iSpring Reverse Osmosis Water Filter Systems

OWNER'S MANUAL

Ver 2005-6

123Filter.com

iSpring Water Systems, LLC (since 2005)

Thank you for choosing the iSpring Reverse Osmosis Water Filtration System.
It was built from quality components, and has earned **WQA GOLD SEAL** certification against NSF/ANSI STANDARD 58 for performance and material safety. Please check the attached **iSpring RO Systems WQA Gold Seal Certification** for details.

OWNER'S MANUAL

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Section 1: Knowledge Base

What Is Reverse Osmosis?

Reverse osmosis, also known as hyper filtration, is a membrane filtration process that separates undesirable materials from water by using pressure to force the water molecules through a semi-permeable membrane. This process is called "reverse" osmosis because the pressure forces the water to flow in the reverse direction (from the concentrated solution to the dilute solution) to the flow direction (from the dilute to the concentrated) in the process of natural osmosis. Reverse osmosis is used to purify water and remove salts and other impurities in order to improve the color, taste, odor and/or properties of your water. R/O filtration can remove up to 99% of most contaminants including arsenic, nitrates, radium, chromium, fluoride, and dissolved solids such as sodium, calcium, iron, magnesium, copper, etc.

How Effective Is Reverse Osmosis Filtration?

Reverse osmosis filtration is by far the most effective and economic method of water filtration. It filters water by squeezing water through a semi-permeable membrane, which is rated at 0.0001 micron (equal to 0.00000004 inch). This is the same technology used to make bottled drinking water. It is also the most used technology for desalinating seawater, making it into drinking water.

What are the specific contaminants that a reverse osmosis system removes?

iSpring Reverse Osmosis filtration systems reject a wide variety of impurities. Here is a partial list:

Item	Rejection Rate	Item	Rejection Rate
Aluminum	97-98%	Manganese	96-98%
Amoebic Cysts	99%	Mercury	96-98%
Ammonium	85-95%	Nickel	97-99%
Arsenic	94-96%	Nitrate	93-96%
Asbestos	99%	PCBs	97%
Bacteria	99+%	Pesticides	90+%
Barium	90-98%	Phosphate	99+%
Bicarbonate	95-96%	Polyphosphate	98-99%
Boron	50-70%	Potassium	92-97%
Bromide	93-96%	Proteins	90+%
Cadmium	96-98%	Protozoa	99%
Calcium	96-98%	Pyrogen	99+%
Chloride	94-95%	Radioactivity	95-98%
Chromate	90-98%	Radium	97%
Chromium	96-98%	Sediment	99%
Copper	97-99%	Selenium	97%
Cryptosporidium	99%	Silica	85-90%
Cyanide	90-95%	Silicate	95-97%
Detergents	97%	Silver	95-97%
Ferro cyanide	98-99%	Sodium	92-98%

Fluoride	94-96%	Strontium	90-95%
Giardia	99%	Sulfur/Sulfate	97-98%
Hardness	93-97%	Sulphite	96-98%
Herbicides	97%	TDS	95-99%
Hydrocarbons	90+%	THMs	90+%
Insecticides	97%	Trichlorethylene	90+%
Iron	98-99%	Virus	99+%
Lead	96-98%	Zinc	98-99%
Magnesium	96-98%		

Note: You may or may not have these contaminants in your water. The percentage rejection rate is for reference only. Percentages may vary since water chemistry varies in each water supply.

Does Reverse Osmosis remove pharmaceuticals from water?

Yes, the 5-stage RO with carbon pre filters can remove most of pharmaceuticals from water. An activated carbon filter gives these contaminants a charge so they are absorbed and removed.

Will a reverse osmosis water system taste as good as the water I pay $5.00 a bottle for?

Yes! Sometimes better, depending how well the bottled water company is maintaining their purification equipment. Reverse Osmosis is the same process used by most major bottled water companies. Even some companies that use "spring water" still use Reverse Osmosis to insure purity.

I have heard that reverse osmosis wastes a lot of water!

It wastes a little but not a lot. On the average, these systems will use less than 2% of your home's total water consumption. In addition, all Our Reverse Osmosis Systems use automatic shut off valves. The drain will stop when the tank is full. The ratio of drain water to RO water is 2:1 for all of our RO systems. For a regular residential household, the waste water per day is about 3 more flushes of toilet, which is not too bad.

What is Alkaline Filter?

The Alkaline filter changes the acidic RO water into a perfect Natural Alkali Calcium Ionized Water. The Alkaline filter simply gives back minerals such as ionized calcium, magnesium, sodium, potassium ion, which were taken away while purifying the water.

- Produces perfectly ph-balanced alkaline water, helps minimize the fluctuations of your body's pH
- Turn acidic drinking water into alkali calcium ion water.
- This natural calcium, magnesium, sodium, potassium ions can be absorbed 100% by the body.
- It is easily absorbed in the body because it has structurally smaller molecules which help the body take in more water and replenish quickly lost water.
- Makes the water cleaner and healthier.
- This filter improves the qualities of clean water by adding necessary for proper human development and health minerals, such as Calcium, Magnesium, Sodium, Potassium and others readily found in many natural mineral waters.
- Mainly installed with RO systems to complement their absolute filtration qualities

What is DI filter?

DI stands for deionization. De-mineralize filter takes the full size RO to a higher level of filtration. It is an excellent inline filter, especially those who live in areas with exceptionally high levels of TOTAL DISSOLVED SOLIDS (TDS) in their tap water. The post deionizer takes the small percentage of contaminants that the membrane could not remove and filters this to greater than 99.99% pure. It will give you close to 0 ppm TDS, Conductivity attainable less than 0.1uS/cm or resistively of close to 18 meg.ohm

What is UV filter?

Our UV filter comes with 11W UV sterilization lamp in a stainless still housing. UV kills 99% of virus and bacteria. The UV light of wavelengths between 250 and 270 nanometers (UV-C or UVC band) is extremely effective in killing many species of bacteria, mold spores, viruses and other microorganisms. UV filter is recommended for customers who uses well water, rain water, or has bacteria concern on their water.

What is a TDS meter?

A TDS meter is a Handheld Total Dissolved Solids Tester. Total Dissolved Solids are the total weight of all solids that are dissolved in a given volume of water, expressed in units of mg per unit volume of water (mg/L), also referred to as parts per million (PPM). With a TDS meter, you can easily compare the quality of RO water with your original source water.

Maximum distance from tank to faucet

A maximum distance from tank to faucet of 15 feet is possible. The system will produce a faster flow at the faucet with the shortest tubing run from tank to faucet.

Section 2: Troubleshooting Guide

Leaking around filter housing (O-ring too small or not in place)

First of all, please check if all filter cartridges are sitting upright inside the canister. Then, check if O-ring is properly in place. The o-rings may be a little too small, please stretch it out and put it back inside the groove. You may over-stretch a little so when it is back to the canister, it will shrink and fit just right. Then insert the cartridge to the top cap, screw the canister all the way up. MAKE SURE O-RINGS are staying in place during this process. Then use a wrench to tighten (no need to over tighten it).

Little water out of faucet, tank is heavy and appears full of water, but the stream turns very weak after a few seconds

If there is no change in the supply water pressure, the problem is very likely from the tank. It could be due to low tank pressure or broken bladder. Perform the following steps first?

- Shut off main water supply
- Get a bucket under the tank and remove tank by disconnecting the ball valve.
- Dump the water from the tank by turning it upside down (through the top stem). You may add air from the front valve to help emptying the water.
- Use a gauge at the front air valve to check tank pressure. It should be within 7-10 PSI. If too low, you can use a bicycle pump to add more pressure to the tank.
- Re-connect tank to the system and turn on the water supply.

Continuous drain

All RO systems create drain water. The drain water should run only when the system is making water. The ratio of drain water to RO water is about 0.8-3:1 for our RO systems (Pumped, Side-Flow systems have lower ratio). For a regular residential household, the waste water per day is about 3 more flushes of toilet, which is not too bad. The drain should stop after the tank is full. Allow 3 hours for the tank to fill up. If the drain is still running, the problem might be caused by the following reasons?

- Faulty automatic shut-off valve (ASV, the white square valve that connects to 4 tubings),
- Faulty check valve (at the pure water outlet of the membrane housing),
- Faulty flow restrictor (the small tube that marks "flow 300" and connects to the drain line).
- Low tank pressure.

High TDS level in RO water

The RO system should produce a TDS rejection rate of about 85-95%. Check the following first?

- What is tap water TDS reading? Is there a sudden increase in tap water TDS level.
- Has the RO membrane been installed? It is packed in a vacuum plastic bag and in blue color, located in the accessory box.
- Possibility of reverse drain line and pure water line. Compare your tubing connection to the diagram on the manual and check.

Tastes and Odors in Product Water

Possible Cause	Solution
Carbon Post Filter is exhausted.	Replace Filter.
There is foreign matter in Holding Tank.	Clean, flush and sanitize the Holding Tank. Replace filters.
Product water and Drain water lines are reversed.	Correct plumbing.
Dissolved gases in feed water.	Pre-treat feed water to remove gasses.
Increase in Product Water TDS.	See High TDS in Product Water Section

Faucet Leaks or Drips

Possible Cause Solution Water leaks from faucet spout. Adjust faucet by turning the tee bar located under the handle to provide a small amount of free play in the handle when shut off. Should this not work, repair or replace the faucet. Leaks from beneath the handle. Repair or replace the faucet.

What is an ASOV and what does it do?

ASOV is automatic shut-off valve. This valve allows your system to turn off the water supply, using pressure from the pure water side of the system. It will turn off the water supply to the unit, whenever there is sufficient pressure on the pure water side of your system. ASOV is a must. It saves water, extends filter life, and improves the performance of your unit. As the storage tank fills the pressure inside increases, when the pressure equals ½ to 2/3 your feed water pressure, the water to the system is shut off. No waste. Since you subtract the storage pressure from the operating pressure, the storage pressure needs be limited.

Cloudy ice cubes or milky colored water

Bad membrane Use TDS Meter to check membrane. Replace membrane and sanitize when below 75% rejection. Water supply High oxygen content. Tiny frozen bubbles. System is still new This is normal and should clear up in two weeks

UV lamp compatibility

We have upgraded the UV lamp to a higher-quality brand (Philips) with 2 pins at each end since last November 2011. If your system was purchased before Nov. 2011, a new UV transformer and a UV wire are required. The transformer is available for sale at 123filter.com, under model # UVT11. However, for old customers, we will offer $15 discount for the new transformer, and no charge on the wire. Please go to 123filter.com and type in UVB11 and UVT11, then remark about the $15 discount and the free wire.

After installation, the water out of the RO faucet is only a trickle. Is this normal?

Reverse osmosis is a very slow process. Water flow is only continual drop if bypassing the tank. With the pre-pressured tank, the water out of the faucet will be about 7-10PSI (tank's pressure), which is pretty strong flow. It takes about 2-3 hours to get the tank filled up, then the system will shut off automatically and drain stops running.

Sudden drop in RO water production: There are a few potential factors causing the problem?

- Feed water valve is plugged or closed.
- Sediment/Carbon prefilter or Carbon Post Filter is clogged.
- Low incoming water pressure.

- Reverse Osmosis Membrane is fouled.
- Air pressure in holding tank is incorrect.
- Air Bladder in Holding Tank is ruptured.
- Holding Tank valve is closed.
- No water to drain. Drain Flow Restrictor is clogged.
- Check Valve on RO Membrane Housing is stuck.
- The Automatic Shut-Off Valve is Malfunctioning.

Will the water out of UV filter be hot?

Traditional, the water coming out of the UV filter is a bit hot, up to 117F, for the first few seconds. However, iSpring UV filter features Smart Flow Sensor valve that automatically turns on and off UV by water flow, simultaneously controlled by drinking faucet. The UV stays off until drinking faucet is turn on. So no more hot water out of UV filter.

How do you compare your tankless RO system RCS5T to GE Merlin 700GPD system?

Our RO system is a complete 5-stage filtration system, with 3 pre filters (Sediment, GAC, and CTO), Side-Flow® membranes, and post filter; while the GE Merlin 700GPD has only one prefilter (either sediment or carbon), two membranes, and 1 post filter. Therefore, the GE Merlin is for use in light commercial applications where a separate pre-filter system or backwashing carbon filter system will be utilized. Also, our tankless RO system utilizes patented Side-Flow technology, which waste ratio is less than 1, as compared to the 3:1 in other systems, saves up to 2/3 of water.

How to reach us

Local / International: 678-261-7611 Monday - Friday 9AM - 5PM EST

Fax: 678-530-1070

Office Hours: Monday-Friday 9:00 a.m. - 5 p.m. EST

Technical Support Hours: Monday-Friday 9:00 a.m. - 5:00 p.m. EST

Mailing Address:

iSpring Water Systems

3020 Trotters Pkwy, Alpharetta, GA 30004 USA

iSpring Water Systems, LLC (since 2005)

Water's good

3020 Trotters Parkway
Alpharetta, GA 30004

For questions or comments please visit us at:

123Filter.com

For technical support, please contact us at:

support@123filter.com
678-261-7611