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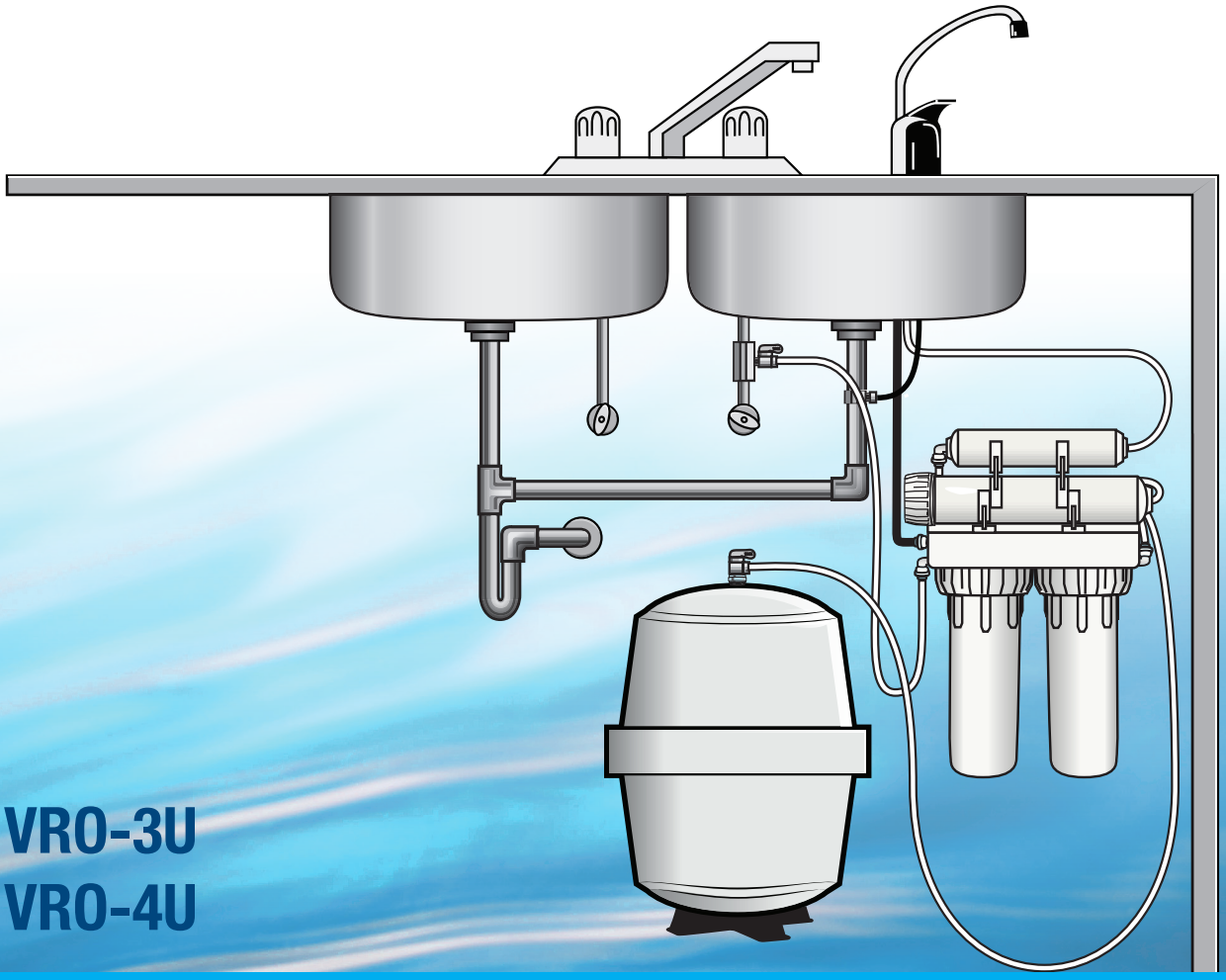
NSF C US

The VRO-3U has been tested and certified by NSF International against NSF/ANSI Standard 42, 58 and CSA B483.1 for reduction of the claims specified on the performance data sheet

The VRO-4U has been tested and certified by NSF International against NSF/ANSI Standard 58 and CSA B483.1 for reduction of the claims specified on the performance data sheet

UNDER SINK
Reverse Osmosis Filtration Systems



VRO-3U
VRO-4U

Installation, Use & Care Guide

(Customer must read this manual thoroughly before installing the system)

2017-06-21

CONSUMER: Retain this manual for future reference.
Questions, problems, missing parts? Before returning to your retailer, call our customer service department at:
1 (877)-447-4768. 8:30am-4:30pm CST, Mon - Fri or email us at customerservice@ghpgroupinc.com
www.ghpgroupinc.com

GHP Group
USA: 6440 W. Howard Street, Niles, Illinois 60714
Canada: 271 Massey Road, Guelph, Ontario, N1K 1B2

Printed in China

Table of Contents:

Safety Precautions:

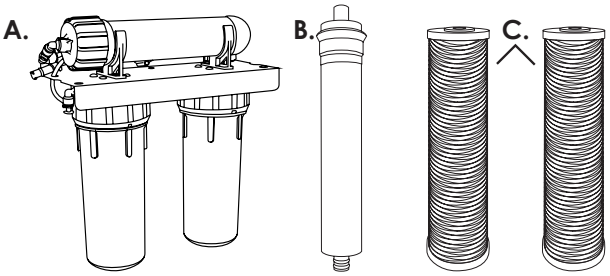
- You must follow the guidelines to install this system. Check with your Province/State and local public works department for plumbing and sanitation codes.
- If house water line pressure is over the maximum 100 psi (pounds per square inch), install a pressure regulator in the water supply line before this system.
- System is for cold water use only and must be protected against freezing, which can cause water leakage.
- Don't use with the water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. System certified for cyst reduction may be used on disinfected water that may contain filterable cysts.
- Make sure the water supply conforms to the specification guidelines. If the water supply conditions are unknown, consult your local municipal water company or health department about the quality and the list of contaminants of the water in your area.
- **CAUTION: When using the system for the first time or after replacing the membrane, the system should be purged for 24 hours.**

Conditions for Operation:

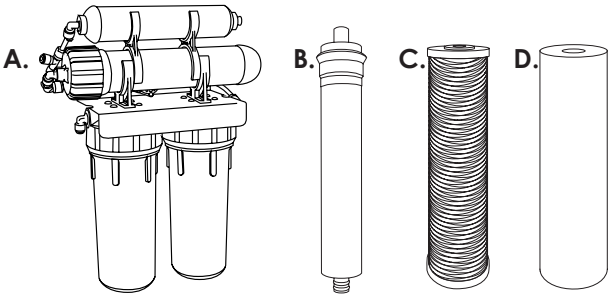
Supply Water Pressure Limits	40 - 100 psi (276-689 kPa)
Supply Water Temperature Limits	40 - 113°F (4.4 -45°C)
Maximum Water pH Limits	4-10
Maximum Total Dissolved Solids (TDS)	2,000 ppm
Maximum Water Hardness at 6.9 pH	10 gpg
Maximum Iron / Manganese / Hydrogen Sulfide	0.2/0/0 mg/L
Maximum Chlorine in Supply Water	2.0 ppm
Automatic shutoff control	Yes

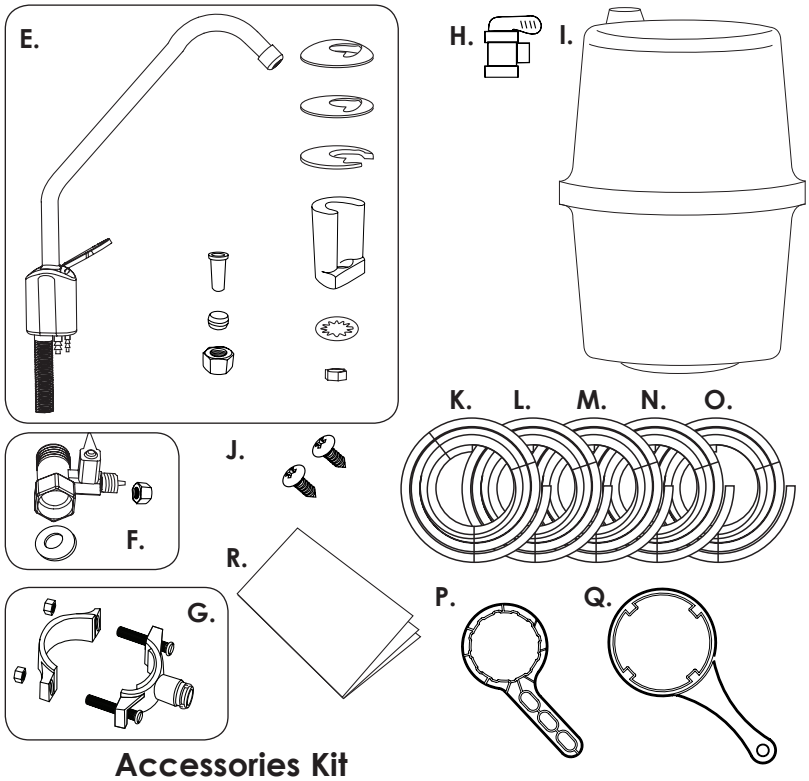
Package Contents:

VRO-3U



VRO-4U





VRO-3U

Part	Description	QTY
A	Unit Assembly	1
B	Reverse Osmosis Membrane	1
C	Carbon Block Filter	2

OR

VRO-4U

Part	Description	QTY
A	Unit Assembly	1
B	Reverse Osmosis Membrane	1
C	Carbon Block Filter	1
D	Sediment Filter	1

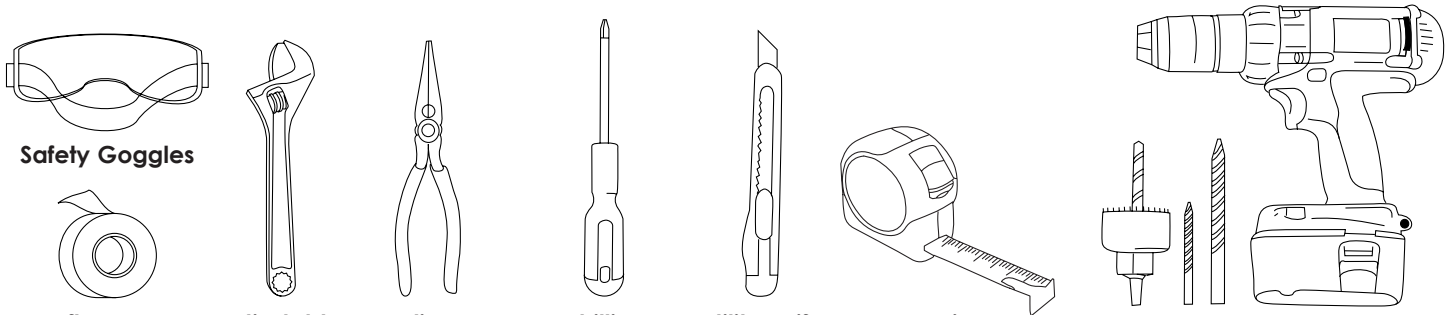
+

Accessories Kit

Part	Description	QTY
E	Air-gap Faucet Set	1
F	Inlet Valve Set	1
G	Saddle Drain Clamp Set	1
H	Tank Ball Valve	1
I	Storage Tank	1
J	Mounting Screw	2
K	6' of 1/4" Blue Tubing	1
L	6' of 1/4" Yellow Tubing	1
M	6' of 1/4" Black Tubing	1
N	6' of 1/4" Red Tubing	1
O	6' of 3/8" Black Tubing	1
P	RO Sump Wrench	1
Q	Filter Sump Wrench	1
R	Installation, Use & Care Guide	1

+

Tools Required for Installation:



Safety Goggles

Teflon Tape

Adjustable Wrench

Pliers

Phillips Screwdriver

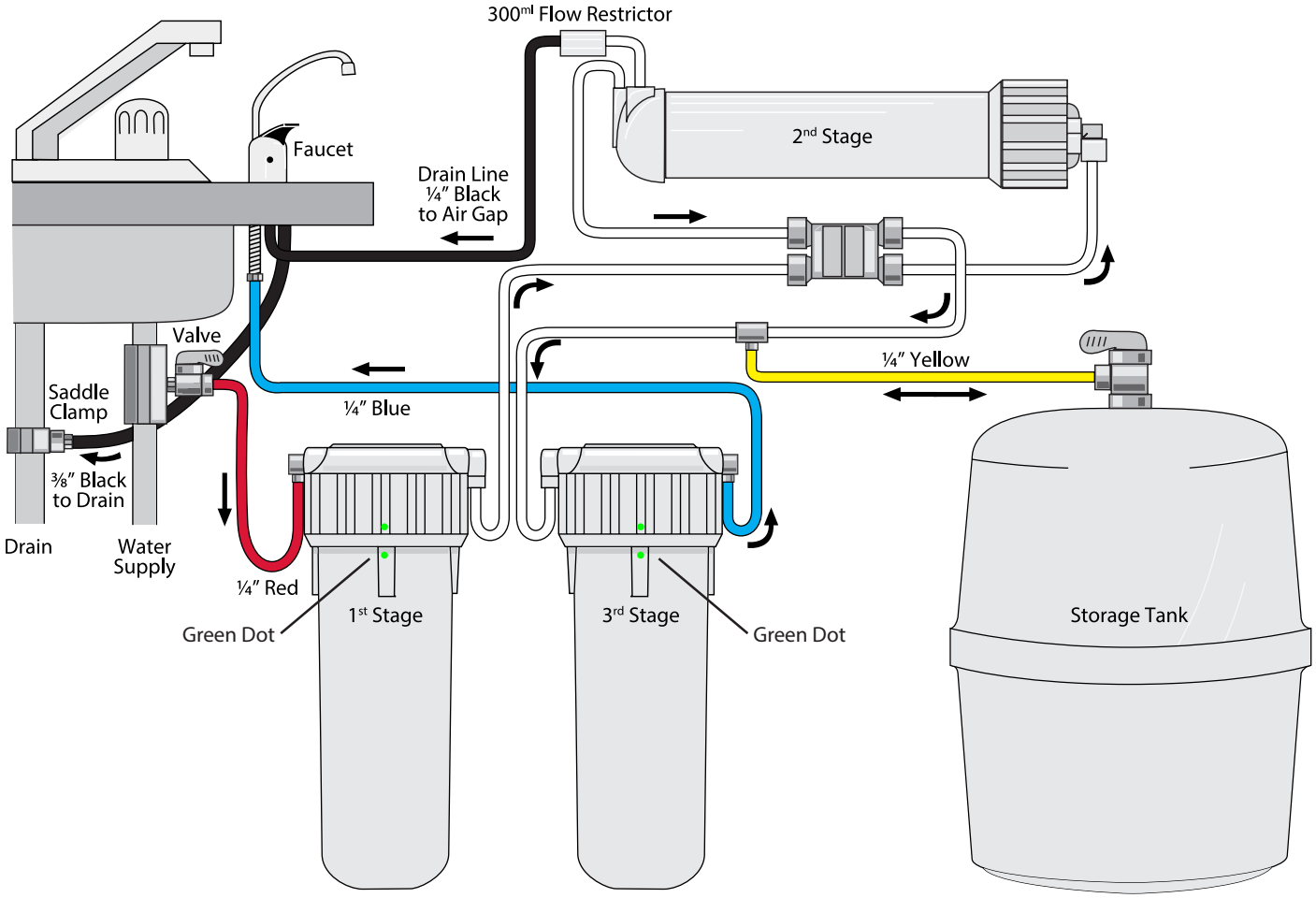
Utility Knife

Measuring Tape

Drill and Bits (1/4", 3/8" & 1" hole saw)

Reverse Osmosis System Layout and Components:

VRO-3U Filtration Process:

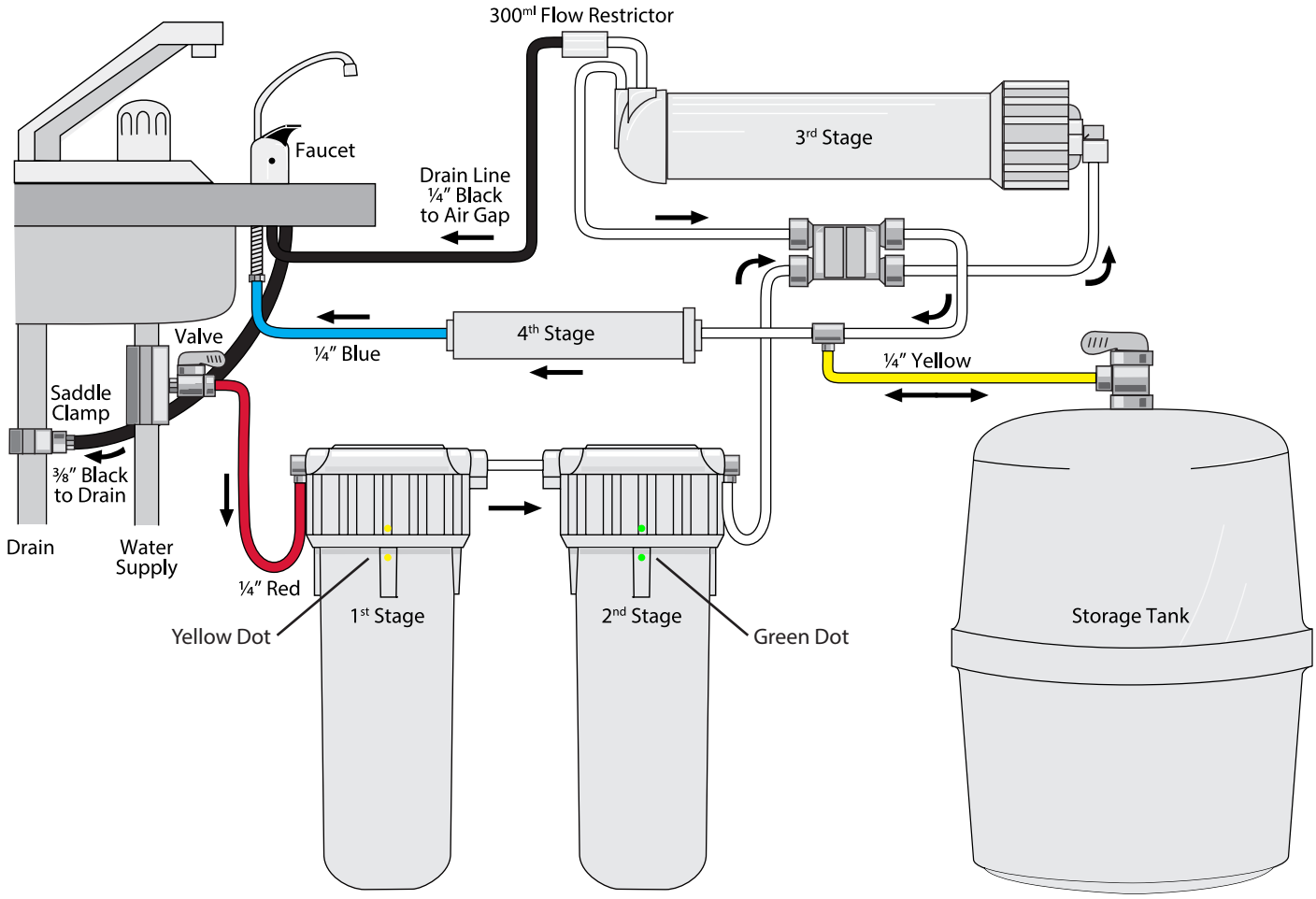


Replacement Parts

Filter Stage	Part Number	Description	Service Life	Filter Color Code
1	VRFU-CTO	Carbon Block Filter 5 Micron, 10"	6 to 12 Months	Green Dot
2	VRFU-RO	RO Membrane 50 GPD	24 to 36 Months	N/A
3	VRFU-CTO	Carbon Block Filter 5 Micron, 10"	6 to 12 Months	Green Dot

Reverse Osmosis System Layout and Components (continued):

VRO-4U Filtration Process:



Replacement Parts

Filter Stage	Part Number	Description	Service Life	Filter Color Code
1	VRFU-PP	Sediment Filter 5 Micron, 10"	6 to 12 Months	Yellow Dot
2	VRFU-CTO	Carbon Block Filter 5 Micron, 10"	6 to 12 Months	Green Dot
3	VRFU-RO	RO Membrane 50 GPD	24 to 36 Months	N/A
4	VRF-T33	T33 Inline Carbon Filter	6 to 12 Months	N/A

Installation Instructions:

Tapping into Cold Water Line (See Figure 1 and 2):

CAUTION: The water supply to your unit MUST be from the COLD WATER LINE. Hot water will severely damage your filtration system.

1. Turn off the cold water supply by turning off the shut off valve under the sink. If the cold water line does not have a shut off valve under the sink, turn off the main water line in the house. Place a tray or towel under the cold water line to catch the excess water.
2. Turn on the cold water faucet and allow all the water to drain from the line. On a single handle faucet, the hot water may have to be turned off to prevent any hot water cross over.
3. Loosen nut and separate cold water braided flex line from the kitchen cold water faucet shank. Attach Inlet Valve to the faucet shank using the Rubber Washer. Reinstall the flex line onto the inlet valve and tighten with an adjustable wrench. Use Teflon tape on all threaded connection points.
4. Insert ¼" red tubing over the guide tube of the inlet valve. Tighten the compression nut with an adjustable wrench.

Figure 1.

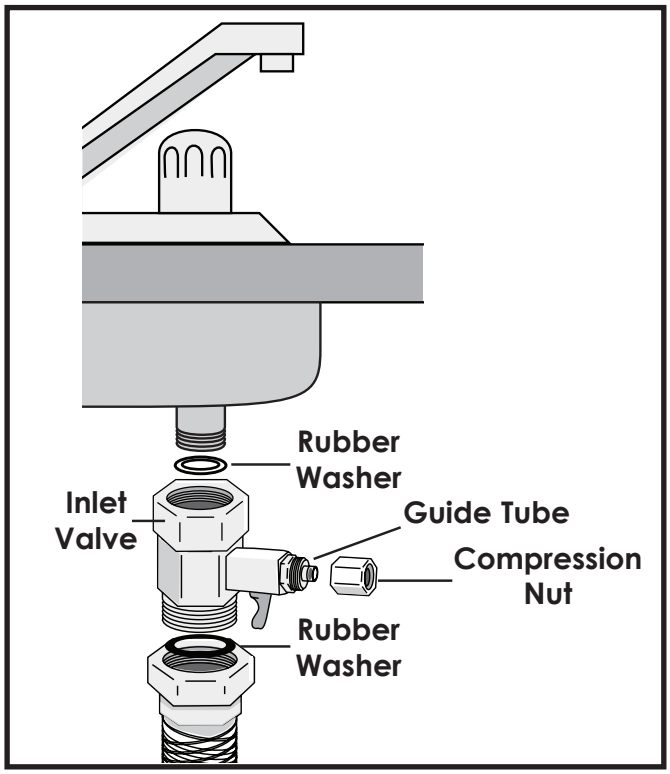
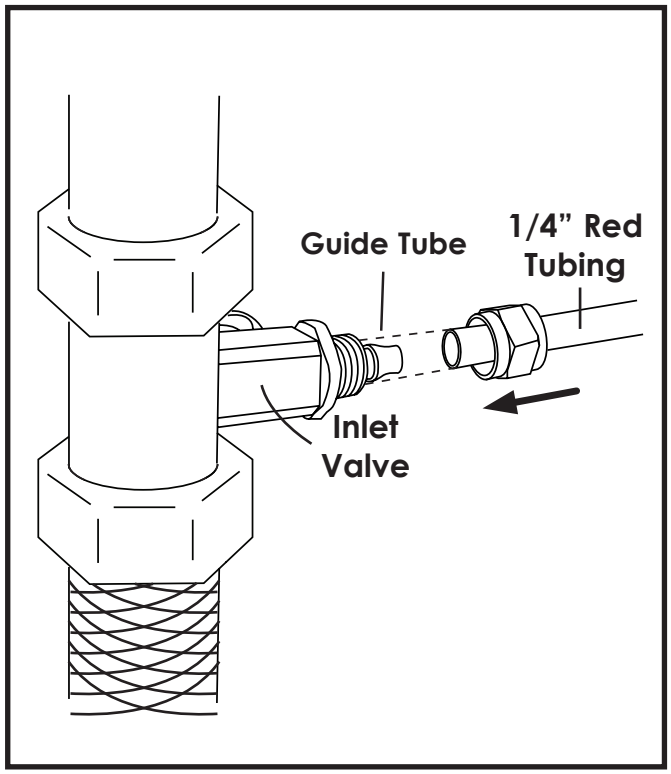


Figure 2.



Drilling the Faucet Hole (See Figure 3 on the next page):

The drinking water faucet should be positioned with function, convenience and appearance in mind. An adequate flat area is required to allow faucet to rest securely. Check the underside of the location for interference. Most sinks have a pre-drilled 1½" or 1⅜" diameter holes designed for spray hoses. The drinking water faucet may be installed using one of these holes, despite their larger size. If the pre-drilled holes cannot be used, or are in an inconvenient location, it will be necessary to drill a 1¼" hole in the sink or through the countertop next to the sink or the faucet.

Installation Instructions (continued):

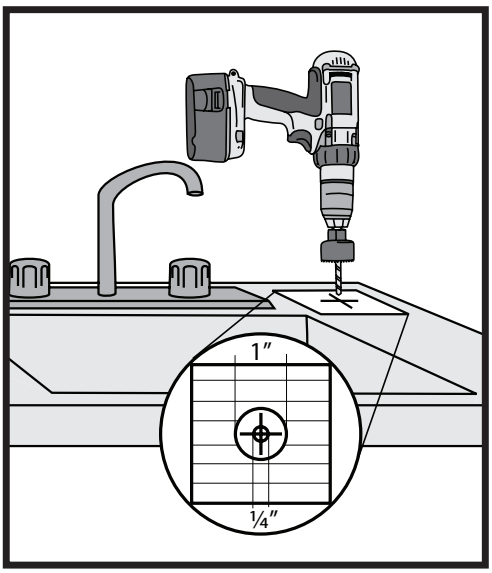
CAUTION: Do not drill through a counter top that is more than 1" thick.

CAUTION: Do not attempt to drill through a tiled, marble, granite or similar countertop. Consult a plumber or the countertop manufacturer for advice or assistance

CAUTION: When drilling through a countertop make sure the area below the drilled area is free of wiring and piping. Make certain that you have ample room to make the proper connection to the bottom of the faucet.

CAUTION: Do not attempt to drill through an all-porcelain or porcelain-coated sink. For applications on these types of sinks we recommend using the sprayer hole or mounting the faucet through the countertop. Otherwise consult a plumber or manufacturer for advice or assistance.

Figure 3.



1. Line the bottom of the sink with newspaper to prevent shavings, parts, or tools from falling down the drain.
2. Place masking tape over the area to be drilled to help prevent scratches if drill bit slips.
3. Mark point with a center punch. Use a ¼" drill bit to drill a pilot hole
4. Use a 1¼" hole saw to enlarge the hole. Smooth rough edges with a file.

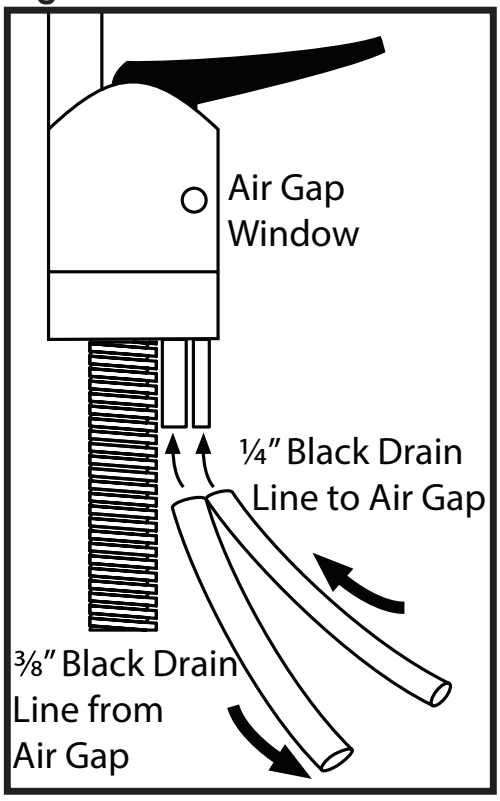
Installing Air Gap Faucet (see figure 4):

1. Connect the ¼" black drain tube up to the ¼" fitting on the air gap faucet.
2. Then connect the ⅜" black tubing to the ⅜" fitting on the air gap faucet.

NOTE: Make sure the tubing is pushed all the way to the end of the fitting

NOTE: The ⅜" black drain tube goes by gravity feed to the saddle drain clamp connection. Make sure there are no kinks, loops, or sharp bends in the ⅜" black tubing. Failure to make a straight line to the drain may result in reject water leaking through the air gap in the faucet onto the countertop or below the faucet.

Figure 4.



Installation Instructions (continued):

Installing the Air Gap Faucet Continued (see figure 5 and 6):

3. Loosen stem-nut on the faucet.
4. Slide Chrome Plate and Black Rubber Washer onto the faucet stem. The chrome plate, rubber washer and faucet body are installed above sink or countertop.
5. Feed the ⅜" and ¼" black tubing through the pre-drilled hole in the sink/counter.
6. Place the faucet through the drilled faucet hole, then add Spacer, Securing Plate, Star Lock Washer and Stem Nut.
7. Tighten stem nut firmly while aligning faucet in the desired location.
8. Gently slide Faucet Compression Nut down over the ¼" blue tubing, follow with Ferrule. Then push Insert into the end of the tubing.
9. Firmly push the tubing into the stem of Faucet until it stops. Hand-screw the nut onto the threads of the stem. Tighten with a wrench.

Figure 5.

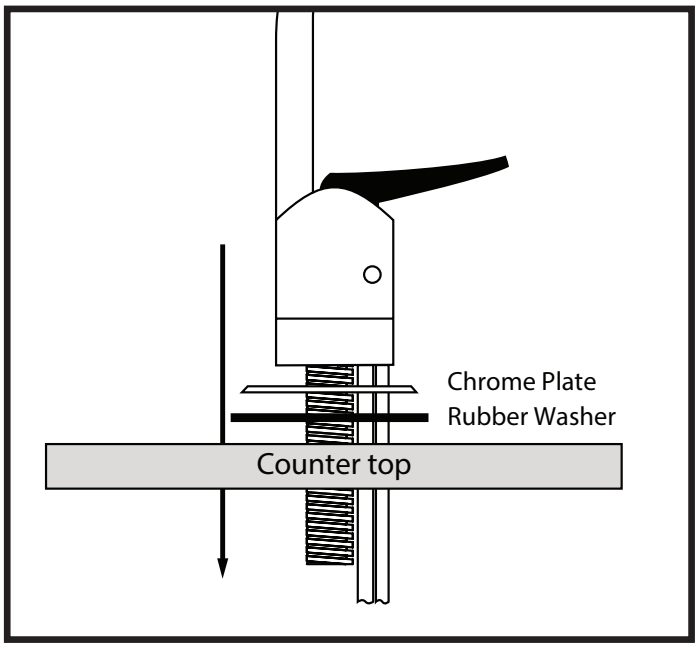
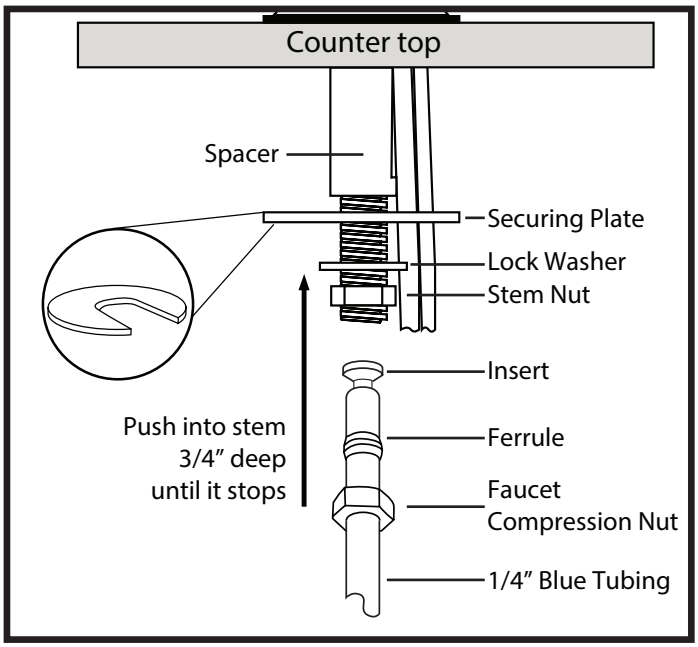


Figure 6.



Installing the Saddle Drain Clamp (see figure 7 and 8 on the next page):

1. Attach the drain clamp to the vertical section of the drain pipe, about 2 inches above the drain trap.
2. Using the fittings hole of the drain clamp as a guide, drill a ¼" hole through one side of the drainpipe.

CAUTION: Do not penetrate through the opposite side of the pipe.

3. Remove the drain clamp from the drainpipe and enlarge the hole with a ⅜" drill bit. Use a file to remove rough edges from the drilled hole.
4. Cut the end of the ⅜" black tube at a 45˚ angle and insert it through the saddle drain clamp quick connect fitting about 1" past the inside wall of the saddle clamp.

Installation Instructions (continued):

5. Make sure the black rubber gasket is adhered to the inside wall of the clamp and place the clamp assembly over the drain pipe. Insert ⅜" black tube into the drilled hole. Tighten the clamp.

CAUTION: Do not overtighten the screws, it may crack the clamp.

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

Figure 7.

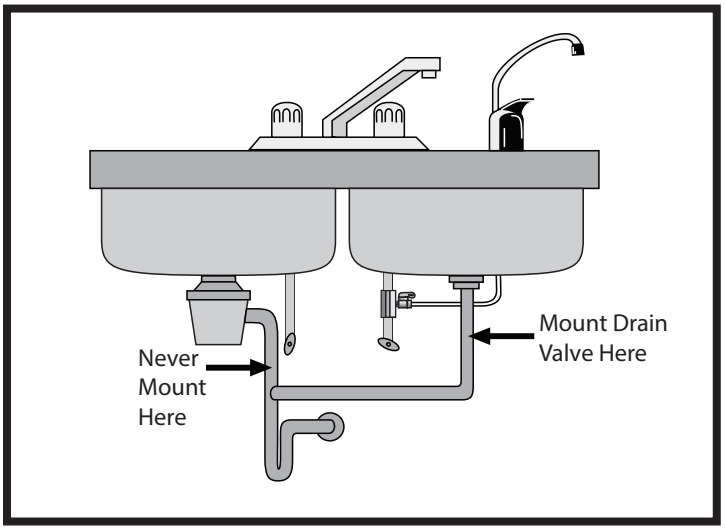
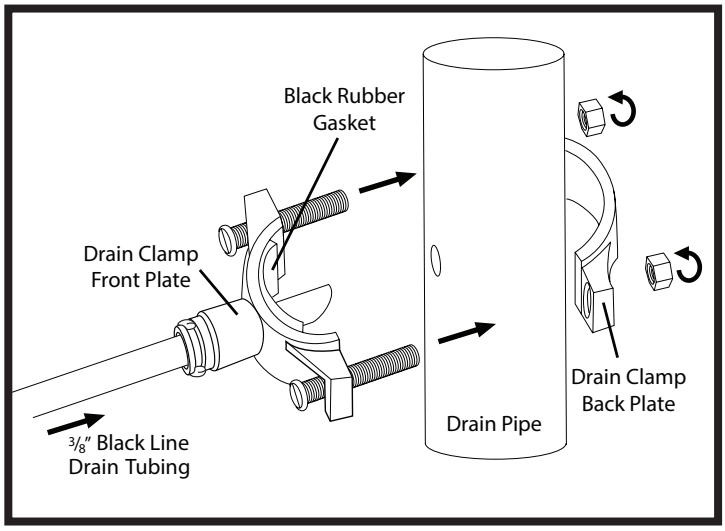


Figure 8.



Installing the Membrane into the Membrane Housing (see figure 9):

1. Wash your hands before removing the plastic packaging from the RO membrane

2. Remove the tube connection from the RO membrane cap.

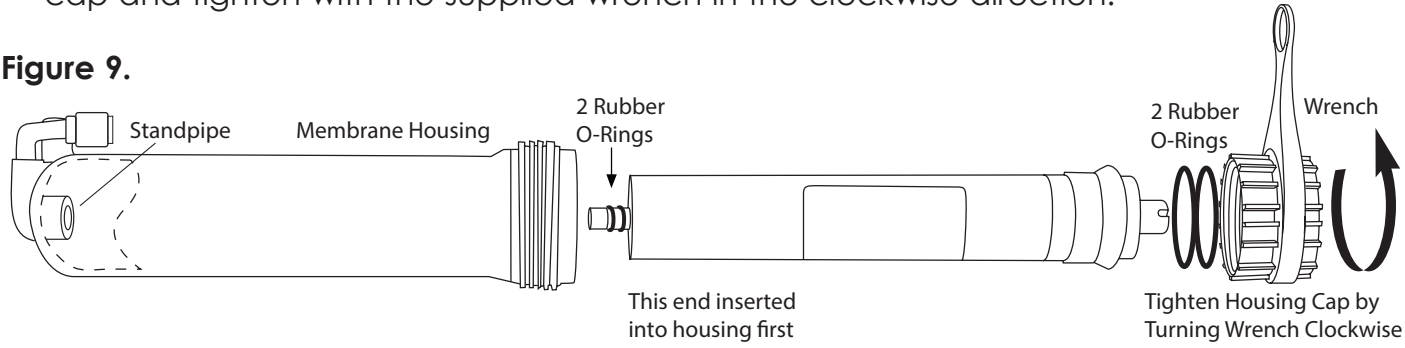
3. Loosen the cap by using the wrench provided in a counterclockwise direction.

4. Lubricate the O-rings on the new membrane with water. Insert the end with the two black O-rings first onto the standpipe within the filter housing.

5. Once the membrane has been inserted into the housing give a firm push to properly seat the membrane.

6. Check to see that the O-ring is in the cap properly seated. Replace membrane housing cap and tighten with the supplied wrench in the clockwise direction.

Figure 9.



Installation Instructions (continued):

Installing the Filter Cartridges and Filter Housing Assembly (See figure 10 or 11):

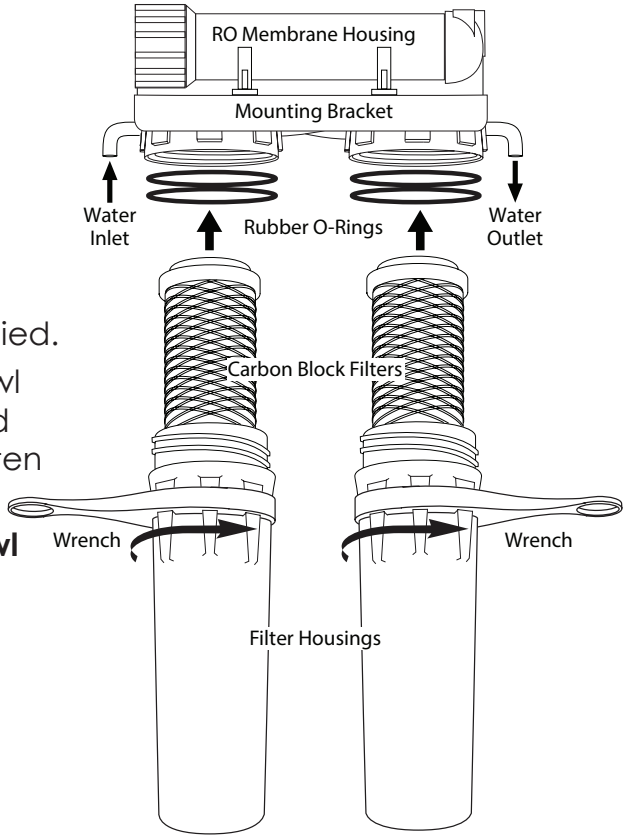
CAUTION: You must keep the filters and filter housing upright during assembly for maximum performance.

VRO-3U:

1. Insert a Carbon Block Filter into the 1st filter housing bowl which is the one on the water inlet side (red tubing) of the RO system and install housing bowl onto the housing head by screwing in the counter-clockwise direction. Tighten using the wrench supplied.
2. Insert a Carbon Block filter into second housing bowl and screw the housing bowl onto the housing head by rotating in the counter-clockwise direction. Tighten using the wrench supplied.

NOTE: Make sure the seal marks on the head and bowl are aligned.

Figure 10.



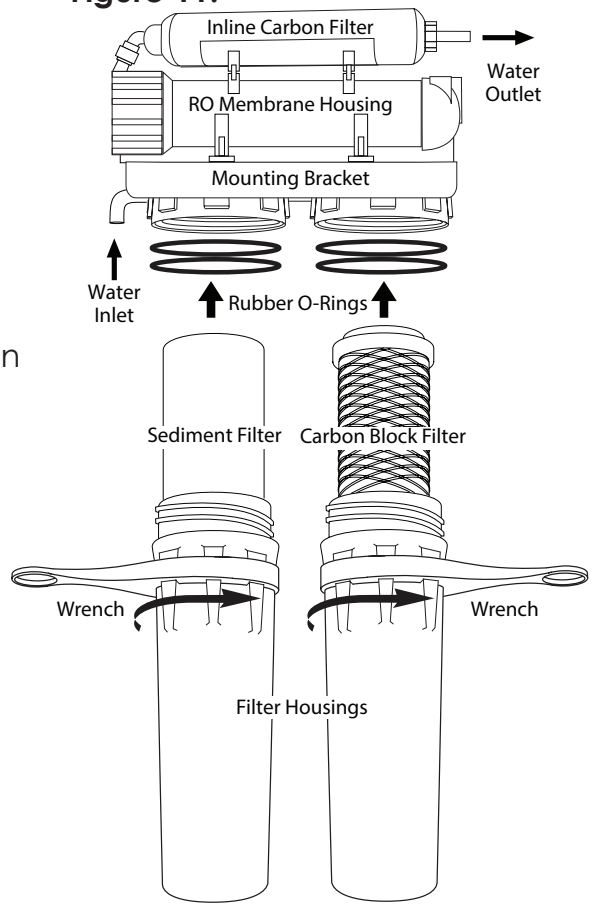
VRO-4U:

1. Insert a Sediment Filter (cloth like appearance) into the 1st filter housing bowl which is the one on the water inlet side (red tubing) of the RO system and install housing bowl onto the housing head by screwing in the counter-clockwise direction. Tighten using the wrench supplied.
2. Insert a Carbon Block filter into second housing bowl and screw the housing bowl onto the housing head by rotating in the counter-clockwise direction. Tighten using the wrench supplied.

NOTE: Make sure the seal marks on the head and bowl are aligned.

CAUTION: When looking at the system from the front, the sediment filter must be on the left and the carbon block filter must be on the right.

Figure 11.



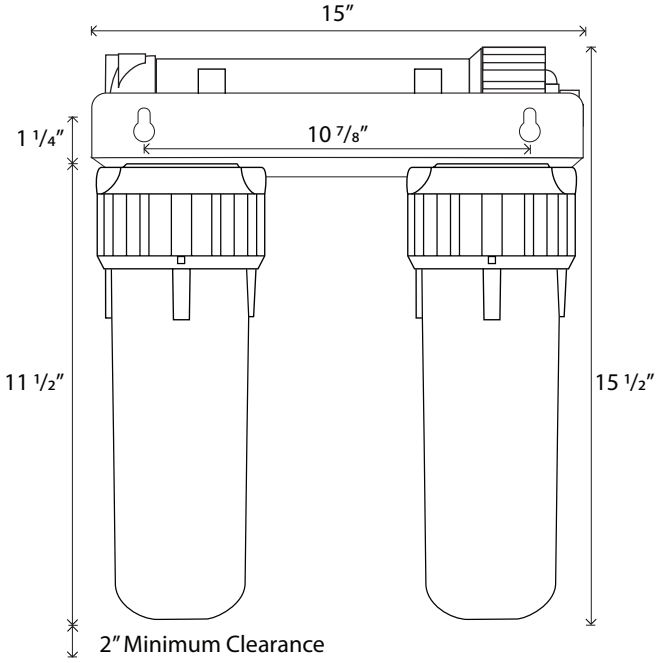
Installation Instructions (continued):

Mounting the RO Unit Under the Sink:

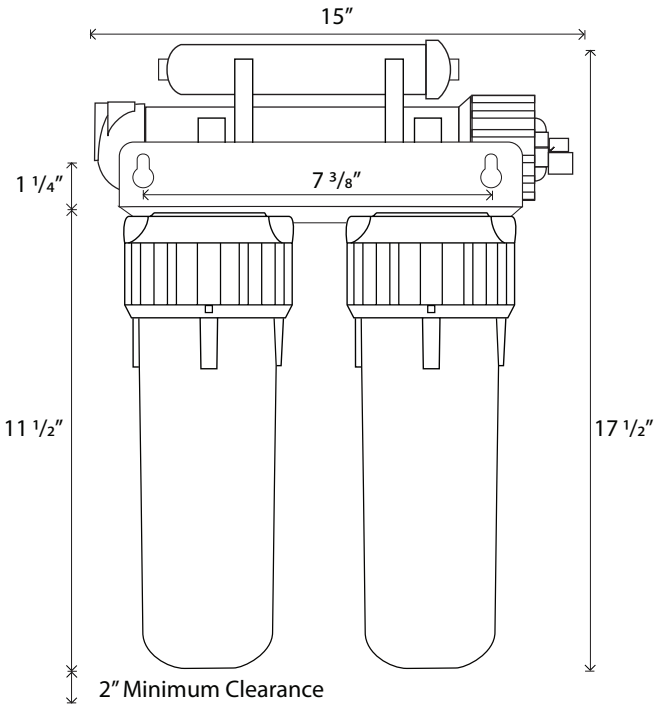
1. Position the RO unit on the back or right walls under the sink. Make sure to allow ample space for the installation and plumbing connections. To change the filter cartridges, a minimum of 2" of clearance is required underneath the filter housings.
2. Install mounting screws at least 15" from cabinet floor. Leave 1/4" space between the head of the screw and the wall to slip bracket onto the screws.

System Dimensions:

Model: VRO-3U



Model: VRO-4U



Mounting the Ball Valve Onto the Storage Tank (See figure 12 and 13):

1. Connect the Ball Valve to the water Storage Tank thread on the upper side of the tank. Make sure the black rubber gasket sits flat. Tighten the valve but do not overtighten.
2. Connect the ¼" yellow tubing to the ball valve. Push the tubing in all the way to make sure it is properly seated.
3. Turn the ball valve off.

Figure 12.

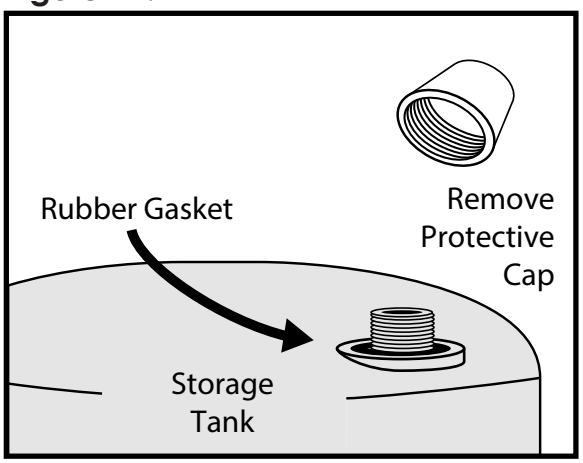
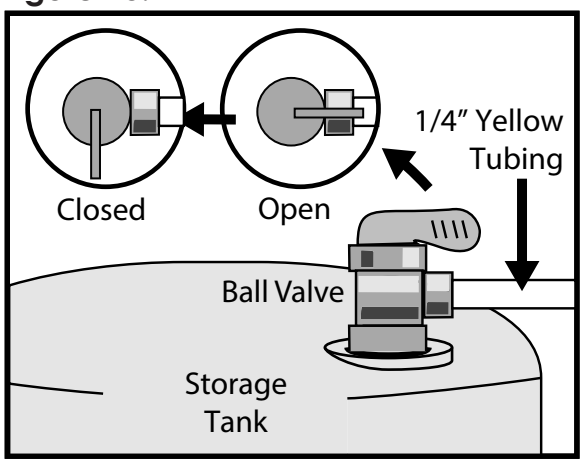


Figure 13.



Installation Instructions (continued):

Connecting the Tubes

CAUTION: Before cutting the supplied tubing measure the distance between the components.

All tubing is colour-coded for ease of installation.

¼" Black - Connects the waste water from the RO membrane to the Air Gap faucet intake line.

¼" Red - Connects the inlet valve of the cold water supply to the inlet of the system.

¼" Yellow - Connects the RO membrane to the storage tank.

¼" Blue - Connects the outlet of the system to the faucet.

⅜" Black - Connects the faucet to the drain saddle clamp.

Note: Reference the diagram on page 3 and 4 for colour and connection point on the RO System.

Each connection point has coloured plugs to match the colour of the tubing that connects at that point. The plugs must be removed before installing the tubing.

Quick connect fittings are used throughout the system. To insure an optimal seal, tubing should be cut with the end square. An angled cut or distortion of the tubing will not provide a proper seal and may cause leaks.
To remove the plugs and install the tubing, please see "Tubing Connection with Push-in Fittings".

Tubing Connection with Push-in Fittings (See Figure 14, 15 and 16):

1. Take off the blue horseshoe clip from collet.
2. Pull out and discard the protect plug by pushing the collet inward and holding with fingers.
3. Insert Tubing into the collet. Full engagement is 11/16" length of the tubing into the fitting for 1/4" tubing, and 3/4" length for 3/8" tubing.

NOTE: Ensure tubing is pushed all the way to backstop.

4. Put blue horseshoe clip back on collet.

Figure 14.

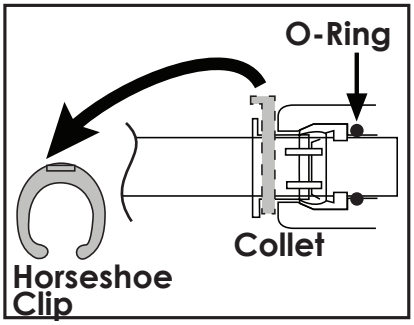


Figure 15.

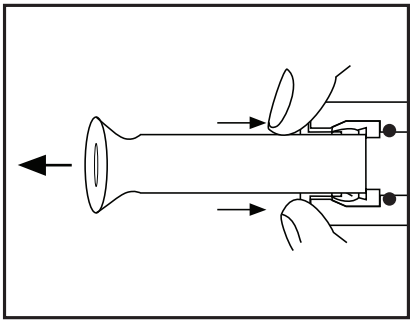
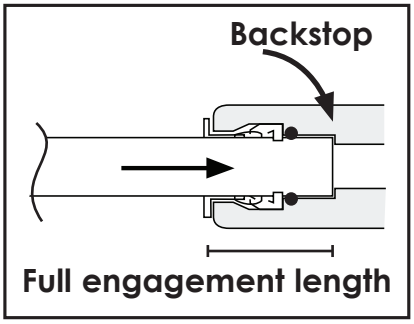


Figure 16.



Icemaker Hook-Up (optional):

Install 1/4" polypropylene plastic tubing if your refrigerator is within 25 ft. of your RO unit. Do not use copper tubing since an objectionable taste can result in the ice cubes. If the refrigerator is over 25 ft from the RO Unit it is recommended to use 3/8" tubing. Install a tee in the blue tubing between the outlet of the system and the faucet. It is recommended to install a ball valve in the line to your ice maker to allow pressure to increase sufficiently in the storage tank for the ice maker solenoid valve to operate properly. Leave the ball valve in the closed position until the tank is full after the start up procedure is completed.

Start-up Instructions:

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

1. Turn Inlet Valve and Storage Tank Ball Valve both in open position.
2. Ensure RO faucet is closed.
3. Slowly open the cold water supply valve that you closed at the beginning of this installation.
4. Water pressure will start to build in the RO system in about 2 hours. Carefully inspect all fittings and connections. Check for leaks and fix if any are found.
5. Open RO faucet and let water flow through the system for a 24 hour period. Water will flow heavily until the Storage Tank becomes empty, and then it will be a slow drip for the balance of 24 hours.
6. Close RO faucet after 24 hour purge is complete.
7. RO system is ready for use.

NOTE: you will not have filtered water immediately. It will take 1-2 hours to completely fill the storage tank to create liberal flow from the RO faucet.

6 Month System Maintenance:

Depending on which model was purchased the chart below will assist with replacement of filter cartridges. The replacement filter can be obtained online at www.ghpgroupinc.com or at the retail store where the system was purchased.

Model #	Stage 1	Stage 2	Stage 3	Stage 4
VRO-3U	5 micron Carbon Block Filter Part # VRFU-CTO	RO Membrane Part # VRFU-RO	5 micron Carbon Block Filter Part # VRFU-CTO	n/a
VRO-4U	5 micron Sediment Filter Part # VRFU-PP	5 micron Carbon Block Filter Part # VRFU-CTO	RO Membrane Part # VRFU-RO	Inline Carbon Filter Part # VRF-T33

The prefilter and postfilter have a life expectancy between 6 to 12 months, depending on the incoming water conditions and the amount of the water the system has used. You must periodically replace the filters. This will protect the RO membrane from being destroyed by Chlorine and also prevent the filters from plugging with sediment.

6 Month System Maintenance (continued):

NOTE: Use the Filter wrench supplied with RO system.

1. Turn off the incoming water supply to the RO by turning the Inlet Valve clockwise until it stops.
2. Close the Ball Valve of the storage tank.
3. Open the RO faucet and allow water to drain to release system pressure.

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

4. For more leverage you may leave the RO unit attached to the wall of the cabinet. If you are unable to access the unit while it is mounted, move it prior to changing filters. Starting with the filter housing stage 1, remove it by turning it clockwise (left), empty water, then discard filter. Continue on the 2nd housing (Stage 2).
5. Clean the filter housings bowls with a mild soap solution and rinse with water. Check the O-ring and lubricate with water only. Do not use petroleum based lubricants such as Vaseline.

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

For Model VRO-3U:

1. Insert a new Carbon Block filter (white end cap and plastic netting) into the 1st filter housing which is the one on the water inlet side of the RO system and re-install housings to the head. Tighten with the supplied wrench.
2. Insert a new Carbon Block filter (white end cap and plastic netting) into 2nd filter housing and re-install housings to the head. Tighten with the supplied wrench.

Continue to Step 6.

For Model VRO-4:

1. Insert a new Sediment filter (cloth like appearance) into the 1st filter housing which is the one on the water inlet side (red tubing) of the RO system and re-install housings to the head. Tighten with the supplied wrench.
2. Insert a new Carbon Block filter (white end cap and plastic netting) into 2nd filter housing and re-install housings to the head. Tighten with the supplied wrench.

Continue to Step 6.

6. Turn water supply on by turning the inlet valve counter clockwise.
7. Open the RO faucet and leave open until water begins to trickle out (it will come out very slowly). Allow to drip for 15 minutes
8. Close the RO faucet.
9. Open the storage tank ball valve. The reverse osmosis water filtration system is ready for use!

Annual Maintenance:

NOTE: Sanitizing of unit is recommended.

1. Perform steps 1 through 5 in the Six Month System Maintenance.

NOTE: If not sanitizing the system skip to step 2 - 6.

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

3. Remove the filters out from the two vertical filter housings. Measure and pour either ½ cup of hydrogen peroxide or 2 table spoons of common household bleach into the 1st filter housing and re-attach the 2 empty filter housings onto unit with the supplied wrench.

4. With the RO Faucet in the closed position turn on the incoming water supply to the system by turning the inlet valve counter clockwise. Wait 1 minute for the unit to pressurize. Turn on the RO Faucet and let the water run for 30 seconds. Turn off the RO faucet and let the unit rest for 2 minutes. Finally, open the RO faucet and let the water run for 5 more minutes.

5. Turn off the incoming water supply to the system by turning the inlet valve clockwise until it stops. Keep the RO faucet open until the storage tank is completely drained.

6. Open the membrane housing and re-install the RO membrane while making sure not to kink the O-rings. (Refer to Membrane Replacement Section).

For Model VRO-3U:

1. Remove filter housings at stages 1 and 3 and empty the water.

2. Insert a new Carbon Block filter (white end cap and plastic netting) into the 1st filter housing which is the one on the water inlet side of the RO system and re-install housing to the head. Tighten with the supplied wrench.

3. Insert a new Carbon Block filter (white end cap and plastic netting) into 2nd filter housing and re-install housing to the head. Tighten with the supplied wrench.

Continue to Step 7.

For Model VRO-4U:

1. Remove the filter housings at stages 1 and 2 and empty the water.

2. Insert a new Sediment filter (cloth like appearance) into the 1st filter housing which is the one on the water inlet side (red tubing) of the RO system and re-install housing to the head. Tighten with the supplied wrench.

3. Insert a new Carbon Block filter (white end cap and plastic netting) into 2nd filter housing and re-install housings to the head. Tighten with the supplied wrench.

4. The carbon in-line filter is located between the RO faucet and storage tank. It is attached to the RO Membrane with brackets. Remove it by loosening the fitting on both ends of the post filter and replace with new filter. (Refer to the Inline Post Carbon Filter Replacement Section)

Continue to Step 7.

NOTE: This is a good time to check the air pressure in your storage tank. For instructions please refer to the Check Air Pressure in the Tank Section.

7. Perform steps 6 through 9 in the Six Month System Maintenance section for startup directions.

RO Membrane Replacement:

The membrane has a life expectancy between 24 to 36 months, depending on the incoming water conditions and the amount of the water the system is used. The reverse osmosis membrane is critical for effective reduction of claims. The product water should be tested periodically to verify that the system is performing satisfactorily.

1. Turn off the incoming water supply to the RO by turning the inlet valve clockwise until it stops.
2. Close the storage tank ball valve.
3. Open the RO Faucet and allow water to drain from the storage tank until it is completely empty.

Removing the Membrane:

1. Remove the tube fittings from the RO membrane cap.
2. Use the wrench provided to remove the cap from the housing.
3. Use pliers to grip the center tube of the membrane and pull firmly to remove the membrane from the housing and discard.

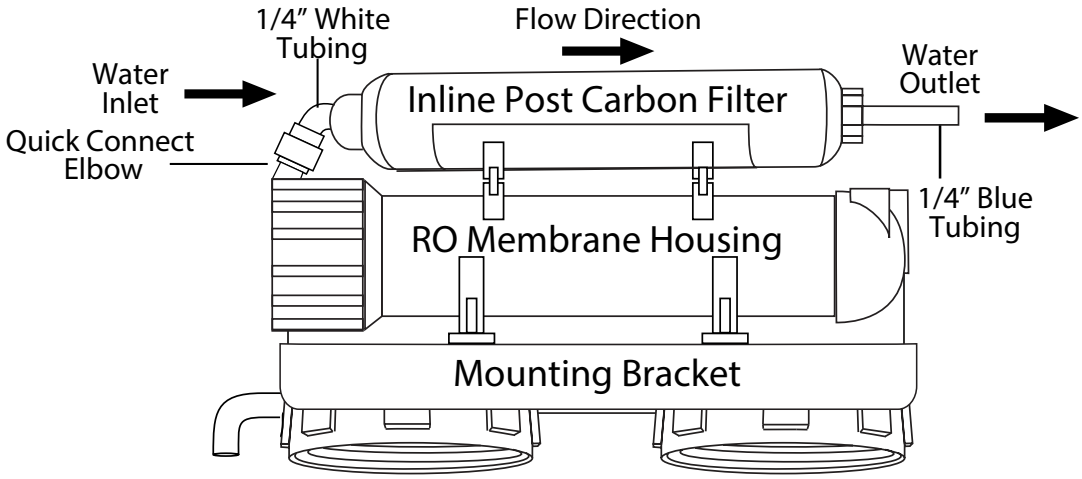
Installing the Membrane:

4. Lubricate the O-rings on the new membrane with water only. Insert the end with the two black O-rings first into the standpipe of the housing.
5. Once the membrane has been inserted into the housing you must give a firm push to properly seat the membrane. Replace membrane housing cap and tighten with the supplied wrench.
6. Install the tube fitting back into the cap.
7. Follow the start up instructions on page 12.

Inline Post Carbon Filter Replacement (VRO-4U):

The inline post carbon filter has a life expectancy between 6 to 12 months. The inline post carbon filter is an effective filter in removing any post odor and taste.

1. Turn off the incoming water supply to the RO by turning the inlet valve clockwise until it stops.
2. Close the storage tank ball valve.
3. Open the RO faucet for 10 seconds. This will release the pressure in the RO system.



Inline Post Carbon Filter Replacement (continued):

Removing the Expired Inline Post Carbon Filter:

1. Remove the blue horseshoe securing the ¼" blue tubing in the quick connect on the old inline post carbon filter. Then disconnect the blue tubing by pushing in the collet and pulling out the blue tubing.
2. Remove the blue horseshoe securing the the quick connect elbow on the old inline post carbon filter. Then disconnect the elbow by pushing in the collet and pulling out the elbow.
3. Pull off the filter from the inline filter mounting brackets that are attached to the membrane housing.

Installing the New Inline Post Carbon Filter:

1. Remove the outer packaging from the new Inline Post Carbon Filter. Place the filter onto the inline filter mounting brackets as illustrated on the previous page.
2. Connect the ¼" blue tubing back into the outlet of the filter. Replace the blue horseshoe to secure the tubing.
3. Connect the quick connect elbow back into the inlet of the filter. Replace the blue horseshoe to secure the elbow.
4. Follow steps 6 - 9 of the 6 Month system Maintenance on page 12.

Check Air Pressure in the Tank:

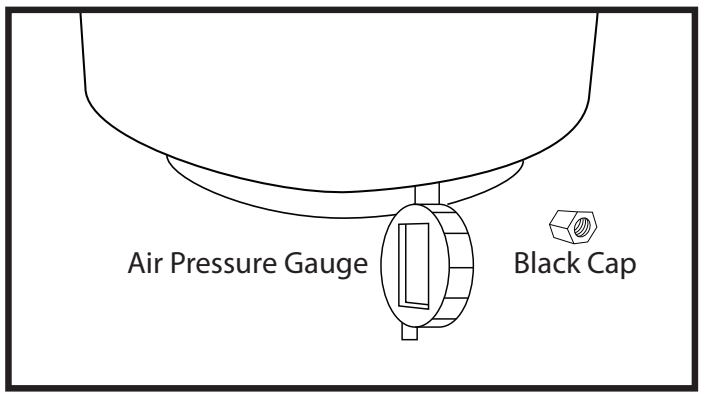
Important: Check air pressure only when the tank is empty of water!

Check air pressure in the storage tank when you notice a decrease in available water from the RO system. Air can be added with a bicycle pump using the valve that is located on the bottom of the tank cover by a black cap.

1. Turn off the incoming water supply to the RO by turning the inlet valve counter clockwise until it stops.
2. Open the RO Faucet and allow the water to drain from the tank until it is completely empty.

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

3. Once all the water in the tank is purged, check the air pressure using an air pressure gauge. It should read between 5 to 7 psi. (Digital air pressure gauge is recommended). Pump air into the tank to increase the pressure if necessary.
4. Open the tank ball valve and inlet valve, when the storage tank is full you can enjoy the RO water.



Troubleshooting Guide for the RO Systems:

Problem	Possible Cause	Solution
Milky coloured water	Air in system	It's a normal occurrence during initial start-up of the system. This milky colour will disappear during normal use within 1 to 2 weeks
Noise from faucet	Air gap of faucet	Inherent sound with an air-gap faucet
	Location of drain saddle	Relocate the drain to a horizontal location
	Restriction in drain line	Clear blockage that is sometimes caused by debris from garbage disposal unit or dishwasher
Slow Water production	Low water pressure	The systems require min 40 psi incoming water pressure. A booster pump maybe needed in low water area
	System just start up	Normally it takes up to 2 hours to fill the storage tank
	Low air pressure in storage tank	Add air pressure to the tank. The pressure should be 5 to 7 psi when the tank is empty
	Crimp in tubing	Check tubing straighten or repair as necessary
	Clogged pre-filters	Replace pre-filters
	Fouled membrane	Replace the membrane
Offensive water taste or smell	Post carbon filter is depleted	Replace post filter
	Fouled membrane	Replace the membrane
	Sanitizer not flushed out	Drain storage tank and refill it. Repeat to discard 3 tanks of water
No drain water	Clogged flow restrictor	Replace the flow restrictor
Water leak from faucet air gap hole	3/8" black tubing plugged, restricted or incorrectly connected to drain point	Eliminate restriction or plug. Check the drain line is routed properly, not clogged or crimped
Water leak at thread fittings	Fitting not tightened	Wrap Teflon tape and tighten fittings as necessary
Water leak at quick connect fittings	Tubing not cut square	Cut the tubing end square
	Tubing not pushed in all the way	Push the tubing in all the way
	Tubing nicked or outer surface finish not smooth	Pull tubing out of connection, cut off problem area and reinsert in connection.
Water leak at sump connection	Sump not in right position	Turn the sump into the lock position
	O-ring missed or damaged	Checked the O-rings and replace

For further operating, installation, or maintenance assistance call GHP Group Inc. customer service department at 1 (877)-477-4768 Mon. - Fri. 8:30 a.m. – 4:30 p.m. CST or email us at customerservice@ghpgroupinc.com

Performance Data:

Reverse Osmosis Drinking Water System
Model: VRO-3U and VRO-4U

The system must be installed and operated in accordance with manufacturer's recommended procedures and guidelines. Failure to follow the instructions may result in the leakage, malfunction and will void warranty.

Read this performance date and compare the capabilities of this unit with your actual water treatment needs. It's recommended that you have your supply water tested to determine your actual water treatment needs.

Arsenic Fact Sheet

This system has been tested for the treatment of water containing pentavalent arsenic (also known as As(V), As(+5) or Arsenate) at concentration of 0.30 mg/L or less. The systems reduce pentavalent arsenic, but may not reduce other forms of arsenic. These systems are also to be used on the water supplies containing a detectable free chlorine residual or own water supplies that have been demonstrated to contain only pentavalent arsenic. Treatment with Chloramine (combined chlorine) is not sufficient to ensure complete conversion of trivalent arsenic to pentavalent arsenic.

Arsenic is a naturally occurring contaminant found in many ground waters. There are two forms of arsenic: Pentavalent Arsenic [also called as As(V), As(+5) or Arsenate] and Trivalent Arsenic [As (III), As (+3) and Arsenite]. Although both forms are potentially harmful to human health, trivalent arsenic is considered more harmful than pentavalent arsenic.

Arsenic in water has no color, taste or odor. It must be measured by a lab test. Public water utilities must have their water tested for arsenic. You can get the results from your water utility. If you have your own well, you can have the water tested. The local health department or state environmental health agency can provide a list of certified labs.

RO systems do not remove trivalent arsenic from water very well. RO systems are very effective at reducing pentavalent arsenic. If you have free chlorine residual in contact with your water supply for at least one minute, the trivalent arsenic will be converted to pentavalent arsenic and reduced by RO systems. Other water treatment chemicals, such as: ozone and potassium permanganate, will also change trivalent arsenic to pentavalent arsenic. A combined chlorine residual (also called chloramine) may not convert all the trivalent arsenic. If you get your water from a public water utility, contact the utility to find out if free chlorine or combined chlorine is used in the water system.

The system requires regular replacement of all filters to maintain proper operation. Depending on usage and influent water quality, the sediment and carbon filters should be changed at least annually and the RO membrane should be replaced very 3 years. Variation of chlorine, sediment or TSD levels may affect replacement frequency.

Performance Data Sheet:

The VRO-3U has been tested and certified by NSF International according to NSF/ANSI 42 and 58 and the VRO-4U has been tested and certified by NSF International according to NSF/ANSI 58 for the reduction of the substances listed below.

The concentration of the indicated substances in water entering the system was reduced to a concentration less than or equal to the permissible limit for water leaving the system, as specified in NSF/ANSI 58. While testing was performed under standard laboratory conditions, actual performance may vary.

Performance Claims for VRO-3U and VRO-4U

Substance	Average influent challenge concentration	Maximum allowable product water level	Percent reduction requirement	Tested Performance	
				Product water level ①	Percent Reduction ①
NSF Standard 42					
Aesthetic Chlorine (VRO-3U post filter only)	2.0 mg/L ± 10%		≥ 50%		91.8%
Particulate Class III (VRO-3U post filter only)	10,000/mL		≥ 85%		99.9%
NSF Standard 58					
Arsenic (pentavalent)	0.30 mg/L ± 10%	0.010 mg/L		0.007 mg/L	99.2%
Barium	10.0 mg/L ± 10%	2.0 mg/L		0.43 mg/L	97.6%
Cadmium	0.03 mg/L ± 10%	0.005 mg/L		0.0014 mg/L	98.1%
Chromium (Hexavalent)	0.30 mg/L ± 10%	0.10 mg/L		0.009 mg/L	98.5%
Chromium (Trivalent)	0.30 mg/L ± 10%	0.10 mg/L		0.010 mg/L	96.7%
Copper	3.0 mg/L ± 10%	1.3 mg/L		0.1 mg/L	98.7%
Fluoride	8.0 mg/L ± 10%	1.5 mg/L		0.4 mg/L	95.7%
Lead	0.15 mg/L ± 10%	0.010 mg/L		0.005 mg/L	96.6%
Radium 226/228	25 pCi/L ± 10%	5 pCi/L		5 pCi/L	80%
Selenium	0.10 mg/L ± 10%	0.05 mg/L		0.002 mg/L	97.9%
TDS	750 ± 40 mg/L	187 mg/L		51 mg/L	93%
Cyst	≥ 50,000 /mL		99.95%		99.99%
Turbidity	11 ± 1 NTU	0.5 NTU		< 0.1 NTU	> 99.1%

Daily Production Rate: 23.30 gpd
Efficiency: ② **16.03**%
Recovery: ③ **30.11**%

① Tested by NSF International according to NSF/ANSI standard 42 and 58.

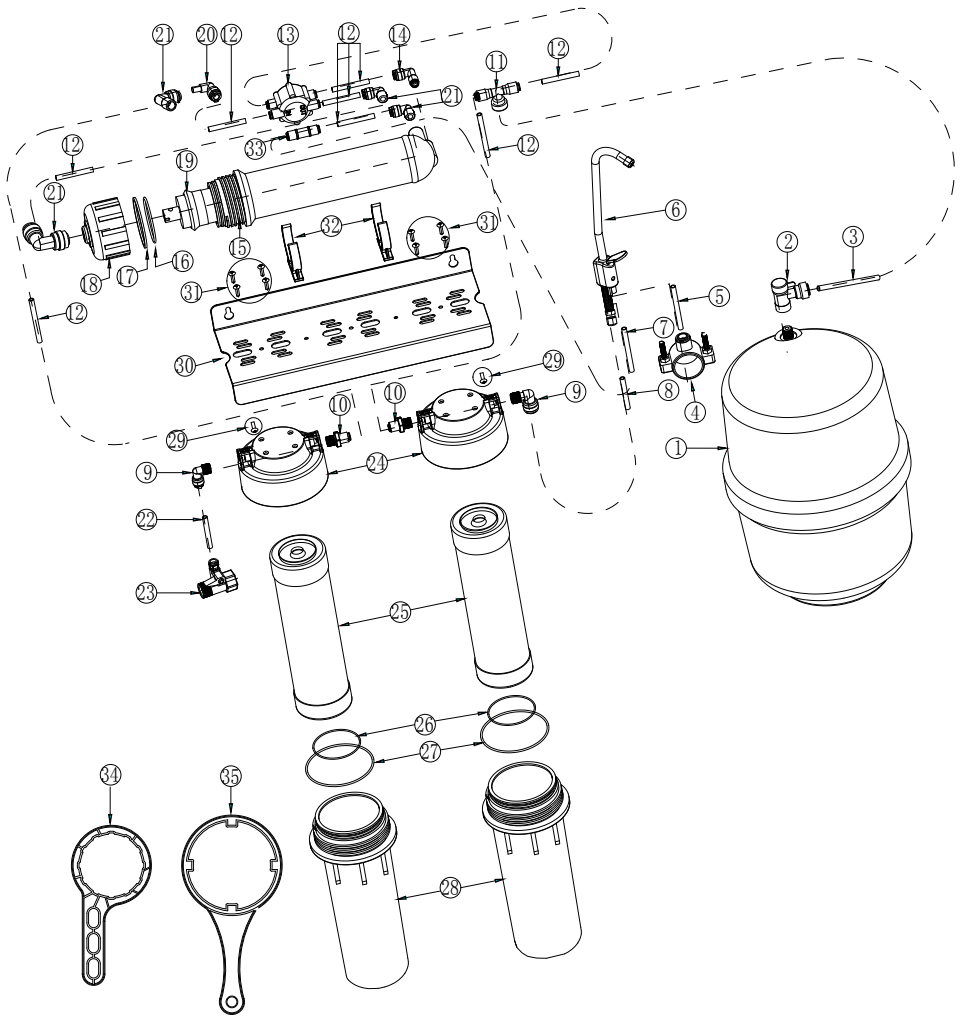
② Efficiency rating means the percentage of the influent water to the system that is available to the user as reverse osmosis treated water under operating conditions that appropriate typical daily usage.

③ Recovery rating means the percentage of the influent water to the membrane portion of the system that is available to the user as reverse osmosis treated water when the system is operated without a storage tank or when the storage tank is bypassed.

Manufactured and warranted by:
GHP Group
USA: 6440 W. Howard Street, Niles, Illinois 60714
Canada: 271 Massey Road, Guelph, Ontario, N1K 1B2

Replacement Parts List:

VRO-3U

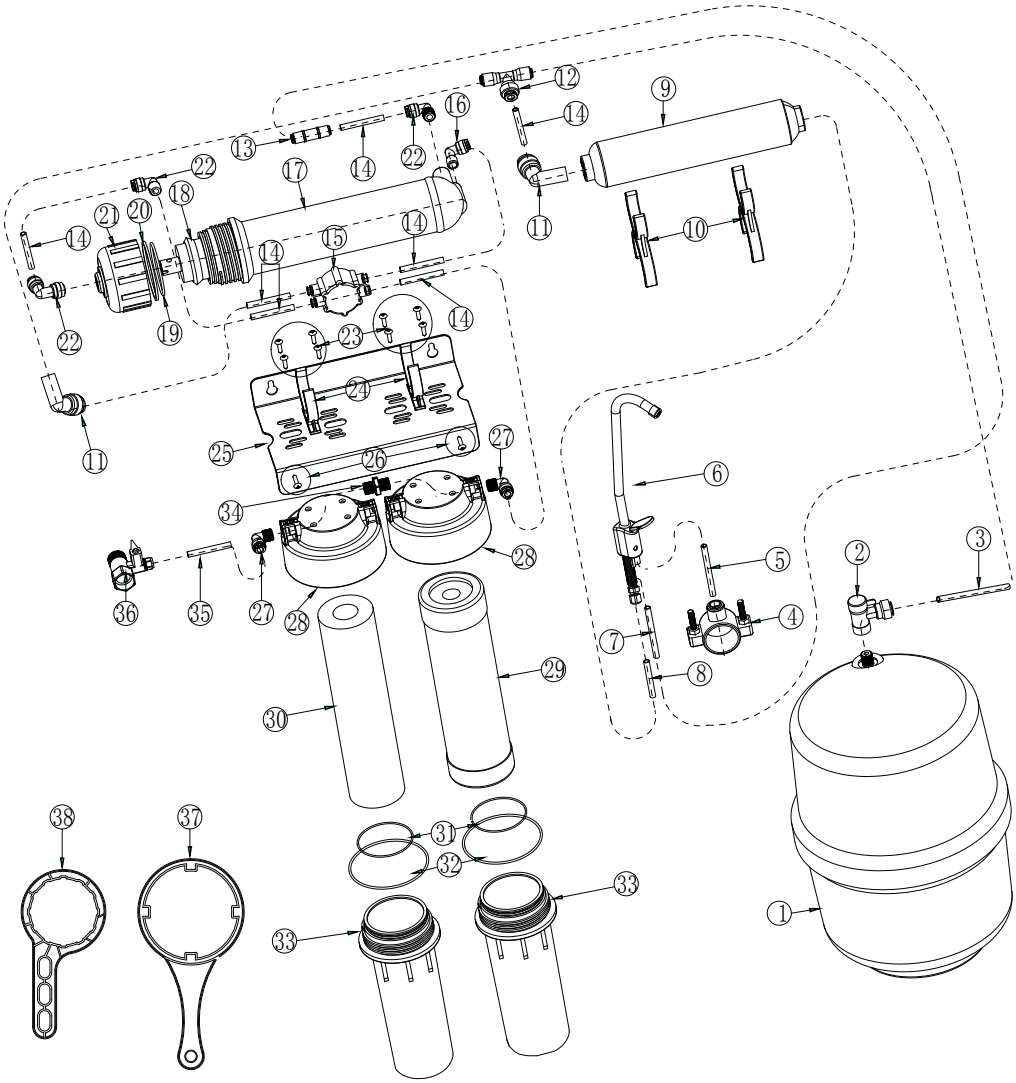


Part	Description	Part #
1	Storage Tank	YY.VRO3U-1
2	Tank Ball Valve	YY.VRO3U-2
3	6' of 1/4" Yellow Tubing	YY.VRO3U-3
4	Saddle Drain Clamp Set	YY.VRO3U-4
5	6' of 3/8" Black Tubing	YY.VRO3U-5
6	Air-gap Faucet Set	YY.VRO3U-6
7	6' of 1/4" Black Tubing	YY.VRO3U-7
8	6' of 1/4" Blue Tubing	YY.VRO3U-8
9	1/4" QC Elbow, Threaded	YY.VRO3U-9
10	1/4" QC Straight, Threaded	YY.VRO3U-10
11	1/4" QC Tee	YY.VRO3U-11
12	6' of 1/4" White Tubing	YY.VRO3U-12
13	Auto Shutoff Valve	YY.VRO3U-13
14	1/4" QC One-way Elbow	YY.VRO3U-14
15	RO Sump	YY.VRO3U-15
16	Small O-ring, RO Sump	YY.VRO3U-16
17	Big O-ring, RO Sump	YY.VRO3U-17
18	Cap, RO Sump	YY.VRO3U-18

Part	Description	Part #
19	RO membrane	VRFU-RO
20	1/4" QC Elbow, Plug-in	YY.VRO3U-20
21	1/4" QC Elbow	YY.VRO3U-21
22	6' of 1/4" Red Tubing	YY.VRO3U-22
23	Inlet Valve Set	YY.VRO3U-23
24	Filter Sump Head	YY.VRO3U-24
25	Carbon Block Filter	VRFU-CTO
26	Small O-ring, Filter Sump	YY.VRO3U-26
27	Big O-ring, Filter Sump	YY.VRO3U-27
28	Filter Sump	YY.VRO3U-28
29	Mounting Screw, Bracket	YY.VRO3U-29
30	Metal Bracket	YY.VRO3U-30
31	Mounting Screw, Filter Head	YY.VRO3U-31
32	C-shape Sump Holder	YY.VRO3U-32
33	Flow Restrictor, 300 mL	YY.VRO3U-33
34	RO Sump Wrench	YY.VRO3U-34
35	Filter Sump Wrench	YY.VRO3U-35

Replacement Parts List:

VRO-4U



Part	Description	Part #
1	Storage Tank	YY.VRO4U-1
2	Tank Ball Valve	YY.VRO4U-2
3	6' of 1/4" Yellow Tubing	YY.VRO4U-3
4	Saddle Drain Clamp Set	YY.VRO4U-4
5	6' of 3/8" Black Tubing	YY.VRO4U-5
6	Air-gap Faucet Set	YY.VRO4U-6
7	6' of 1/4" Black Tubing	YY.VRO4U-7
8	6' of 1/4" Blue Tubing	YY.VRO4U-8
9	Post Filter T33	VRF-T33
10	X-shape Sump Holder	YY.VRO4U-10
11	1/4" QC Elbow, Push	YY.VRO4U-11
12	1/4" QC Tee	YY.VRO4U-12
13	Flow Restrictor, 300 mL	YY.VRO4U-13
14	6' of 1/4" White Tubing	YY.VRO4U-14
15	Auto Shutoff Valve	YY.VRO4U-15
16	1/4" QC One-way Elbow	YY.VRO4U-16
17	RO Sump	YY.VRO4U-17
18	RO membrane	VRFU-RO
19	Small O-ring, RO Sump	YY.VRO4U-19

Part	Description	Part #
20	Big O-ring, RO Sump	YY.VRO4U-20
21	Cap, RO Sump	YY.VRO4U-21
22	1/4" QC Elbow	YY.VRO4U-22
23	Mounting Screw, Filter Head	YY.VRO4U-23
24	C-shape Sump Holder	YY.VRO4U-24
25	Metal Bracket	YY.VRO4U-25
26	Mounting Screw, Bracket	YY.VRO4U-26
27	1/4" QC Elbow, Threaded	YY.VRO4U-27
28	Filter Sump Head	YY.VRO4U-28
29	Carbon Block Filter	VRFU-CTO
30	Sediment Filter	VRFU-PP
31	Small O-ring, Filter Sump	YY.VRO4U-31
32	Big O-ring, Filter Sump	YY.VRO4U-32
33	Filter Sump	YY.VRO4U-33
34	Thread Coupling	YY.VRO4U-34
35	6' of 1/4" Red Tubing	YY.VRO4U-35
36	Inlet Valve Set	YY.VRO4U-36
37	RO Sump Wrench	YY.VRO4U-37
38	Filter Sump Wrench	YY.VRO4U-38

Warranty:

Limited Warranty:

This limited warranty is extended to the original retail purchaser of this filtration system and warrants against any defect in material and workmanship for a period of one (1) year from the date of retail sale. GHP Group, Inc., at its option, will either provide replacement parts or replace the unit, when properly returned to the retailer where purchased or one of our service centers as directed by GHP Group, Inc., within one (1) year of retail purchase. (Shipping costs, labour costs, etc. are the responsibility of the purchaser.)

Duties of the Owner:

This filtration system must be installed and operated in accordance with the written instructions furnished with this system. This warranty shall not excuse the owner from properly maintaining this unit in accordance with the instructions. A bill of sale, canceled check or payment record must be kept to verify purchase date and establish warranty period. Original carton should be kept in case of warranty return of the unit.

What is Not Covered?

1. Damage caused by misuse, installation or use contrary to the owner's manual and safety guidelines.
2. Use of this product where water is microbiologically unsafe or of unknown quality.
3. Damage of caused by a lack of normal maintenance and cleaning.
4. Use of non-OEM parts or accessories.
5. Damage caused in transit. Freight charges on warranty parts or products to and from the factory shall be the responsibility of the owner.

THIS LIMITED WARRANTY IS GIVEN TO THE PURCHASER IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. THE REMEDY PROVIDED IN THIS WARRANTY IS EXCLUSIVE AND IS GRANTED IN LIEU OF ALL OTHER REMEDIES. IN NO EVENT WILL GHP GROUP. INC. BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states/provinces do not allow limitations or how long an implied warranty lasts, so the above limitation may not apply to you. Some states/provinces do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you.

Claims Handles as Follows:

1. Contact your retailer and explain the problem
2. If the retailer is unable to resolve the problem, contact our Customer Service Dept. detailing the system model, the problem, and proof of date of purchase.
3. A representative will contact you. DO NOT RETURN THE UNIT TO GHP GROUP, INC. unless instructed by our Representative, or written authorization.

This warranty gives you specific legal rights and you may also have other rights that vary from state/province to state/province.

TO REGISTER THIS WARRANTY PLEASE FILL OUT THIS CARD COMPLETELY AND MAIL WITHIN FOURTEEN (14) DAYS FROM THE DATE OF PURCHASE OR REGISTER ON-LINE AT www.ghpgroupinc.com

NAME: _____ PHONE: ( ) _____ EMAIL: _____

ADDRESS: _____ CITY: _____ STATE/PROV: _____ ZIP: _____

MODEL: _____ SERIAL #: _____ DATE PURCHASED: _____

DEALER PURCHASED FROM: _____ TYPE OF STORE: _____

CITY & STATE WHERE PURCHASED: _____ PRICE PAID: _____

Please Take a Minute To Give Us Your Answers To The Following Questions.
All Responses Are Used Solely For Market Research And Are Held In Strict Confidence.

Who primarily decided this purchase? ☐ Male ☐ Female ☐ 18-24 ☐ 25-39 ☐ 40-59 ☐ 60 and over

Purpose of Purchase? _____

Do you own any other filtration systems? ☐ Yes ☐ No If yes, type_____brand_____

How do you intend to use your new system? ☐ Replace existing ☐ New location ☐ Other

How did you become aware of this system? ☐ In-Store Display ☐ Newspaper Ad ☐ Magazine Ad ☐ Friend/Relative ☐ TV Commercial ☐ Store Salesperson ☐ Other _____

What made you select this system? ☐ Style ☐ Reduction claims ☐ Price ☐ Package ☐ Brand ☐ Other _____

Would you recommend this system to a friend? ☐ Yes ☐ No

Please give us your comments:_____

THANK YOU FOR COMPLETING THIS FORM!
Information will be held confidential.