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REVERSE OSMOSIS SYSTEMS

USER'S MANUAL

Model #RCB3P

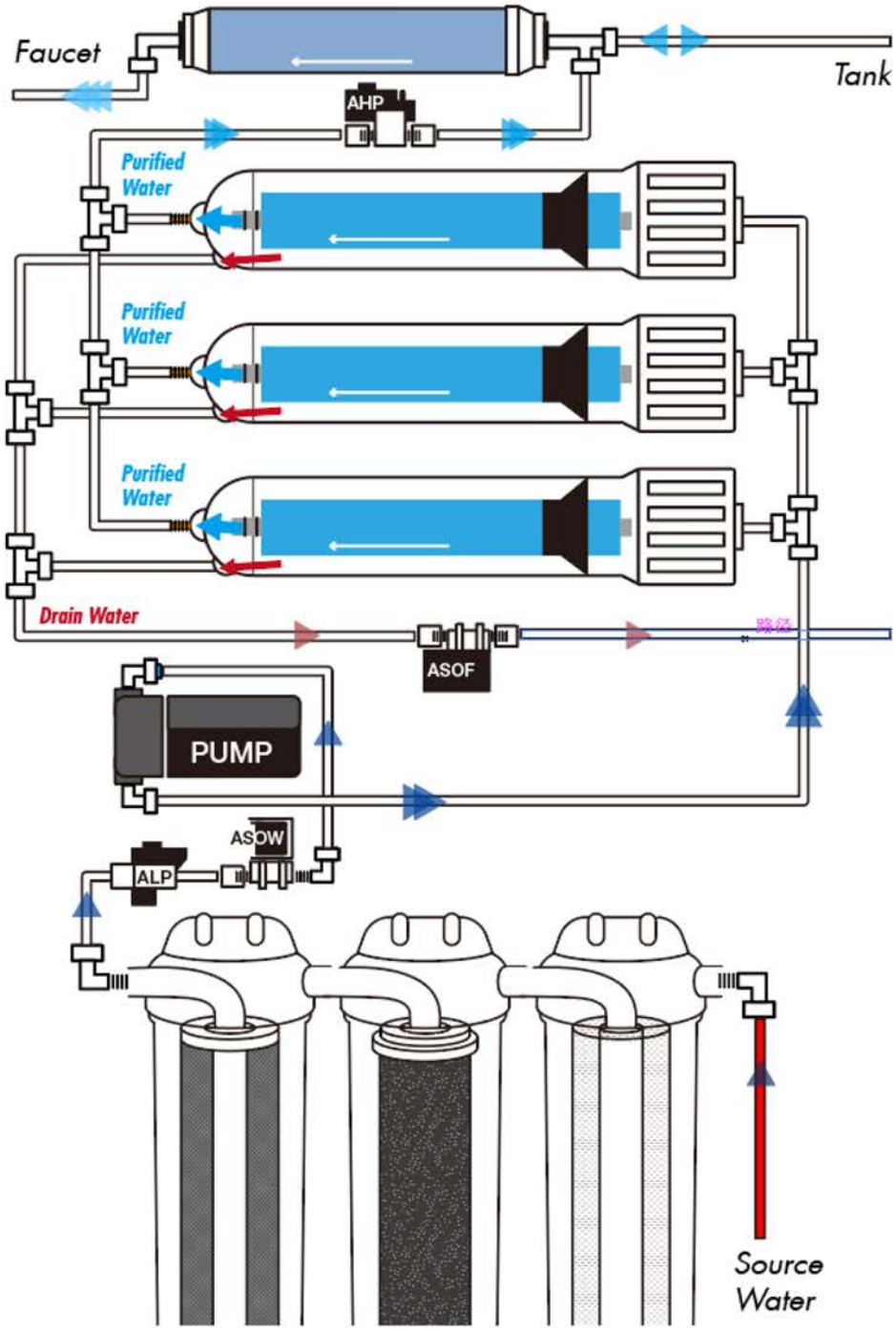
Specifications

- Production: 300GPD
- Safety approval: CE, UCS 18000, and RoHS
- Feed Water pressure: 25 - 90 psi
- **Feed Water Temperature: 40 - 100 °F (4 - 38 °C)**
- Feed Water pH: 3.0 -11.0
- Max Total Dissolved Solids: 750 ppm
- 5-micron Sediment Filter (1st Stage)
- GAC Carbon Filter (2nd Stage)
- CTO Carbon Filter (3rd Stage)
- 3 of 100 GPD RO membranes (4th Stage)
- Post Inline Carbon Filter (5th Stage)
- Booster pump: Input 110AC (Some models good for 110-240V)
- Drinking Water Faucet
- No storage tank included. Can be installed to 11-20 gallon tank
- Feed water connector & deliver valve
- Drain saddle valve
- Food-grade 1/4 inch tubing for system connection

Tools & Materials That May Be Required For Standard Installation:

1. Safety Glasses. 2. Variable Speed Drill with 3/8" Chuck.
3. 1/4"Drill Bit.
4. 1 1/4" Hole Saw (If additional hole is needed in sink for faucet).
5. Extension Cord, Drop Light or Flashlight. 6. Teflon Tape
7. Plastic Anchors & Screws. 8. Razor Blade, Screw Driver, Pliers, Adjustable Wrench (2). 9. Pencil & Old Towels.
10. Basin Wrench, Center Punch & Hammer.
11. Porcelain Drill Kit (Porcelain sink requiring additional hole).

Installation Diagram



Step 1 - System Positioning and Preparation

1. The Reverse Osmosis (RO) System is designed to fit under most sinks. It is also commonly installed in the utility area of lower levels or basements and the tubing extended up to the faucet and/or ice maker. It can be installed anywhere that will not present a problem of freezing in the winter. Basement installations offer cooler water during the summer months. It would also provide easy access for filter changes and easier connection to a refrigerator icemaker or a second faucet in a bathroom or wet bar. Furthermore, it does not take up valuable space in your kitchen cabinets. It may also be a less worrisome location should a leak develop. In the warm weather areas, an attached garage might offer a suitable location. If it is put under a kitchen cabinet, extra tubing in its connection might be advisable, since you could remove it for filter changes without disconnecting it. However, since most installations are performed under a kitchen sink, this guide will describe that procedure. Think about your installation before you begin. Remember that good access will allow easier filter changing.

2. Install filters and membrane in housings.

   Pre Filters: Three pre filters may be packed separately. Remove the filters' wrap, and from right to left, put in **Sediment, GAC and CTO cartridges** respectively. Make sure the O-ring is fully seated in the groove. Stretch the O-ring in case it shrank during storage.

   RO Membrane: Remove the membrane housing cap, install the membrane by carefully pushing the spigot end into the socket at the far end of the housing until completely in. Make sure the end of 2 black rings goes in first.

   UV Lamp (optional): The UV lamp may be packed separately. Insert the UV lamp to the quartz sleeve (cylinder), and then put them inside the stainless-steel housing and tighten up.

3. Hand-tighten all fitting connections to be sure they are tight.

Step 2 – Install Water Supply Connector

- The water supply connector that comes with the unit is made up of two parts;
- Water Supply Connector 1/2" male x 1/2" female NPT. Simply

disconnect cold water line from angle stop bottom or from faucet stud on top. Complete with cone-washer and seal.

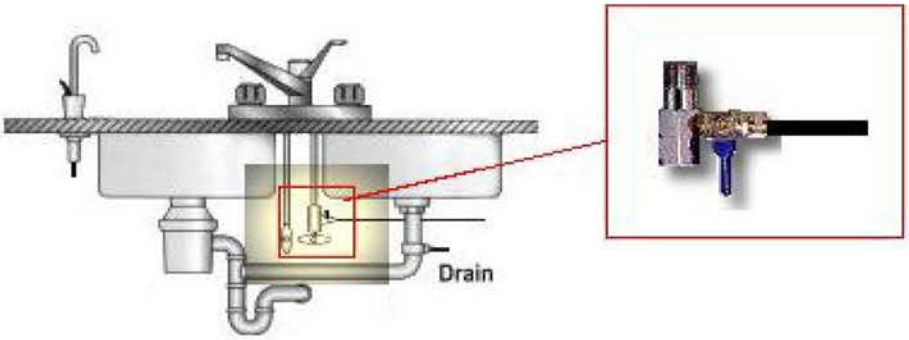
Water Supply Connector

(3/8"MIP x 3/8"FIP, L:36mm)

Shut-Off valve

(1/4"MIP x 1/4"OD1/4")

1. Assemble the water supply connector by inserting the Deliver-valve. Screw the deliver-valve into the side of the water supply connector using 5 to 10 wraps of Teflon tape.
2. Disconnect the water supply line from the cold-water faucet underneath sink. Follow the pipe up from the shut-off valve toward faucet until you reach a coupling nut (may be all the way up to the faucet). Unscrew coupling nut. Screw water supply connector onto previous location of coupling nut. Hand tighten and then one more complete turn with wrench. Re-attach water line coupling nut to water supply connector. If the handle of auto-shutoff valve is turned perpendicular to the water line, this is the "OFF" position for your new RO system.



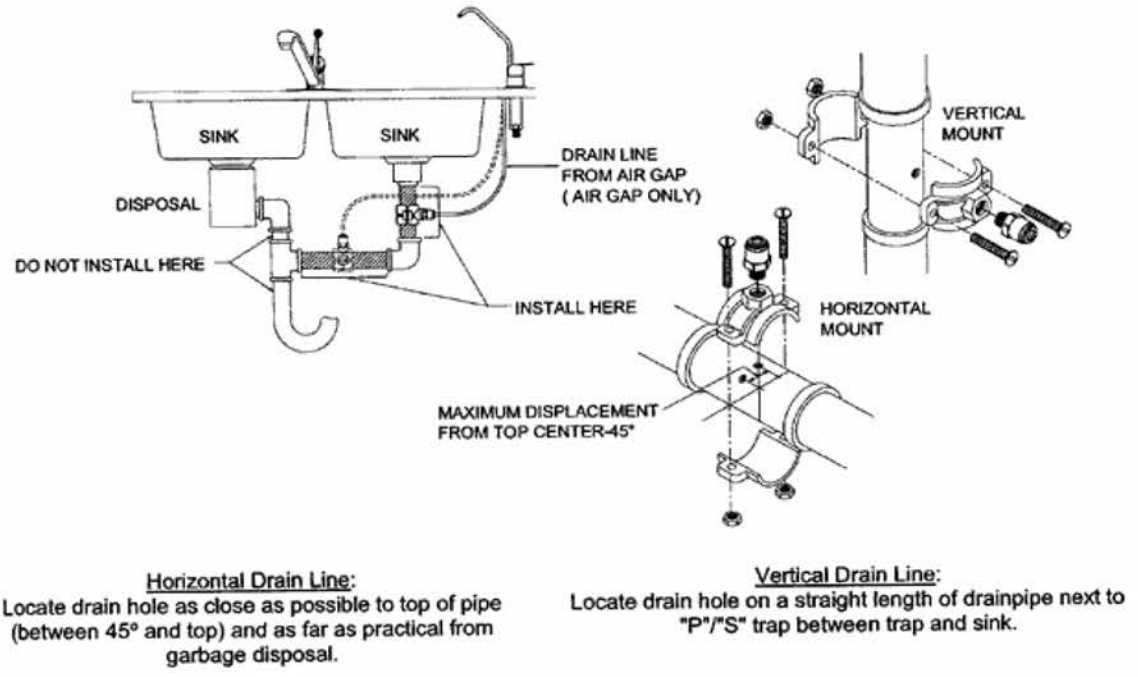
INSTALLATION OF WATER SUPPLY CONNECTOR

Caution:

1. When tightening water supply connector, make sure the tube you are connecting water supply connector to is not being twisted. Use two wrenches if necessary, one to hold existing nut and the other to turn the connector.
2. Examine existing cone shaped washer screen, adjust or replace if damaged or worn with new cone shaped washer screen.

3. Do not use a tube insert on the incoming water line connection. This will restrict the flow and/or pressure to the system and cause it to run continuously, possible fouling the membrane.

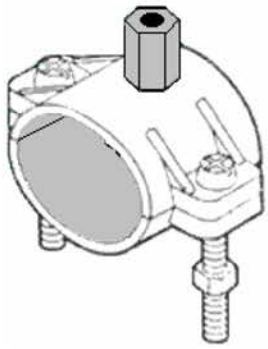
Step 3 - Install "Drain Saddle"



Horizontal Drain Line:
Locate drain hole as close as possible to top of pipe (between 45° and top) and as far as practical from garbage disposal.

Vertical Drain Line:
Locate drain hole on a straight length of drainpipe next to "P"/"S" trap between trap and sink.

1. Sink With Disposal - Select location to place drain saddle. Best choice is the vertical pipe above the horizontal pipe from garbage disposal. OR Sink Without Disposal - Best choice is the vertical pipe as high above the water level in the trap as possible. The drain line may also run directly into a laundry tub or open floor drain. (Drain line can run uphill and even distances of more than 100 feet.) Try to keep the saddle as far away from the dish washer and waste disposal drains as you can. Do not use the body ofthe saddle as a guide for your drill. The threads of the drain saddle may be damaged. You do not need a plastic insert on the end of the tube that attaches to the drain saddle.



2. To install, drill a 1/4" hole (3/8" for air-gap faucet) through one side of the drain pipe. Remove any "burrs" created from drilling. This will help prevent debris from plugging drain hole. Align and center gasket on hole between pipe and drain saddle. Align the hole in the drain saddle with the hole in the drain pipe. Tighten down the drain saddle firmly.

Step 4 – Install R.O. Faucet (Standard Non-Air-Gap faucet)

1. Most sinks have an extra hole for the mounting of additional faucets, sprayers or soap dispensers. If your sink does not already have an additional hole, use the following procedure.

   Determine Location of Faucet Hole. Check underneath sink before drilling, making sure there are no obstructions. If using an air-gap faucet, place faucet so water from air-gap hole on side of faucet will run down into sink if drain tube were to plug. Place an old towel under sink to catch any metal filings to make clean up easy.

   Stainless Steel Sink. Carefully mark the faucet location, making sure it is far away enough from the regular water faucet(s) so that they don't interfere with each other. Look to see if you can tighten the lock nut from below, before you drill a hole. Use center punch to make an indentation in sink surface to help hold alignment of hole saw. Drill a 1 1/4" hole with hole saw. Smooth out rough edges with a file if necessary.

   Porcelain Coated Sink. The manufacturer recommends to have this type of sink professionally drilled because of possibility of chipping or cracking. If you are attempting to drill, use extreme caution. Use a Cutter with adequate cooling lubricant.

   You may also install the faucet directly into the countertop if you do not want to drill the sink. Position the faucet at the location to be drilled to make certain that the end of the spout will reach over the sink. Feel underneath the countertop to make certain there is no obstruction that would prevent proper faucet installation. Drill a 1 1/4" hole for both the air gap and non air gap faucets.

2. Once the hole is prepared, assemble those parts of the faucet that belong above the sink. First, the faucet spout. Some faucet spouts have threads, most do not. It is not necessary to tighten the faucet spout. It is preferable to let it move freely. Then you can move it out of the way when you wish. Insert the faucet stem into the hole in the faucet body. No plumber's putty is needed, since the small round rubber washers will provide the seal.
3. The small, flat, black rubber washer goes underneath the faucet body, then the large chrome base plate, and then the large black rubber washer.
4. From under the sink, slide on the thick black plastic washer first, then slide on the locknut & screw on the brass hex retaining nut. Tighten firmly into place once the faucet is properly

aligned. If a small adjustment is needed from above, pad the jaws of the wrench, so as not to scratch the chrome finish.

Step 5 - Preparing the Storage Tank

1. Wrap the threads on the tank 3 or 4 times with Teflon tape (don't use any other type of pipe compounds).
2. Screw plastic ball valve on to the Teflon taped threads on the tank (approximately 4 to 5 full turns - do not over tighten - ball valve can crack).
3. Tank is pre-charged with air at 7 psi when empty. Tank can be laid on its' side if necessary.

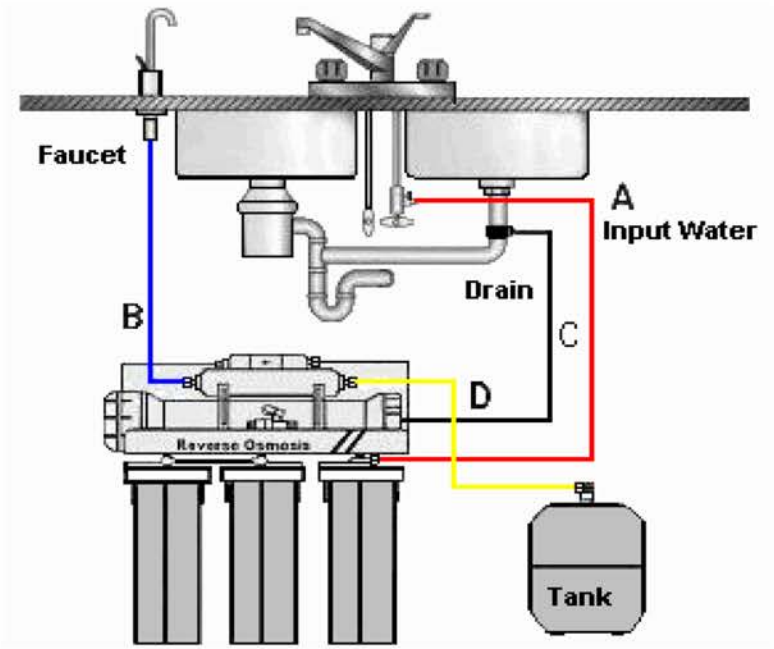
Step 6 - Tube Connections

It is recommended to provide generous length of tubing during installation (except drain tube). This will make future servicing and filter changing easier. Divide the tubing into 4 pieces equally, one for Supply Tube, one for Tank Tube, one for Faucet Tube, and one for Drain Tube.

Tighten all fittings firmly by hand then 1 1/2 to 2 full turns with a wrench. Don't overdo it and strip the plastic threads.

1. **Supply Tube** Slide the tube through nut on the water supply connector and then slide on plastic ferrule with the tapered end facing the seat on the fitting. Then firmly insert the tube into fitting on the feed water tap valve. Tighten firmly with a wrench. Cut the tube to length to reach the RO system. Use a razor blade to cut the tube. Be careful to make a smooth, flat, square cut. Do not crush tube. Using the above procedure, connect the other end to the water inlet (this is the first filter housing that holds the **sediment pre filter**). This is the connector on the side of the filter housing that does not already have a tube hooked up to it.
2. **Tank Tube** Place tank and filter cartridges into their positions under the sink. Connect the tube to fitting on the end of **the post carbon filter.** (this fitting is a "T" fitting) Tighten firmly. Connect the other end ofthe tube to the tank valve.
3. **Faucet Tube** Connect the tube to threaded connector on the bottom of the faucet. This is the center post of the faucet. Use supplied brass hex nut and plastic ferrule. Cut to length and connect the other end to the post filter (the end of **L** fitting).

4. **Drain Tube - Non-Air Gap Faucet** Connect the tube to the RO system drain fitting. This is the fitting on the loose line behind the RO membrane housing. Tighten firmly so tube will not pull out of fitting. There is a small cylindrical **flow restrictor** in this line that will help identify it. Cut tube to length and connect the other end to the drain saddle that you installed earlier. Tighten firmly.



A. RED: Connect the tubing from the water supply connector to Sediment filter canister.
B. BLUE: Connect the tubing from post inline filter (end with an **elbow**) (or from UV or DI) to the sink top faucet.
C. BLACK: Connect the tubing from Flow restrictor to the drain saddle.
D. YELLOW: Connect the tubing from post inline filter (end with a **Tee**) to the storage tank.

Check all fittings to be sure that they are all securely tightened.

Step 7 - System Start-Up Procedures

1. Plug in electricity of the UV lamp (for UV system only) or plug in the electricity for Booster pump (for RO system with electric booster pump only).
2. Turn off storage tank valve so that no water may enter tank. Turn on the cold water supply valve to the sink. Check for leaks around water supply connector.
3. Open R.O. faucet on sink. Open water supply connector to turn on water to the RO system. You will hear water gurgling and filling the RO system. Water may take 10-15 minutes before dripping out

faucet and at first may be black. Let water drip out of faucet for 30 full minutes and then close faucet. This flushes the carbon filters on first time use.

4. Open ball valve on storage tank. Let tank fill for 2 to 3 hours (if you are changing filters, your tank may already be full, so you would not need to wait). Then open R.O. faucet. Drain tank completely (about 15 minutes). Shut R.O. faucet off and drain again in 3 to 4 hours. When the storage tank is empty, there is only a small flow from the sink top faucet.
5. Close the sink top faucet. After 2-3 hours, drain the second tank completely. The system is now ready for use.
6. Check for leaks daily for the first week and occasionally thereafter.

Step 8- Recommended Filter Service Life and Change Cycle

1. Sediment, GAC carbon, and carbon block Pre-Filters: Change every 6 to 12 months (more often in areas with very high turbidity in water).
2. R.O. Membrane - The R.O. membrane would be changed when rejection rate falls to 80%. The rejection rate should be tested every 6 to 12 months. The membrane can last up to 5 years depending on the water quality, the hardness of the water coming into the system and the frequency of filter changes. The only way to know when it is time to change the membrane is to know when the rejection rate of TDS falls below 80%. To do this you will need a **TDS tester (total dissolved solids).** This allows you to compare the amount of TDS in the incoming water vs. the drinking water. TDS testers are a basic tool in proper maintenance on any reverse osmosis system.
3. Carbon Post Filter - This filter needs to be changed every 12 months to insure quality water. Do not wait until taste is a problem.

Step 9 - Filter and Membrane Changing Procedures

1. **Sediment, GAC, and Carbon Pre filters** - Turn valve to off position on water supply. Turn off storage tank ball valve. Open R.O. faucet to help de-pressurize system. Unscrew filter housings by turning counter clock wise. Remove old filters and discard. Clean filter bowls in warm soapy water. Rinse and add two table spoons of liquid household bleach and fill with water. Let stand for 5 minutes. Empty and rinse well with running tap water. Insert new filters into appropriate housings. Do not touch the filter. Use the wrapper to handle. Replace **"O" rings** as necessary. Be sure **"O" ring** is clean, lubricated and seated

properly when tightening. We recommend **Dow Corning 111** silicone sealant.

2. **Post Carbon Filter** - Unscrew white plastic **Jaco** nut from both ends of post filter, or, if **John Guest Quick connectors**, remove clear plastic tubes. Unscrew and remove plastic fittings, if Jaco. Discard old filter. Wrap Jaco fittings with Teflon tape and re-install into new post filter. Tighten white plastic nuts to the ends of the new filter. Then approximately 1 1/2 more turns. **Do Not Over Tighten.** Make sure the arrow on the new filter is going with the flow of the water toward the faucet.
3. **R.O. Membrane** - Turn the water off at the inlet tap valve and open the faucet. Drain the tank. Close the faucet. Close the valve on the tank. Disconnect the tube going into the end of the membrane housing on the end that has only one tube going into it. Unscrew the end cap of the membrane housing. Water will pour out. Pull out the old membrane and clean the inside of the membrane housing with warm soapy water. Membranes must always remain moist once wetted (installed). If the membrane is going to be reinstalled it should be put in a zip lock baggie of RO water and set into the refrigerator (not the freezer). Insert the new membrane in the direction of the arrow on the membrane. The end with the two small "O" rings goes in first on the regular, **industry standard membranes**. The end with the large rubber ring (brine seal) goes in last, next to the removable end cap. Be sure that the center tube of the membrane is seating into the receiver in the bottom of the housing. Push firmly! Screw the end cap back on and reconnect the tube to the membrane housing. Open the faucet. Open the inlet feed water tap valve. Do not open the tank valve. Allow the water to drip from the faucet for 1 hour. This will fulfill the requirement of flushing the membrane as may be described on the membrane packaging. After one hour, close the faucet and open the tank valve. Allow the system to fill the tank and shut off. Then open the faucet and drain the tank. Repeat this 1 more time, for a total of 2 full tanks to fill and then drain. This will flush the preservative from the membrane prior to drinking and any black, dirt looking, **carbon fines** from the GAC post filter.
   Do not touch the membrane. Use the clean rubber gloves or the wrapper to handle it.

Check the air pressure in the tank each time that you change filters. It is very important that the air pressure is correct.

CONGRATULATIONS!!! YOU'RE DONE!!!

Limited Warranty

For a period of one year from the date of original purchase, we will replace or repair any part of the reverse osmosis water system that we find to be defective in operation due to faulty materials or workmanship except for the replaceable filters and membranes.

Damage to any part of this reverse osmosis system because of misuse; misapplication; negligence; alteration; accident; installation; or operation contrary to our instructions, incompatibility with original accessories, or damage caused by freezing, flood, fire, or Act of God, is not covered by this warranty. In all such cases, regular charges will apply. This limited warranty does not include service to diagnose a claimed malfunction in this unit. This warranty is void if the claimer is not the original purchaser of the unit or if the unit is not operated under normal municipal water or well water conditions. We assume no warranty liability in connection with this Reverse Osmosis System other than as specified herein. We shall not be liable for consequential damages of any kind of nature due to the use of this product. Our maximum obligation under this warranty shall be limited to a refund of the purchase price or replacement of a product tested to be defective.

Recommended Maintenance Schedule

Stage	Filters Description	6 Months	1 Year	2-4 years	5-7 years
1	5 Micron Sediment Filter	✓			
2	GAC Filter	✓			
3	Carbon Block Filter(CTO)	✓			
4	100 GPD RO Membrane			✓	
5	Inline Post Carbon Filter		✓		

Please visit our online store at **www.123filter.com** for all your future filter needs. Send us an email to support@ispringfilter.com for any question you have. ***Better water, better health!***

Service Record

Date of Purchase_____Date of Install:_____Installed by:_____

Date	1st Stage Sediment (6 months)	2nd Stage GAC Carbon (6 months)	3rd Stage CTO Carbon (6 months)	4th Stage membrane (1-3 years)	5th Stage Inline Carbon (1 year)

Notes: