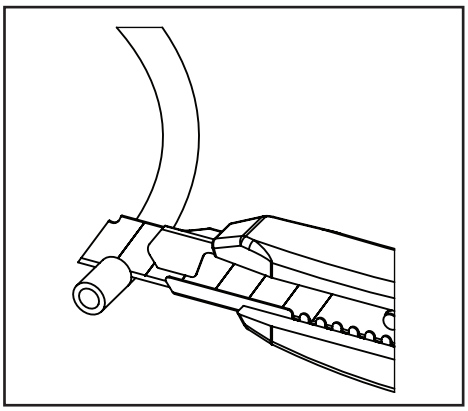
Figure 4

Connect:
Cut the tubing squarely with a sharp knife. Be careful not to crush the tubing. To avoid leaks, make sure the tubing end is smooth and free of burrs and abrasions. Lubricate the end of the tube with water or a light coat of silicone and push the tube end firmly into the fitting. You should feel it push past the O-ring. Avoid bending the tubing sharply away from the fitting.

Disconnect:
Hold the collar against the fitting body and pull the tube from the fitting.

In the unlikely event that the connection leaks, remove and recut the tubing. Check the inside of the fitting for debris or O-ring damage. Reconnect.

Push-to-connect tubing connectors grip the outside diameter of the tube. To help assure a reliable connection, it is important to use high quality tubing with a consistent outside diameter.



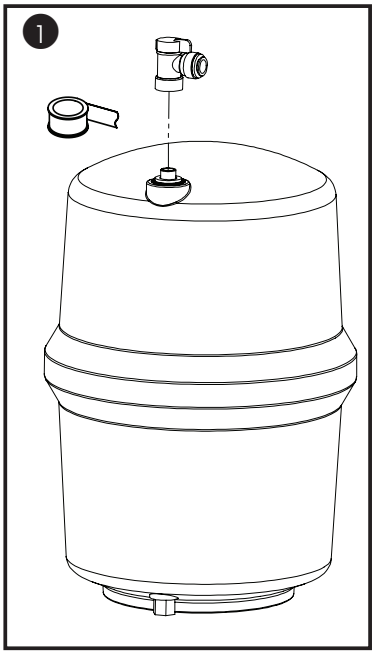
1. Cut tube squarely with a sharp knife.

Storage Tank Preparation

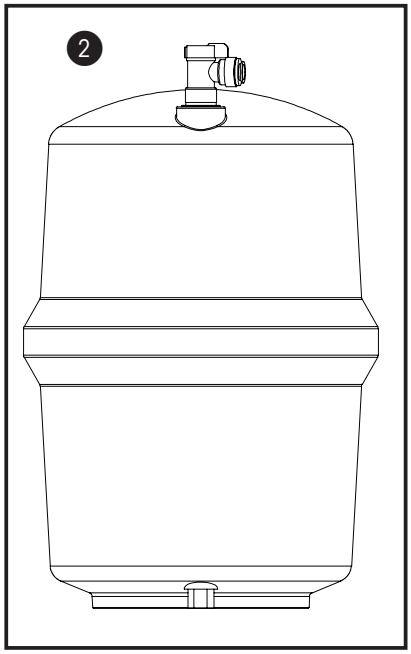
NOTE: *Changing the air pressure will alter the amount of water stored in the tank. Increasing the pressure will decrease capacity while decreasing pressure will increase capacity.*

Plastic Tank

WARNING! Do not use the tank ball valve to lift or carry the tank.



1. Apply teflon (PTFE) tape to threaded fitting at top of tank. Wrap tape around clockwise 3 to 6 times for a good seal. Attach Shutoff valve



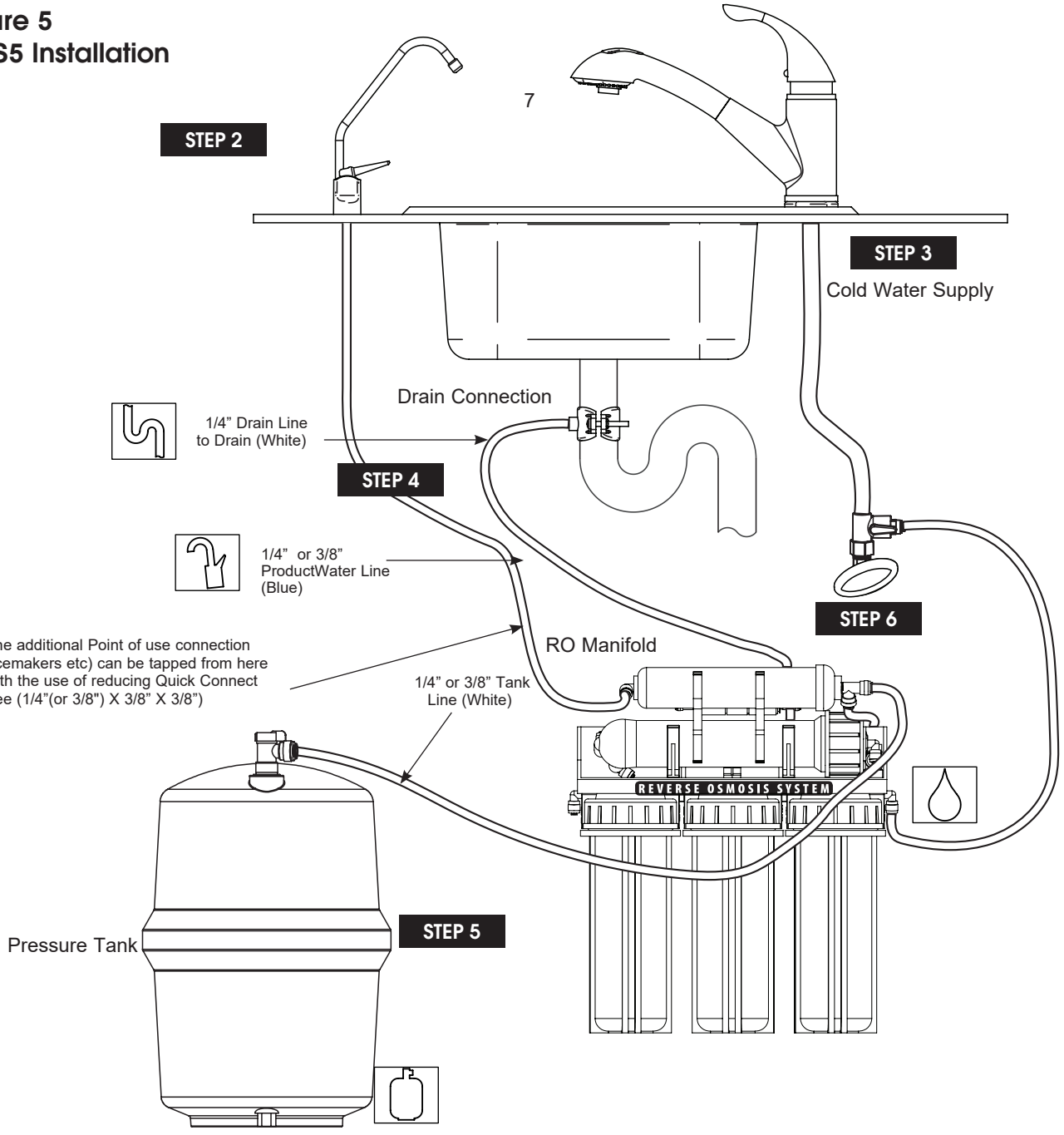
Installation: ROS5 Unit

The exact placement of the components will vary by installation. Although shown beneath a sink, it may be installed in a basement, crawl space, or in an adjacent cabinet. Regardless of where the system is installed, the flow sequence described by must be observed.

The RO drinking water system is designed to be mounted near a sink for easy access to cold water and drain lines. Lengths of 1/4-inch and 3/8-inch OD plastic tubing will be required to make this installation.

Evaluate the installation site to determine the easiest path for the plumbing to follow. Take care to make the installation as neat as possible.

Figure 5
ROS5 Installation



The following steps will enable you to install the system quickly and orderly. Some variation may be necessary depending on the installation. See check list of tools and materials.

Typical installations follow this sequence:

1. Select Component Installation Locations
2. Faucet Installation
3. Install Adapter Valve on Water Supply
4. Connect System Drain
5. Install Reservoir Tank
6. Install Filter System Assembly
7. Start-Up

Step 1 – Select Component Installation Locations

- **Dispenser Faucet** – The faucet is designed to be mounted on the rear lip of the sink. It may be installed in an existing sprayer attachment hole or in a hole drilled at the time of installation. It may also be mounted to an adjacent counter top. It should be positioned so that water is dispensed over the sink. A 1/2" ~ 7/8" diameter hole is required.
- **Important considerations:**
  - Access to the bottom (undersink) of the faucet is required for attachment of product water line.
  - There should be no undersink obstructions which would prevent smooth tubing runs to the drain connection, or RO module assembly.
- **Filter System Assembly** – The filter system assembly is designed to be mounted on any rigid vertical surface such as a cabinet sidewall, sheetrock in exposed stud. It should be positioned such that there is access to an inlet water source and drain. The installation should also allow convenient access for servicing.
- **Inlet Water Supply Connection** – Once a location is chosen for installation of the filter system assembly, select a nearby cold water line to provide the water source for the system.

> ***NOTE:*** *Follow all local plumbing codes when connecting to service water.*

- **The Reservoir Tank** – Position the reservoir tank near the faucet for optimum convenience. The reservoir tank will weigh about 28 pounds (13 kg) when full of water, so it must be positioned on a stand.
  The reservoir operates best in the vertical position, but it will operate on its side.
- **Drain Connection** – The most convenient entry to the drain is directly above the P-trap of the kitchen sink. However, the drain water from the system can be connected to adjacent sinks or a floor drain. Extra care should be taken when entering drains near dishwashers or food waste disposals as back flow may occur through the air gap and cause flooding.

> ***NOTE:*** *Follow all local plumbing codes when connecting to drain.*

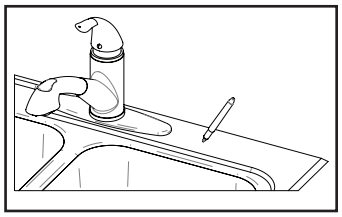
Step 2 – Faucet Installation

To simplify its access and installation, we suggest you install the faucet on the rear lip of the sink. It should be evenly positioned with the sink faucet and spray attachment. Should the spray faucet hole not be available for the installation, the sink must be drilled.

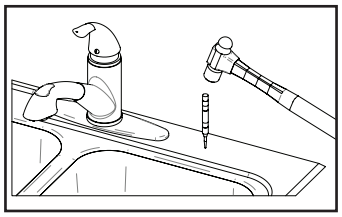
NOTE: *It is recommended retaining the services of a professional counter top craft person when a hole is needed in granite or other specialty counter top materials.*

Sink Drilling Instructions

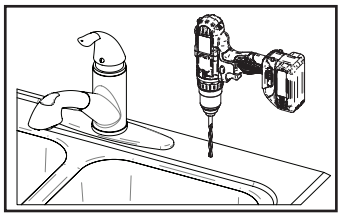
Stainless Steel Sink



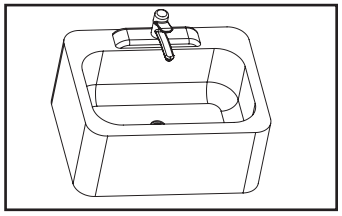
1. Select and mark the proper faucet location.

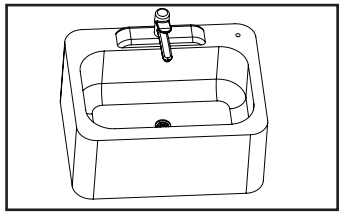


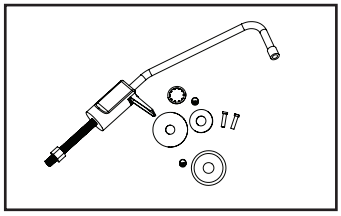
2. Center punch hole to provide a starting point for your drill.

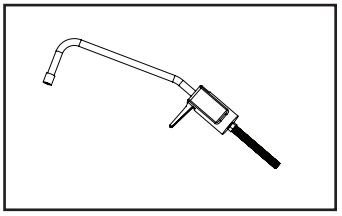


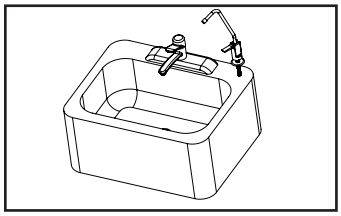
3. Drill a 7/8" hole in the sink using a stepped 7/8" drill bit. If no stepped bit is available, start by drilling a 1/4" hole. Using this hole as a starting point progressively drill larger holes. Increase drill size by 1/8" until you reach a 7/8" hole.

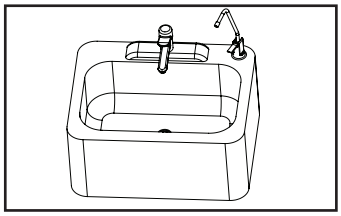










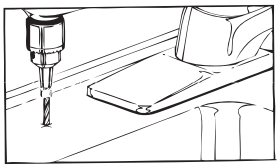


Porcelain Enamel Sink

Follow these basic guidelines when drilling a porcelain sink:

Pilot Drill

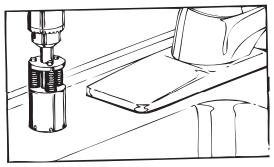




Penetrate the porcelain to the base material.

Spring Loaded Porcelain Saw

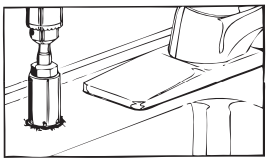




Protect the surrounding porcelain material.

Finish Hole Saw





Use the appropriate tool to drill the base material.

One proven tool is the Relton porcelain cutter kit when used with a slow speed drill (300-400 rpm).

- Drill a pilot hole through the porcelain and base material with the carbide tip drill.
- Build a putty dam around the drill area. Add enough water to lubricate cutters and reduce cutting noise.
- Insert the porcelain cutter into the drill. Place the drill tip in the pilot hole. Check for free movement.
- Apply light pressure to the cutter tool and start the drill motor at low speed (300-400 rpm). When the initial cut has been made in the porcelain, speed may be increased. After a complete ring has been cut through the porcelain, change over to the metal cutter. Avoid contacting the outer rim of cut porcelain when drilling.

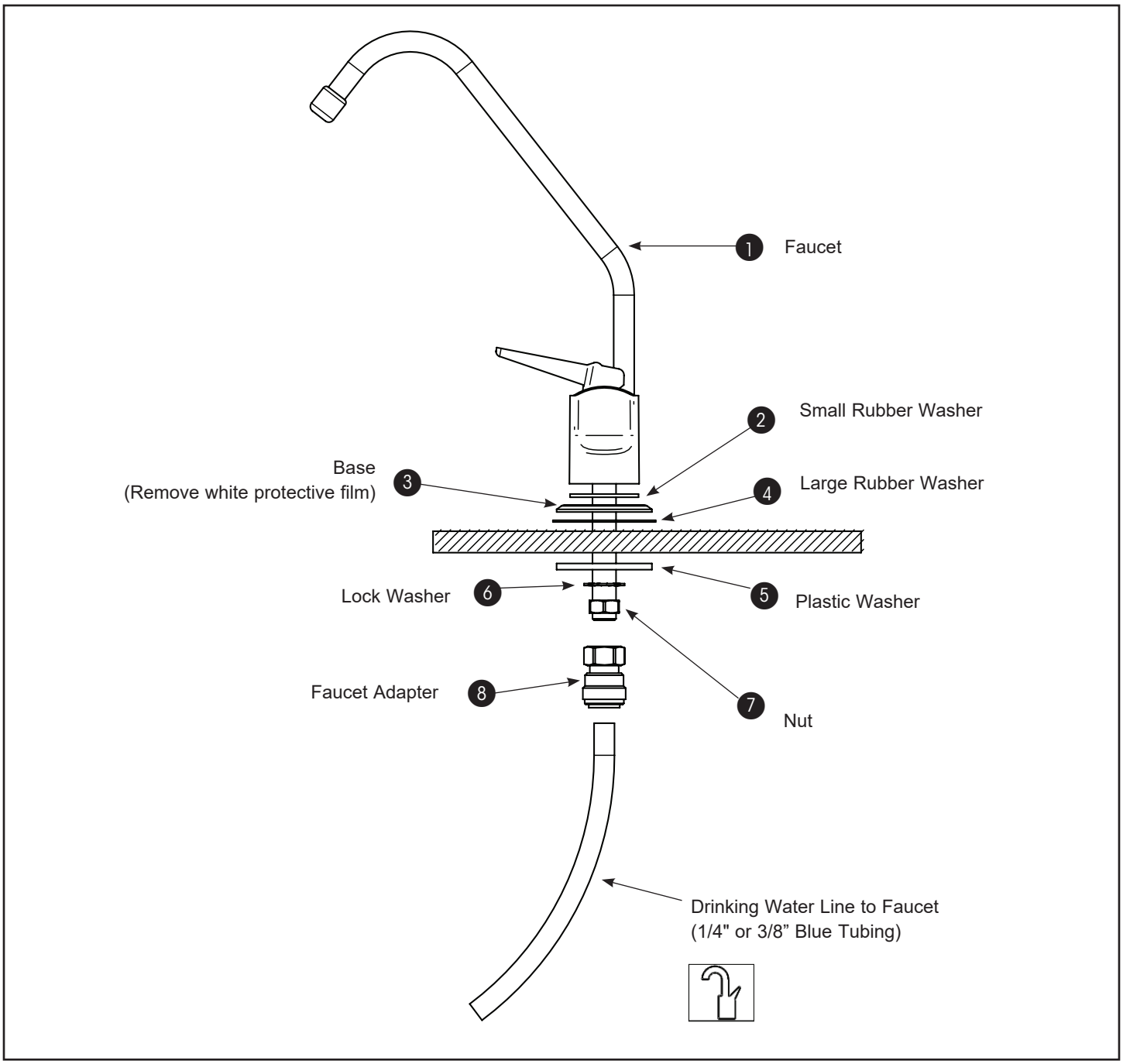


CAUTION! *Avoid high drill speed during penetration of porcelain. A single speed drill can be used at a slow speed by switching it on and off quickly.*

- Use a slow speed and light pressure to cut away the porcelain.
- Stop when you reach the metal under the porcelain. Remove the cutter and clean the porcelain chips from the surface. Continue cutting through the metal.

NOTE: *Ceramic tile counters should be treated like porcelain when penetrating the surface, then treated as metal to complete the hole with carbide drills. Formica countertops can be drilled with a high-speed wood drill.*

Faucet (Supplied With the Product)



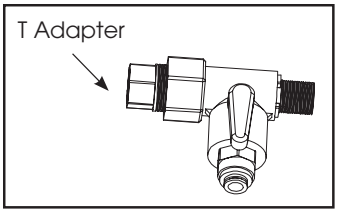
Standard Faucet Installation

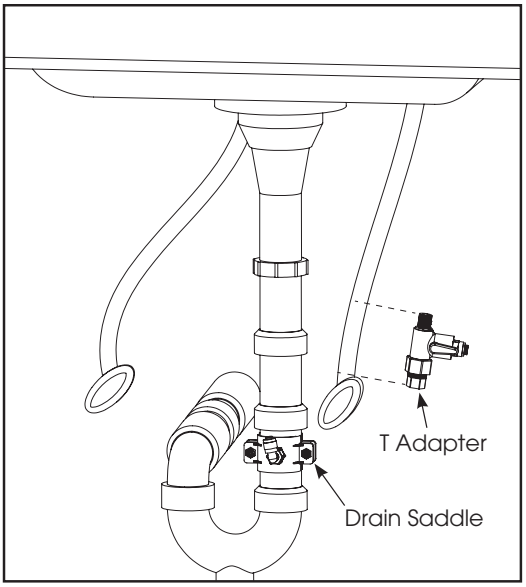
1. Remove white protective film from faucet base. Install faucet body, small rubber washer, metal base, and large rubberwasher above sink (items 1-4).
2. Install plastic washer, lock washer and nut (items 5-7) onto faucet stem below sink and tighten. Be sure to properly alignthe faucet.
3. Install the faucet adapter (item 8). Connect the 1/4" or 3/8" blue tubing to the faucet adapter.

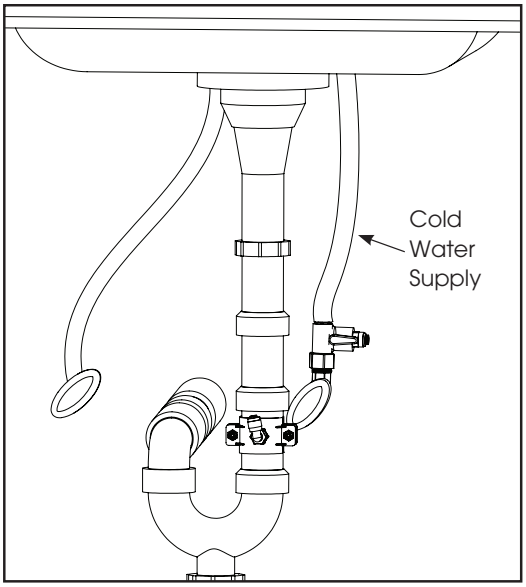
NOTE: *If installing a standard faucet the red 1/4” drain line will be installed directly to the drain. Disregard the instructions on the following page.*

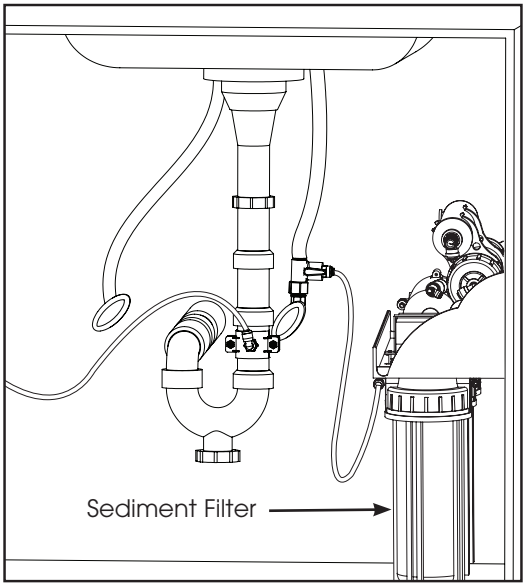
Step 3 – Install T Adapter Valve on Water Supply

CAUTION! *The Adapter valve should be connected to cold water supply only. Connection to hot water supply will damage the system and will void all warranty*









Step 4 – Connect System Drain

Plumbing codes require that the drain from reverse osmosis drinking water systems be discharged through an air gap siphon break. The faucet incorporates an air gap into its body. The discharge from the air gap must be connected to the plumbing system for proper drainage. This connection can usually be made beneath the sink. Incorrect installation may result in overflow of the air gap or excessive noise. If the concentrate water is discharged to an open drain, the air gap may not be necessary.

For Standard installations use the 1/4" saddle.

Connections to undersink plumbing can be made with a saddle clamp designed to accept the drain tubing from the faucet. Drain Saddle Kit is supplied for 1-1/2" undersink drain plumbing. ***Be sure to check and follow local plumbing codes prior to installation.***

NOTE: *For installation in Massachusetts, Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system. The use of saddle valves is not permitted in Massachusetts.*

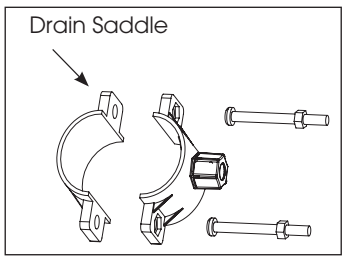
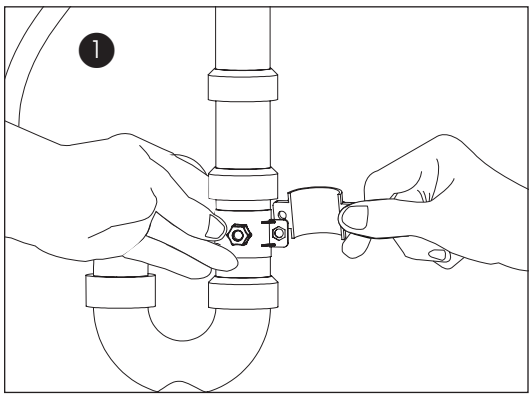
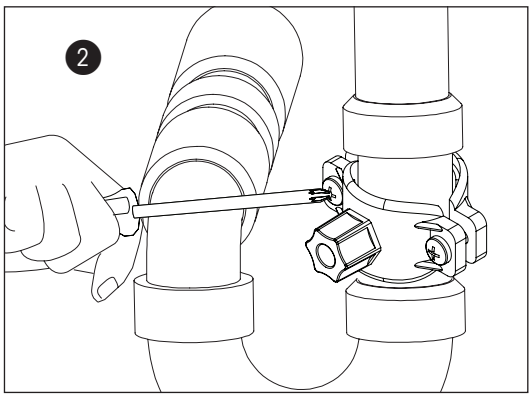


Figure 6



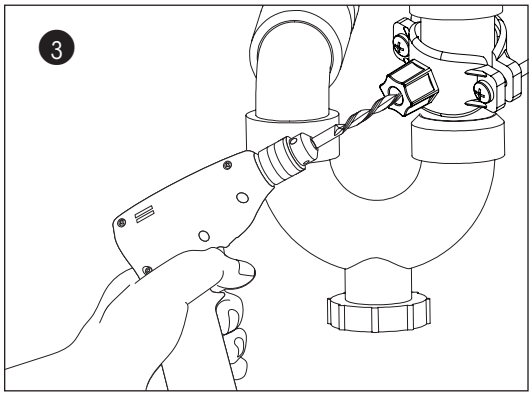
1. Install the drain saddle valve on to the drain pipe.



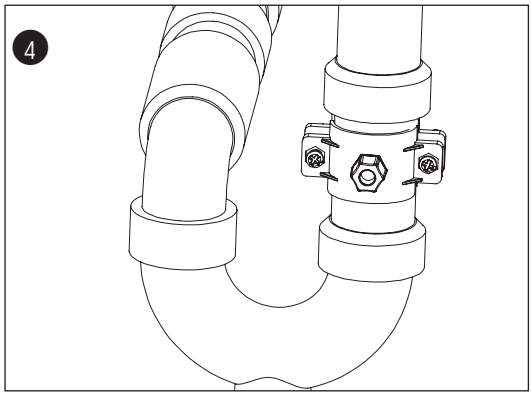
2. Tighten the clamps with the help of the two bolts.

WARNING! Do not overtighten.

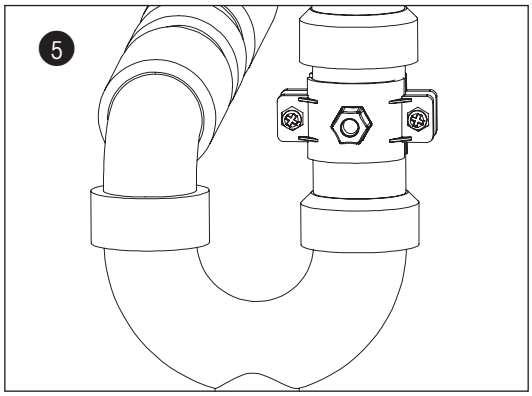
3. Drill a 1/4” hole throughone side of the pipe. The drillshould be kept straight andcentered to avoid damag-ing the saddle valve. Do notdrill through both sides of thepipe!
CAUTION: *The drill should be kept straight and centered to avoid damaging the saddle valve.*

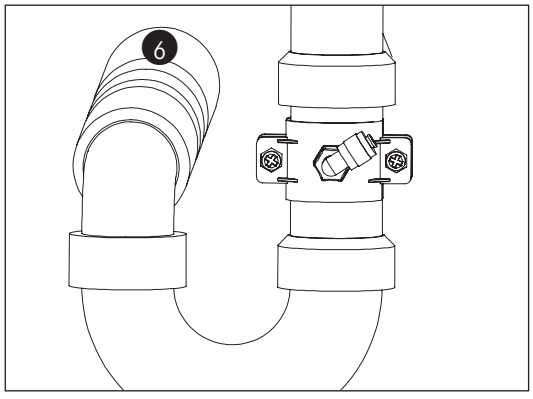


WARNING! Do not drill through both sides of pipe!.



4. Attach 1/4” tube by slipping the tube through the black compression nut andhand tighten the nut on to the saddlevalve.





In case of airgap faucet install the elbow fitting and install the 1/4" or 3/8” Tubing

Single basin sink without disposal

- Connect the RO outlet to the tailpiece directly beneath the sink.
- If a dishwasher drain connection is present, the RO outlet must be connected above it.

Single basin sink with disposal

- Connect the RO outlet to the dishwasher drain port on the disposal if available.
- If the dishwasher drain port is not available, other arrangements must be made such as running the RO outlet to a basement sump.
- Do not connect the RO outlet to the plumbing below the disposal.

Double basin sink with disposal, single trap

- The fitting which joins the drains from the disposal and second sink should be directional. If not, then we recommend that it be replaced.
- Connect the RO outlet to the tailpiece just below the second sink.
- If a dishwasher drain is present and cannot be relocated, the RO outlet must be connected above it.
- Do not connect the RO outlet to the horizontal plumbing between the two sink drains.

Double basin sink with disposal, double trap

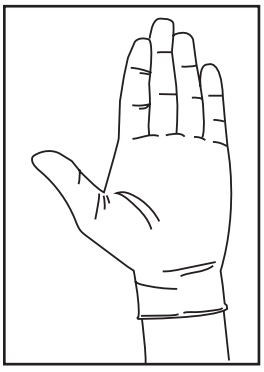
- Connect the RO outlet to the tailpiece just below the second sink.
- If a dishwasher drain is present and cannot be relocated, the RO outlet must be connected above it.

Step 5 – Install Filters and Membrane

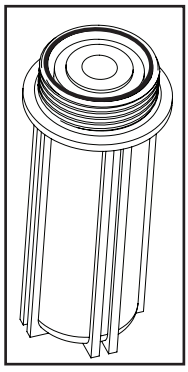
Place the reservoir tank in the location previously selected.

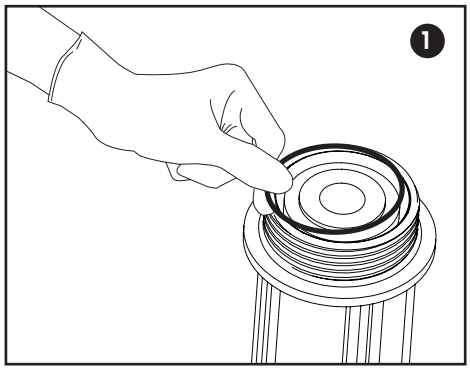
Install Filter Cartridges

Wear Gloves

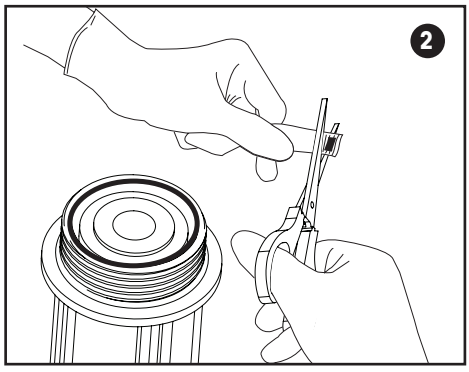


Carbon Block Filter with Sump and O Rings

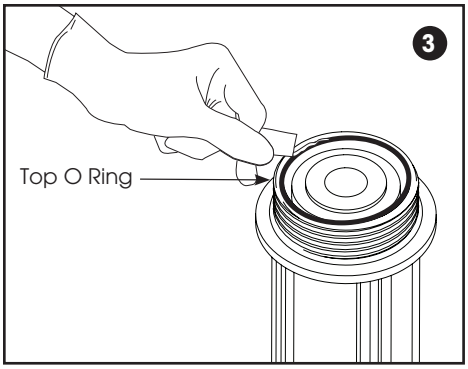




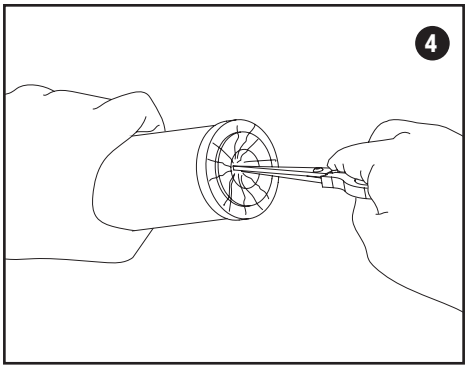
1. Check O Ring



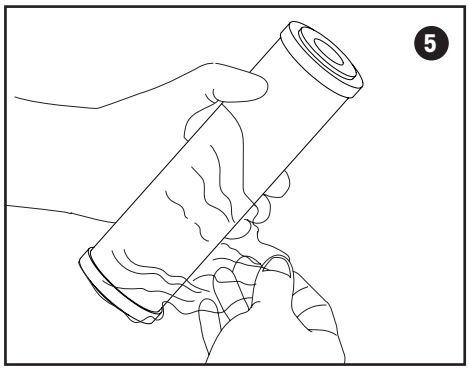
2. Cut Lube package



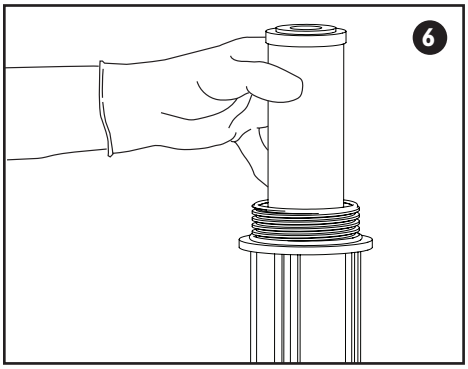
3. Apply Lube to both O Rings



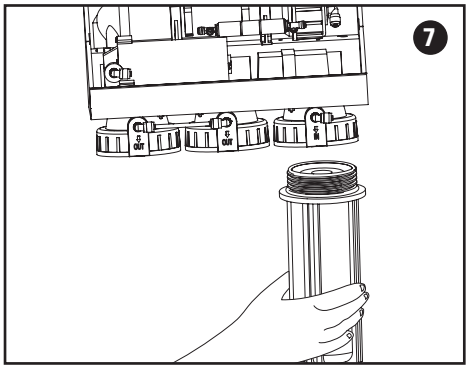
4. Pierce Plastic Wrap with scissors



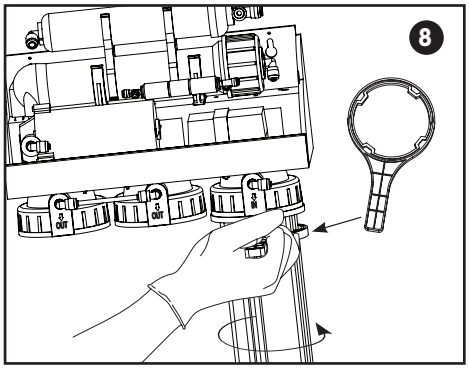
5. Remove Plastic Wrap from Filter



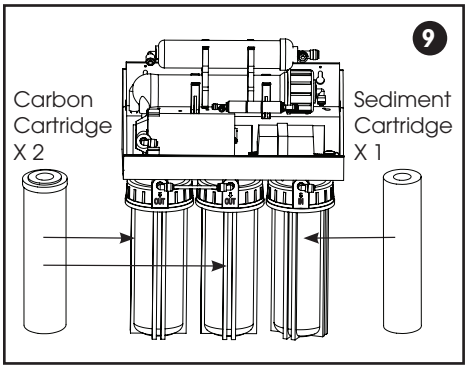
6. Insert Filter into Sump



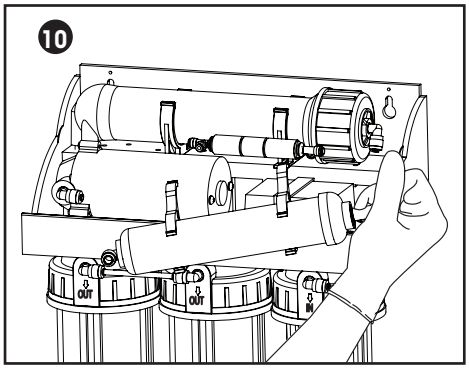
7. Attach Sump to Manifold



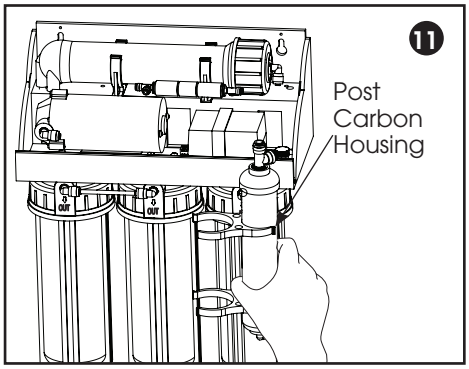
8. Tighten the Sump with Wrench



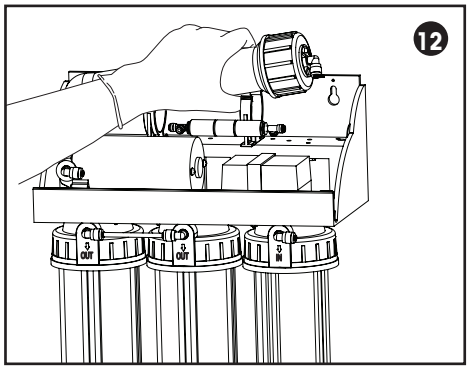
9. Attach other Cartridges



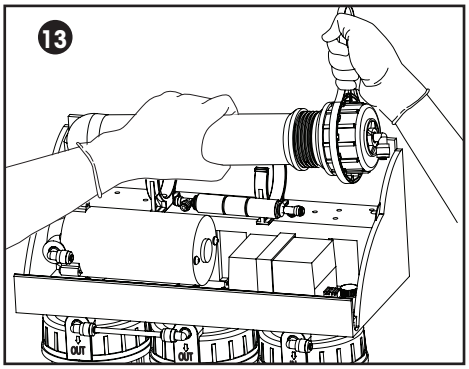
10. Remove Post Carbon Housing



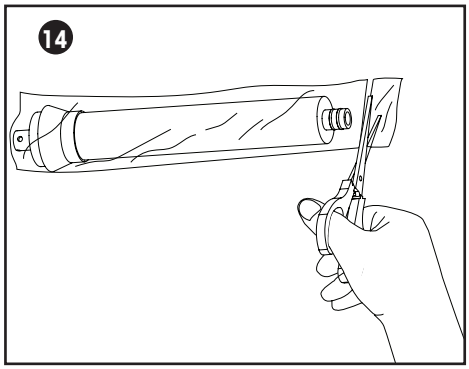
11. Remove Post Carbon Housing



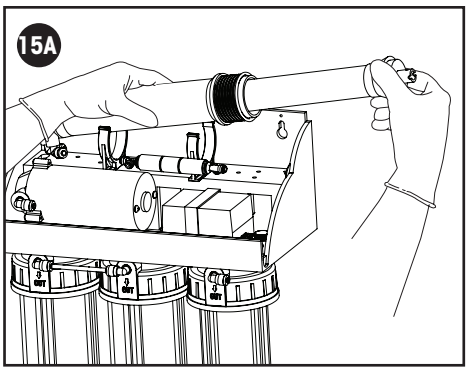
12. Unsecure the RO Membrane Housing



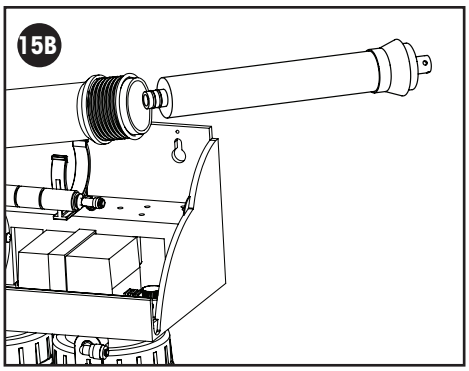
13. Remove Membrane Cap with the help of wrench



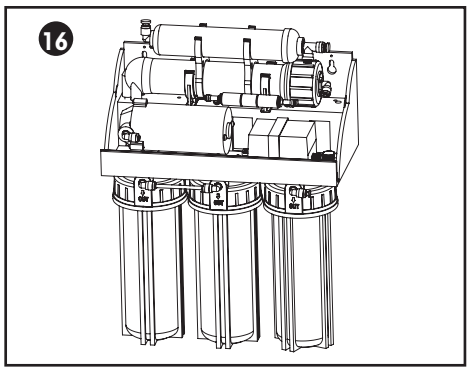
14. Remove Wrapping from Membrane



15A. Insert RO Membrane as shown in 15B

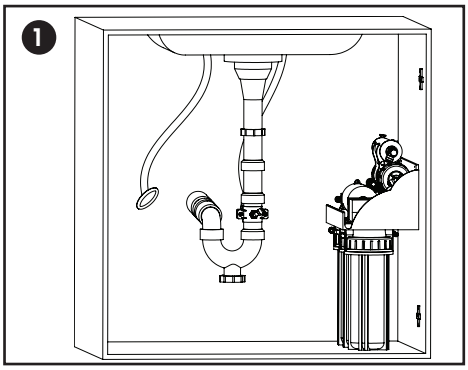


15B.

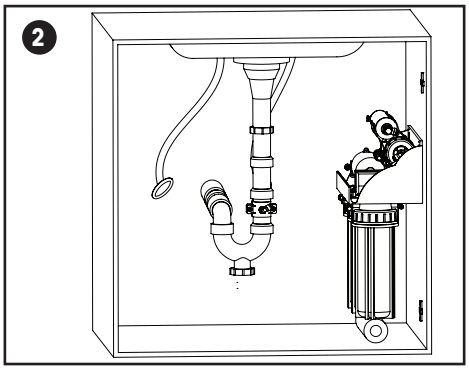


16. Your system is ready to install.

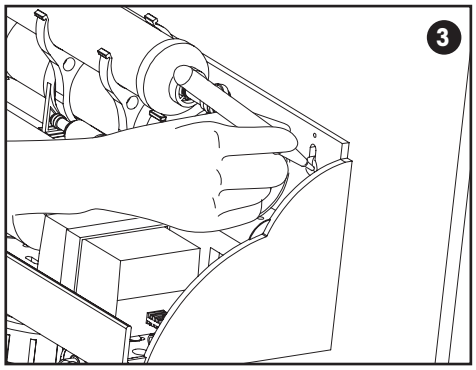
Install RO Manifold Under the Sink



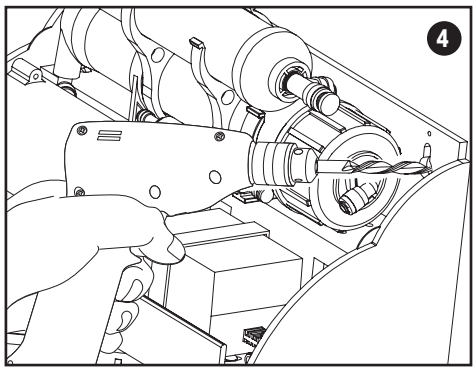
1. Find a suitable place for manifold and check to make sure it fits



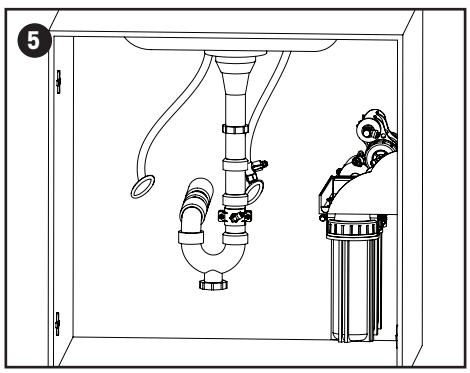
2. Raise the manifold by 2 inches



3. Mark the holes with Pencil ...

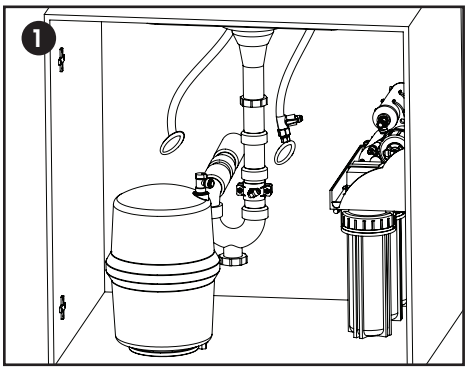


4. Drill holes



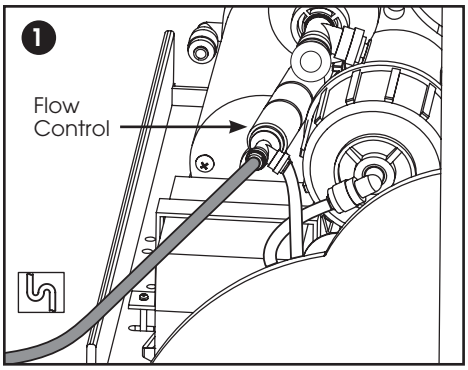
5. Hang the manifold

Install Tank

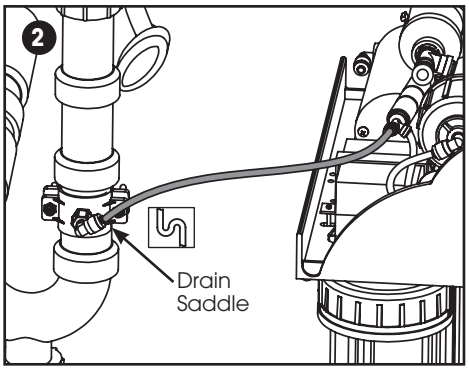


1. Place Tank under the sink. The Shut off valve is already installed in the early steps

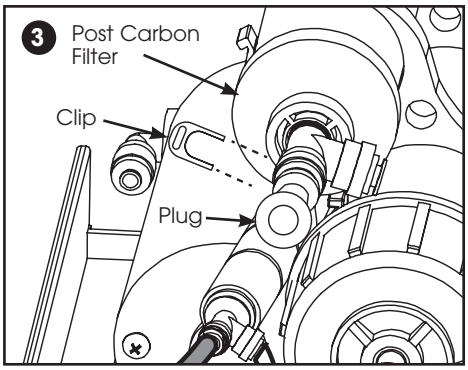
Connect the Tubing



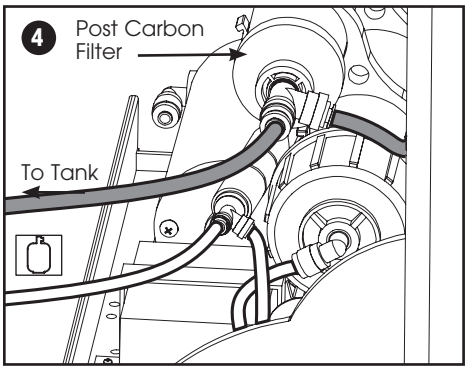
1. Attach 1/4" Tubing to Flow Control



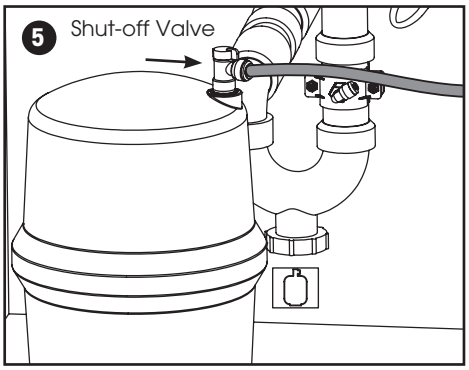
2. Attach the other end of the 1/4" tubing to the drain saddle



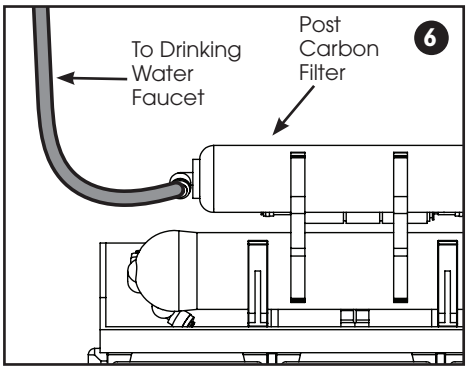
3. Remove Blue Clip and plug from Post Carbon Filter



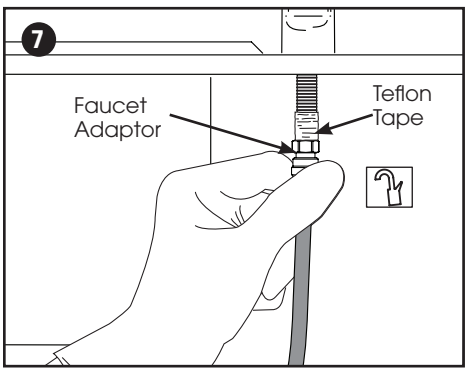
4. Attach 3/8" Tubing to Post Carbon Filter



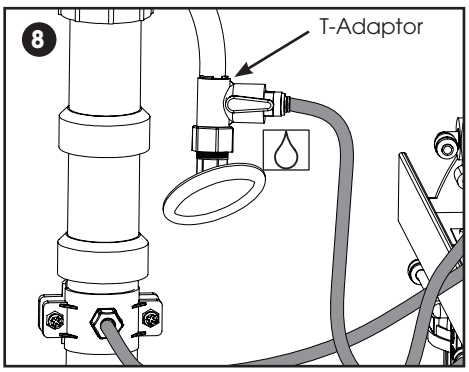
5. Attach Tubing to Tank Shut-off Valve



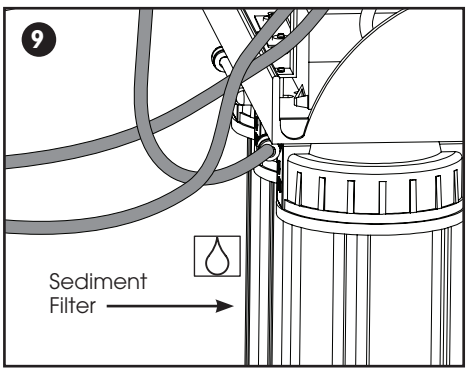
6. Attach Tubing to Post Carbon Filter



7. Attach Tubing to Drinking Water Faucet

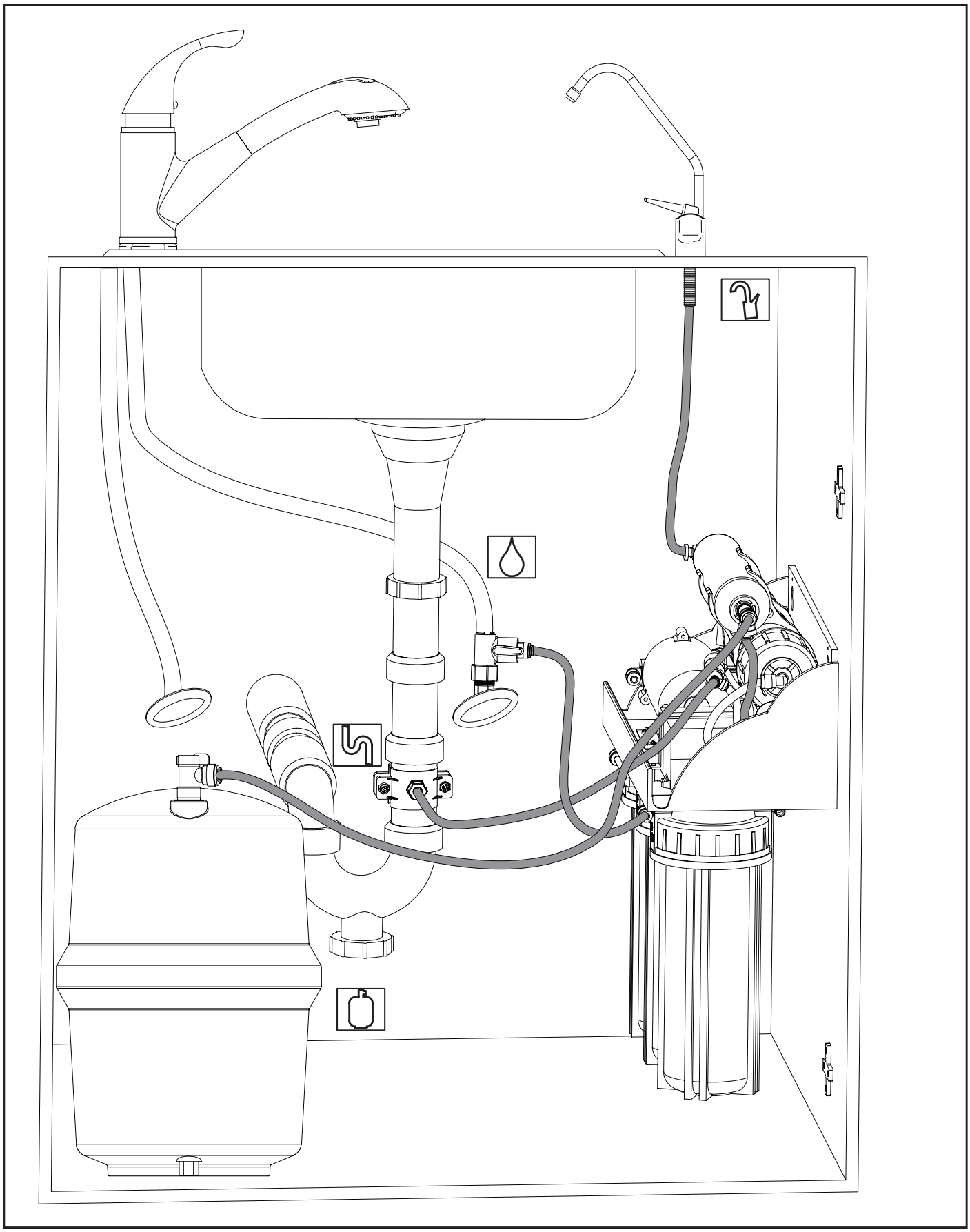


8. Connect Tubing from T-Adaptor to RO Inlet



9. Connect Tubing from T-Adaptor to RO Inlet

Tubing Connections



Step 7 – Start-Up

1. Sanitize the storage tank
2. Check system to verify all components are correctly installed
3. Open inlet valve and tank valve.
4. Check system thoroughly for leaks. If any are found, shut off both inlet and tank valves and correct the issue.
5. Allow system to run & fill tank for 1-2 hours. You will hear the water running to drain while the unit is running. Once the water stops running to drain the tank is full.
6. Open faucet to flush carbon fines & sanitization solution. Once the flow begins to slow down (around 20 minutes after opening) turn off the faucet.
7. Allow the tank to fill completely again.
8. Once full, open the faucet and allow the water to run for 4 hours to break-in the RO membrane and completely flush the system. This will allow your system to run at optimal efficiency.
9. Close faucet and allow tank to fill.
10. System is ready to use

NOTE: *It is normal if the air gap faucet makes gurgling noises and drips small amounts of water during start-up procedure. This should subside once start-up procedure is complete.*

WARNING! Do not drink water produced by the system until the start-up procedure has been followed completely!

Performance & Technical Information

The performance of the RO system can be characterized and judged by the quality and quantity of the water produced by the system. By measuring the contaminant removal performance and flow rates of the system, its operating status can be easily evaluated.

Factors Which Affect Performance

Performance of the reverse osmosis membrane is affected by several factors which must be considered when judging the condition of the system. The main factors which affect system performance are pressure, temperature, total dissolved solids level, recovery and pH.

Pressure

Water pressure affects both the quantity and quality of the water produced by the RO membrane. Generally, the more water pressure, the better the performance of the system. Be careful not to go below 40 psi or exceed 100 psi, the minimum and maximum operating pressure of the system.

Temperature

The reverse osmosis process slows with decreasing temperature. To compensate, a temperature correction factor is used to adjust the actual performance of the RO membrane filter to the standard temperature of 77°F (25°C). This allows the performance of the unit to be accurately gauged against published standards. Temperature does not affect the concentrate flow rate.

Total Dissolved Solids

The minimum driving force which is necessary to stop or reverse the natural osmosis process is termed osmotic pressure. As the total dissolved solids level of the feed water increases, the amount of osmotic pressure increases and acts as back pressure against the reverse osmosis process. Osmotic pressure becomes significant at TDS levels above 500 mg/L (ppm).

Hardness

Hardness is the most common membrane foulant. If ignored, this relatively harmless component of feed water will scale a membrane over time. Use of a softener will reduce the fouling effect on a membrane. One way to detect too much hardness in the feed water is the weight of a membrane installed for a period of time. A fouled membrane (dried) will weigh significantly more than a new membrane. The increase in weight is a result of precipitated hardness inside the membrane.

Iron

Iron is another common membrane foulant. There are a variety of types of iron, some of which cannot be removed by

an iron filter. Clear water iron can be removed more effectively by a softener. Particulate iron can be removed more effectively by a 1 micron filter. Organic-bound iron can be removed only by activated carbon or macroporous anion resin. If there is enough iron to exceed the EPA secondary drinking water standard and softening the water is not an option and the iron is soluble, then an iron filter is appropriate. If none of these are an option then regular replacement of membranes will have to be accepted.

NOTE: *Increased weight of the RO cartridge may be a foulant other than hardness.*

Product Water Recovery

Product water recovery plays an important role in determining membrane and system performance. Recovery refers to the amount of water produced in relation to the amount of water sent to drain. The standard calculation is:

% Recovery = Product Water ÷ (Product Water + Waste Water) x 100

The system uses a flow control assembly to restrict the flow of waste water to the drain. This restriction helps maintain pressure against the membrane. The sizing of the flow control assembly determines the recovery rating of the system. The system is manufactured with a recovery rating designed to be around 25%. Depending on temperature, pressure and tolerances the actual recovery value may be slightly different for each system.

Performance Measurements

When collecting water samples from the manifold, insert a short 2”-3” length of tubing into the fitting on the manifold to catch the water sample.

TDS can be measured with an electronic TDS meter.

Service and Maintenance

Service Schedule

To keep the RO system operating properly, it is necessary to change the filters and sanitize the system periodically. Typically, this should be done on an annual basis. Service frequency may vary depending on local water conditions. High sediment, chlorine, turbidity, or hardness levels may require more frequent service. Use the following as a guide.

As needed

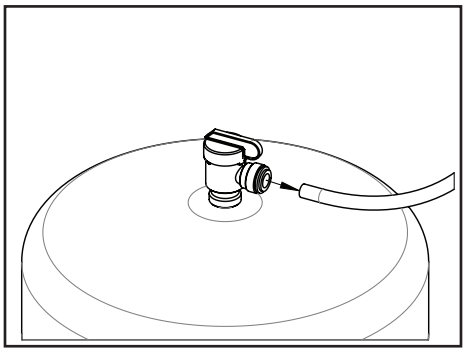
Clean the faucet with a soft cloth, avoid abrasive cleaners.

At least once in 6 ~ 12 months
Replace • **Stage 1** Sediment Filter • **Stage 2 & 3** Carbon Block Pre-Filter

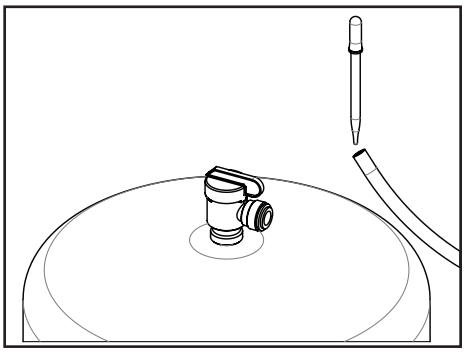
At least once in 12 months		
Replace • **Stage 5** Carbon Block Post Filter	Check • TDS of incoming and product water • Tank Pressure	Sanitize the system

NOTE: *The reverse osmosis membrane (Stage 4) Part is recommended to be changed once every three years or as needed.*

Metal Tank Sanitization Procedure

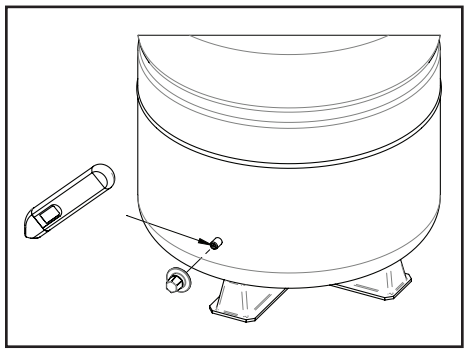


1. Turn off water supply to your RO system by turning off the adapter valve. Open the faucet to drain the storage tank.
2. Once the tank has emptied. Disconnect the tube from the ball valve on the storage tank.



3. Using a clean eye dropper insert 1/2 teaspoon of hydrogen peroxide or common household bleach into the tube.
4. Reconnect the tube to the ball valve. Follow the start up procedure and drain the first two full tanks of water.

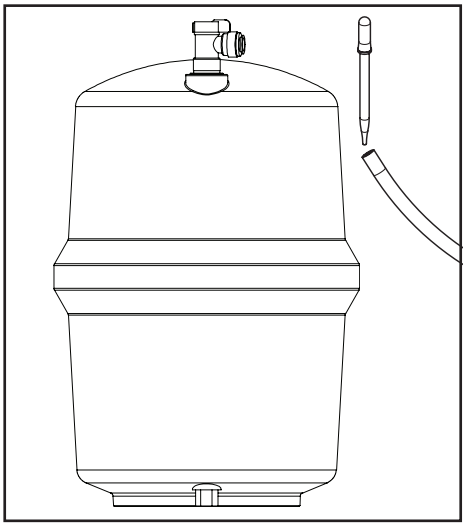
Tank Pressure Check

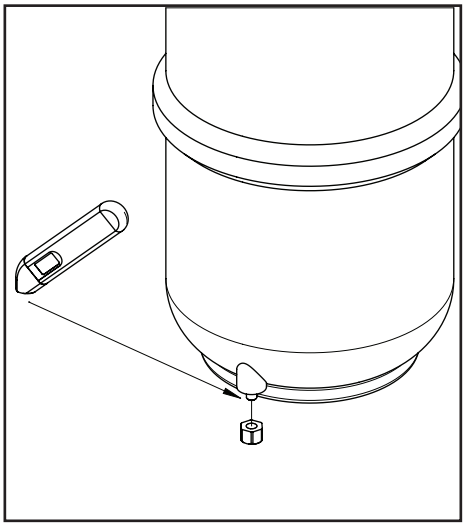


1. Turn off incoming water supply to RO.
2. Open RO Faucet and allow water to drain from the tank until it is completely empty.
3. Check that air pressure is between 5-7 psi using an air pressure gauge.
4. If the pressure is low use a bicycle pump to increase pressure to 5-7 psi.
5. Follow startup procedure.

Plastic Tank Sanitization Procedure

Tank Pressure Check

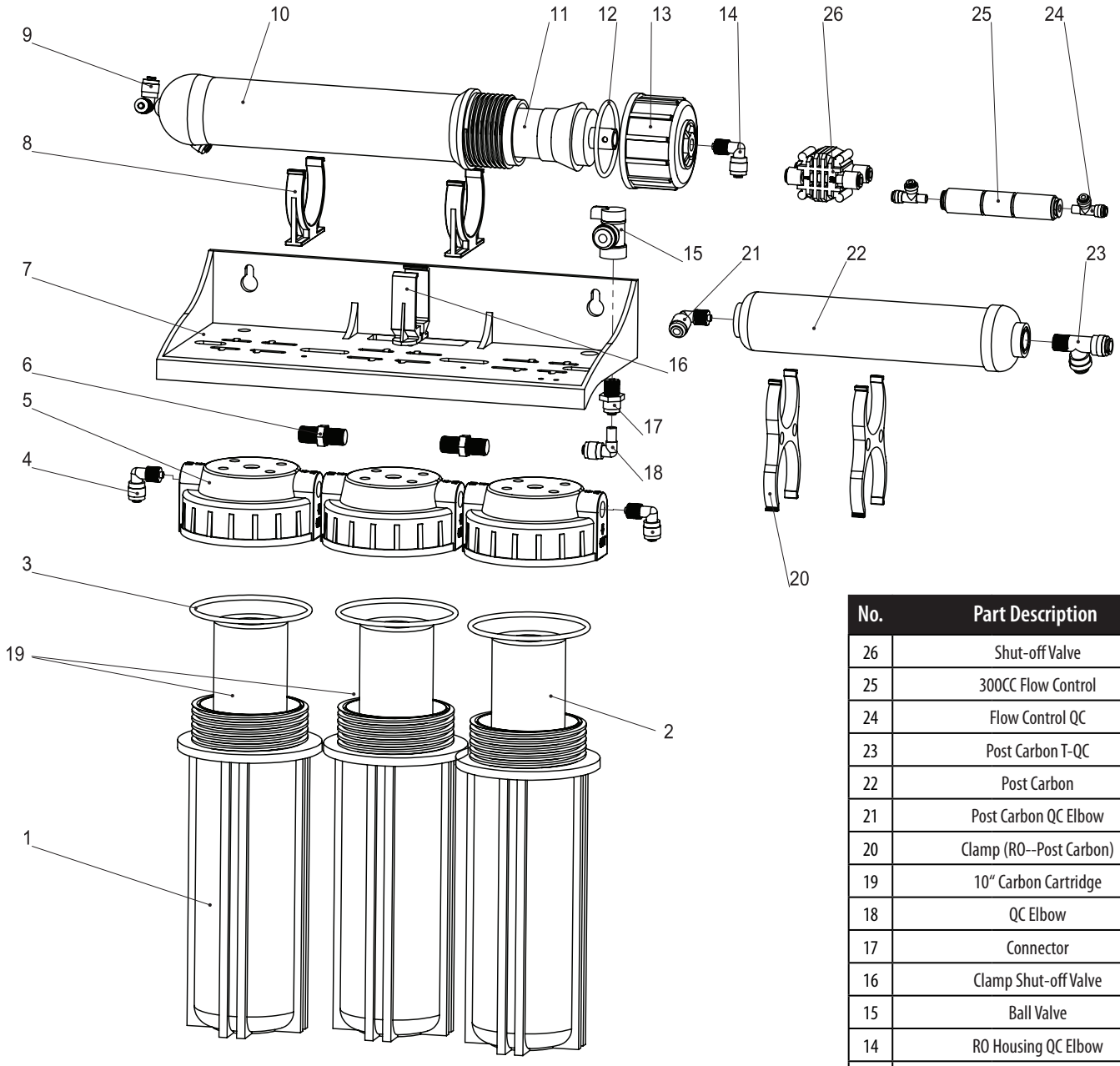




1. Turn off water supply to your RO system by turning off the adapter valve. Open the faucet to drain the storage tank.
2. Once the tank has emptied. Disconnect the tube from the ball valve on the storage tank.
3. Using a clean eye dropper insert 1/2 teaspoon of hydrogen peroxide or common household bleach into the tube.
4. Reconnect the tube to the ball valve. Follow the start up procedure and drain the first two full tanks of water.

1. Turn off incoming water supply to RO.
2. Open RO Faucet and allow water to drain from the tank until it is completely empty.
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Parts Breakdown



No.	Part Description	Qty
26	Shut-off Valve	1
25	300CC Flow Control	1
24	Flow Control QC	2
23	Post Carbon T-QC	1
22	Post Carbon	1
21	Post Carbon QC Elbow	1
20	Clamp (RO--Post Carbon)	2
19	10" Carbon Cartridge	2
18	QC Elbow	1
17	Connector	1
16	Clamp Shut-off Valve	1
15	Ball Valve	1
14	RO Housing QC Elbow	1
13	RO Membrane Cap	1
12	O-ring 60*4	1
11	RO Membrane	1
10	RO Membrane Housing	1
9	Check Valve	1
8	Large Single Clamp	2
7	RO Bracket(no pump)	1
6	Cartridge Housing Connector	2
5	10" Cartridge Cover	3
4	Cartridge QC Elbow	2
3	O-ring 92*3.8	3
2	10" PP	1
1	Cartridge Housing-10	3

Troubleshooting Guide

If a problem cannot be corrected through the use of this troubleshooting guide please have the following information ready prior to calling your local dealer:

- Model #

Problem	Possible Cause	Remedy
1. Insufficient quantity of product water available to service.	a. Service greater than unit's specified output.	a. Use optional large tank for more storage capacity.
	b. Insufficient feed water flow.	b. 1. Clogged shut-off valve or feed tubing; clean out or replace. 2. Clogged prefilter; replace. 3. Clogged manifold; clean or replace.
	c. Insufficient feed water pressure	c. 1. Same as (b) above. 2. Change in line pressure; install booster pump.
	d. Increase in feed water TDS.	d. 1. Same as (a) above. 2. Install booster pump.
	e. Reduced feed water temperature.	e. Same as above.
	f. Plugged prefilter.	f. Replace filter element.
	g. Plugged polishing filter.	g. Replace polishing filter.
	h. RO membrane fouled with sediment.	h. Replace RO membrane and prefilter elements.
	i. Shutoff malfunction.	i. Clean or replace shutoff.
2. Poor product water quality.	a. All of (1) above except (a) and (e).	a. All of (1) above except (a), (e), and (g).
	b. RO membrane filter worn out.	b. Replace RO membrane.
	d. Shutoff malfunction.	d. Replace shutoff.
3. Bad tasting product water.	a. Decrease in product quality; see (2) above.	a. Same as (2) above.
	b. Foreign matter in storage tank.	b. Clean, sanitize, and flush storage tank.
	c. Polishing filter exhausted.	c. Replace polishing filter
	d. Plugged capillary tube.	d. Replace capillary tube; replace prefilter, if necessary.
	e. Storage tank bladder is ruptured.	e. Replace storage tank and check precharge pressure.

Problem	Possible Cause	Remedy
4. External leakage.	a. Tubing not fully seated in fitting	a. Check all fittings for tightness.
	b. Tubing abraded in seal area.	b. Recut tubing and redo connection.
5. Overflow at faucet air gap (gurgling sounds).	a. Concentrate tubing plugged.	a. Clean concentrate tubing of debris.
	b. Air gap plugged.	b. Clean with vinegar and/or soap.
	c. Concentrate tubing not in continuous downward slope.	c. Eliminate loops or low spots in tubing.
	d. Obstructed home drain pipe.	d. Free obstruction.
6. Foaming at faucet tip.	a. Storage tank is positioned on side (Dissolved air cannot escape.)	a. Place tank in vertical position.
7. Foaming at air-gap	a. Concentrate tubing connected to same drain line as dishwasher, etc.	a. Find different drain for system.
	b. When sink is full of soapy water and plug is pulled, can back up at air-gap.	b. Obstructed home drain, free obstruction.
	c. Obstructed home drain.	c. Free obstruction.
8. Bad smell from product water.	a. Polishing filter exhausted.	a. Replace polishing filter.
	b. Prefilter element.	b. Replace filter element.
	c. Unit needs disinfection.	c. Sanitize unit.
9. Fast flow to drain.	a. Defective flow control assembly.	a. Replace flow control assembly.
10. Black specks in product water.	a. Carbon fines.	a. Flush polishing filter.
11. Low faucet pressure.	a. Inadequate pre-charge pressure in storage tank.	a. Determine the minimum pressure using the 70% guideline.
	b. Polishing filter plugged.	b. Replace polishing filter.
12. Flow control plugging.	a. Excessive turbidity.	a. Install another 5 micron filter in series with existing one or substitute carbon block filter for granular activated carbon filter.
	b. Iron fouled.	b. Pretreat for iron removal.
	c. Iron-bacteria fouled.	c. Sanitize plumbing.