

MATRIX-X MODEL 2020.22
REVERSE OSMOSIS WATER FILTRATION SYSTEM
OPERATION MANUAL



PRECAUTIONS

GENERAL

⚠ WARNING: Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction* may be used on disinfected waters that may contain filterable cysts.

*NSF/ANSI Standard 53 and 58 certified to reduce cysts such as *Cryptosporidium* and *Giardia* by mechanical means.

CAUTION RO System must be protected against freezing, which can cause cracking of the RO components and water leakage.

NOTE:

- Your water must be within required limits for satisfactory operation. If not, your membrane life may be shortened and your warranty will be voided (see Specifications on page 3).
- This reverse osmosis system will not protect against disease-causing bacteria or remove naturally-occurring harmless bacteria.
- Install on cold water line only.
- Make certain that installation complies with all state and local laws and regulations.
- The replacement cartridges and reverse osmosis element included with this system have limited service lives. Changes in taste, odor, and color of the water being filtered indicate that the cartridge should be replaced.
- After prolonged periods of non-use (such as during a vacation) it is recommended that the system be flushed for 5 minutes before it is used.
- A drinking water cartridge may contain carbon fines (very fine black powder). After installation, flush the system for 5 minutes to remove the carbon fines before using the water.
- It is recommended that you run the tap at least 20 seconds prior to using water for drinking or cooking purposes.
- The contaminants or other substances removed or reduced by this water treatment device are not necessarily present in your water.

HOW REVERSE OSMOSIS WORKS

The Osmosis (RO) System uses a semi-permeable membrane to reduce dissolved salts and minerals, improving the taste and odor of your water. The RO membrane is made of layers of micron-thin film wound around a hollow center core. Water molecules can pass through the membrane, but dissolved salts and minerals are rejected.

The Reverse Osmosis System features 4-stage filter action. Your water supply is pre-filtered to reduce dirt and chlorine that may foul the membrane. The RO membrane separates this pre-filtered water into PRODUCT WATER and DRAIN or REJECT WATER. Incoming water pressure forces the product water through the membrane and into the storage tank. Dissolved solids and other contaminants cannot pass through the membrane and are sent to the drain as reject water. When you open the drinking water faucet, product water is drawn from the storage tank through an activated carbon post-filter, providing you with cleaner, great-tasting water.

Filter Cartridge Replacement

NOTE: The life of the filter cartridges depends on water volume used and the quality of the feed water. It is recommended that the filter cartridges be replaced every 12 months. Membranes should be replaced based on a water quality test.

Ensure the correct cartridge is purchased for the system.

Check our website for updated filter replacement cartridges based on our local water quality.

1. Cartridge Replacement

- A. Relieve pressure by turning off the water supply to the system and opening a faucet until water flow stops (wait 5 to 10 minutes after water stops to relieve pressure in RO membrane). Place a bucket or towel under the system to catch any water drips.
- B. Lift the locking bar upward until the filter cartridge disengages from the filter head assembly (Figure A).
- C. Pull the cartridge away from the filter head assembly and ensure the locking bar remains in the fully up position (Figure B).
- D. Align the posts on the filter cartridge with the ports in the filter head assembly. Slide the cartridge filter into the filter head assembly (engaging with the locking bar causing it to drop forward and down). (Figure C).
- E. Pull down the locking bar until it snaps into place (Figure D).

Troubleshooting

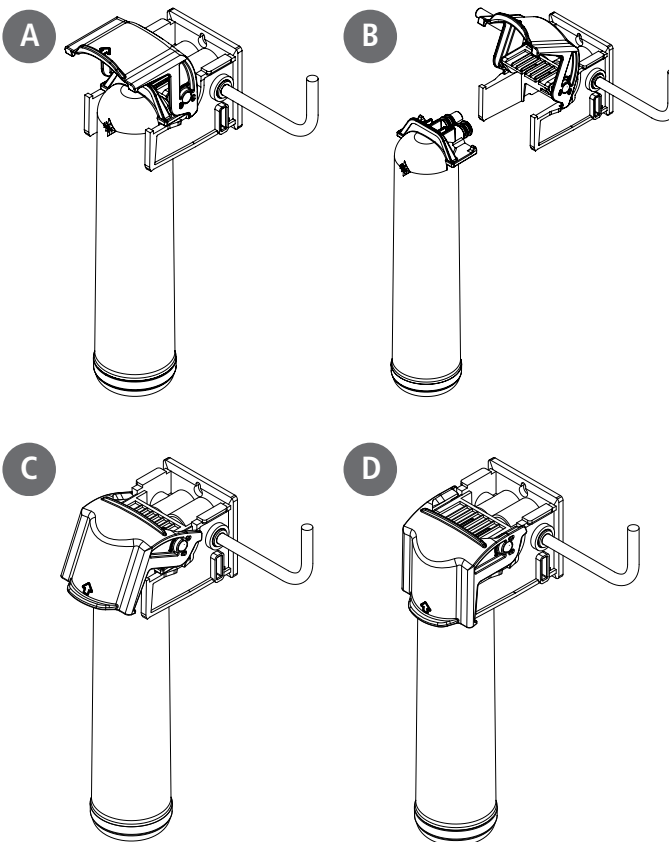
Leaks between filter head assembly and filter cartridge

1. Relieve pressure by turning off the water supply to the system and opening faucet until water flow stops. Place a bucket or towel under the system to catch any water drips.
2. Remove cartridge and inspect O-rings to make sure they are seated and clean.
3. Install filter cartridge. Place system into operation and check for leaks. If leaks persist, turn off the water supply and contact Technical Support at 858-694-0929.

Leaks from tubing fittings

1. Relieve pressure by turning off the water supply to the system and opening faucet until water flow stops. Place a bucket or towel under the system to catch any water drips.
2. Depress collet on system or inlet supply adapter tubing fittings and pull tubing from fitting. Inspect surface of tubing for scratches or debris. Clean or cut back tubing to access clean surface.
3. Wet the end of the inlet tubing and press into the inlet fitting of the system. Ensure the tubing is fully pushed past the fitting O-rings. Place system into operation and check for leaks. If leaks persist, turn off the water supply and contact Technical Support at 858-694-0929.

Cartridge Sequence



PERFORMANCE DATA

IMPORTANT:

Read this performance data and compare the capabilities of this system with your actual water treatment needs.

It is recommended that before installing a water treatment system, you have your water supply tested to determine your actual water treatment needs.

This system has been tested according to NSF/ANSI 58 for the reduction of 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.

The RO shall only be used for arsenic reduction on chlorinated water supplies containing detectable residual free chlorine at the system inlet. Water systems using an in-line chlorinator should provide a one-minute chlorine contact time before the RO system.

WARNING: Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected waters that may contain filterable cysts.

NOTE: Substances reduced are not necessarily in your water. Filter must be maintained according to manufacturer's instructions, including replacement of filter cartridges.

The tested efficiency rating for these systems is 23.57%. 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 approximate typical daily usage.

The tested recovery rating is 41.05%. 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.

The RO has been tested for the treatment of water containing pentavalent arsenic [also known as As(V), As(+5), or arsenate] at concentrations of 0.050 mg/L or less. This system reduces pentavalent arsenic, but may not remove other forms of arsenic. This system is to be used on water supplies containing a detectable free chlorine residual or on 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. Please see the Arsenic Facts section of the Performance Data Sheet for further information.

EPA # 082989-CHN-001

System Production Rate: 21.08 gpd (79.77 Lpd)

Recovery Rating: 41.05%

Efficiency Rating: 23.57%

TDS Rejection: 96.3%



System Tested and Certified by NSF International against NSF/ANSI Standard 42, 53, 58, and CSA B483.1 for the reduction of the claims specified on the Performance Data Sheet.

Model MATRIX-X 2020.22

Substance	Influent Challenge Concentration	Max Permissible Product Water Concentration	Reduction Requirements	Average Reduction
Standard 42				
Chlorine Taste and Order	2.0 mg/L ± 10%		≥50%	95.9%
Standard 53				
Cysts*	Minimum 50,000/L		99.95%	99.99%
Atrazine	0.009 mg/L ± 10%	0.003 mg/L		93.7%
Lead (pH 6.5)	0.15 mg/L ± 10%	0.010 mg/L		99.9%
Lead (pH 8.5)	0.15 mg/L ± 10%	0.010 mg/L		99.6%
Lindane	0.002 mg/L ± 10%	0.0002 mg/L		97.4%
Standard 58				
Total Dissolved Solids	750 ± 40 mg/L	187 mg/L		96.3%
Pentavalent Arsenic	0.050 mg/L ± 10%	0.010 mg/L		88.0%
Fluoride	8.0 mg/L ± 10%	1.5 mg/L		93.6%
Cysts*	Minimum 50,000/mL		99.95%	99.99%
Turbidity	11 mg/L ± 1 NTU	0.5 NTU		>99.1%
Lead	0.15 mg/L ± 10%	0.010 mg/L		98.6%
Selenium	0.10 mg/L ± 10%	0.05 mg/L		97.9%
Copper	3.0 mg/L ± 10%	1.3 mg/L		98.5%
Cadmium	0.03 mg/L ± 10%	0.005 mg/L		99.1%
Hexavalent Chromium	0.3 mg/L ± 10%	0.1 mg/L		96.4%
Trivalent Chromium	0.3 mg/L ± 10%	0.1 mg/L		98.2%
Radium 226/228	25 pCi/L ± 10%	5 pCi/L		80.0%
Barium	10.0 mg/L ± 10%	2.0 mg/L		96.3%

* NSF/ANSI Standard 53 and 58 certified to reduce cysts such as Cryptosporidium and Giardia by mechanical means.

Arsenic Fact Sheet

Arsenic (abbreviated As) is found naturally in some well water. 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.

There are two forms of arsenic: pentavalent arsenic [also called As(V), As(+5), and arsenate] and trivalent arsenic [also called As(III), As(+3) and arsenite]. In well water, arsenic may be pentavalent, trivalent, or a combination of both. Special sampling procedures are needed for a lab to determine what type and how much of each type of arsenic is in the water. Check with the labs in your area to see if they can provide this type of service.

Reverse osmosis (RO) water treatment systems do not remove trivalent arsenic from water very well. RO systems are very effective at removing pentavalent arsenic. A free chlorine residual will rapidly convert trivalent arsenic to pentavalent arsenic. 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 RO system is designed to remove pentavalent arsenic. It will not convert trivalent arsenic to pentavalent arsenic. The system was tested in a lab. Under those conditions, the system reduced 0.050 mg/L (ppm) pentavalent arsenic to 0.010 mg/L (ppm) (the USEPA standard for drinking water) or less. The performance of the system may be different at your installation. Have the treated water tested for arsenic to check if the system is working properly.

