GROWONIX EX400-T High Flow Reverse Osmosis System Owner's Manual

Contents

GROWONIX
TUNED FOR GROWING

GROWONIX EX400-T High Flow Reverse Osmosis System

Product Information:

The GrowoniX EX Series is a water purification system designed for hydroponics hobbyists, enthusiasts, and large-scale gardeners. The system uses the reverse osmosis method to remove large molecules and ions from solutions by applying pressure to the solution on one side of a selective membrane. The system is designed to flow between 8-17 gallons per hour, producing almost 0 ppm RO water with a 2:1 waste ratio. The system comes in three models – EX200, EX400, and EX400-T – with varying flow rates and carbon capacities. The patented metal housing, auto shutoff valve, EZ hookup kit, and wall mountable design make it easy to use and install. The system uses 50% less water than traditional RO systems.

Product Usage Instructions:

1. Connect the system to a cold water source using the EZ hookup kit.
2. If chloramine removal is required, use the KDF Carbon option.
3. No additional pre-filters are needed.
4. If using the membrane flush kit, follow the instructions provided.
5. Turn on the system and allow it to run for a few minutes to flush out any impurities.
6. The system will produce RO water at a flow rate between 8-17 gallons per hour with a 2:1 waste ratio.
7. The EX200 carbon filter is rated for 7500 total gallons or 2500 gallons of purified water, while the EX400 carbon filter is rated for 16,000 total gallons or 5300 gallons of purified water.
8. The system has no booster pump included; if needed, use BP-1530-38 for all models.
9. The system is wall mountable and does not require assembly.

INTRODUCTION

OUR MISSION

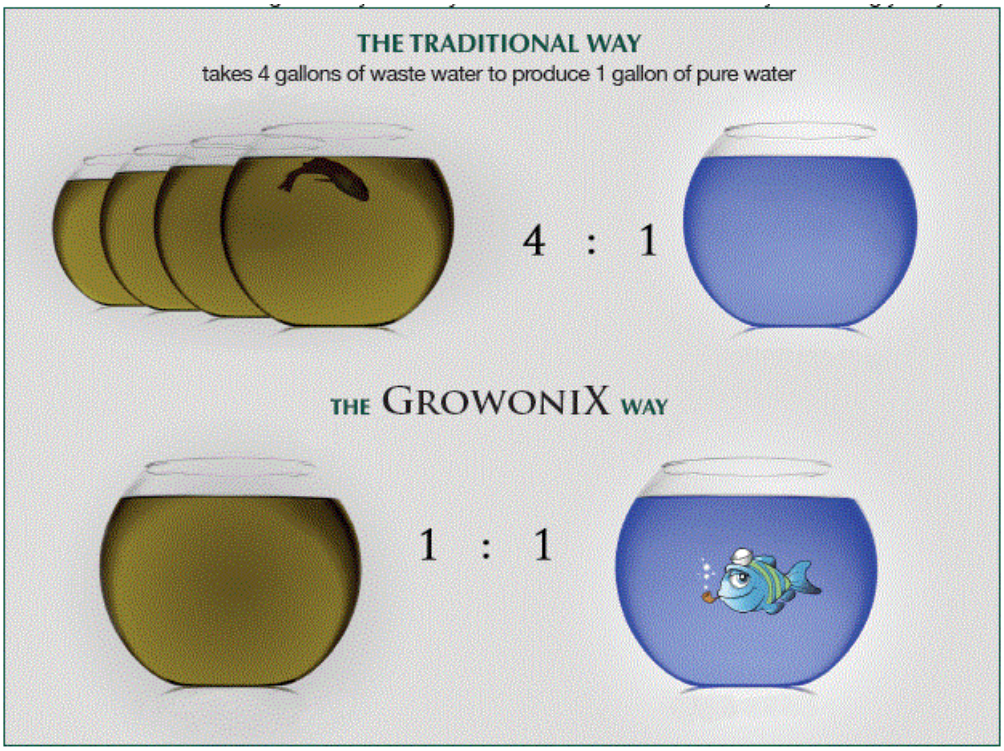
Durability, Reliability, Efficiency, Purity, and Conservation form the foundation on which we design and build all of our products. Consistent and superior quality sets us apart from other manufacturers and increases our value to you – our customer. Whether you are a hydroponics hobbyist, serious enthusiast, or large-scale gardener, GrowoniX is committed to bringing you the best solution for water purification systems.

WHAT IS REVERSE OSMOSIS?

Reverse osmosis (RO) is a filtration method that removes many types of large molecules and ions from solutions by applying pressure to the solution when it is on one side of a selective membrane. This filtering process ensures that the solute (waste water) is contained within the pressurized chamber while the pure solvent (RO water) is allowed to pass freely through the membrane.

TUNED FOR GROWING – IN TUNE WITH OUR CUSTOMERS

Traditional RO systems have waste ratios of approximately 4:1, which means there are 4 gallons of waste water produced for every 1 gallon of purified water. GrowoniX line of water filters achieve waste ratios of 2:1 with all 200-400 GPD systems, and an astounding 1:1 ratio with the 600-1000 GPD systems. GrowoniX has created a complete product line that will address the needs of hydroponic operations of all sizes. Our filters will significantly reduce your water use while dramatically increasing your yields.



FEATURES

- 200-400 GALLON PER DAY SYSTEMS
- 8-17 GALLONS PER HOUR
- HIGH-FLOW COLD WATER
- MEMBRANE ELEMENTS.
- 2:1 WASTE RATIO
- HIGH-FLOW WASHABLE SEDIMENT FILTER
- EX200-400 CARBON FILTER RATED FOR 7500 TOTAL GALS OR 2500 GALS OF PURIFIED WATER.

- EX400-T CARBON FILTER RATED FOR 16,000 TOTAL GALS OR 5300 GALS OF PURIFIED WATER.
- PATENTED METAL HOUSING
- AUTO SHUTOFF VALVE
- EZ HOOKUP KIT
- WALL MOUNTABLE
- USES 50% LESS WATER THAN TRADITIONAL RO SYSTEMS

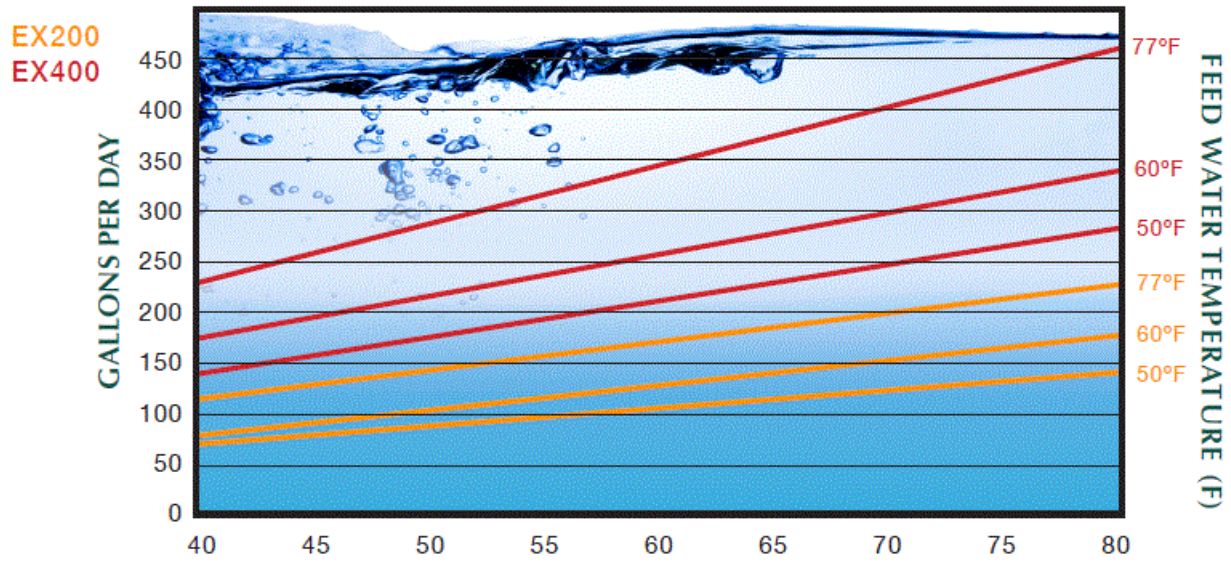
NO ADDITIONAL PRE-FILTERS ARE NEEDED CHLORAMINE REMOVAL REQUIRES KDF CARBON OPTION
MEMBRANE FLUSH KIT OPTIONAL

WHY USE A GROWONIX EX SERIES?

The EX Series is designed to flow between 8-17 GPH (Gallons Per Hour) for the EX200-EX400 correspondingly —at almost 0 ppm RO water, and a 2:1 waste ratio. It's affordable and durable, packed with features you would expect from a higher-priced unit. It outflows all other ROs in its class, with all the quality you would expect from a GrowoniX product.

PART #	FLOW RATE	CARBON CAPACITY TOTAL GALLONS	BOOSTER PUMP
EX200	200 GPD	8,000	BP-1530-38
EX400	400 GPD	8,000	BP-1530-38
EX400-T	400 GPD	17,000	BP-1530-38

FLOW RATES



MEMBRANE PRESSURE (PSI) WITH OR WITHOUT PUMP

Test Conditions: Permeate flow and salt rejection based on 550 ppm, 80 psi, 77°F (25°C), pH 7, and 50% recovery.

SYSTEM SPECIFICATIONS

SYSTEM SPECIFICATIONS		
	EX200	EX400/EX400-T
Recovery (System Ratio)	33% (2:1)	33% (2:1)
Nominal Salt Rejection %	97%	97%
Permeate Flow GPD	200	400
Permeate Flow GPH	8	17
Min Feed Flow GPM	0.42	0.83
Max Feed Water TDS	<2000	<2000
Max Feed Temp °F (°C)	90 (32.2)	90 (32.2)
Min Feed Temp °F (°C)	40 (4.44)	40 (4.44)
Max Ambient Temp °F (°C)	115 (46.11)	115 (46.11)
Min Ambient Temp °F (°C)	40 (4.44)	40 (4.44)
Max Feed Pressure psi	80	80
Min Feed Pressure psi	40	40
Max SDI Rating SDI	<3	<3
Mad TDS ppm	2000	2000
Max Hardness gpg	0	0
Max pH (Continuous)	10	10
Min pH (Continuous)	3	3
Max Turbidity NTU	1	1
Feed inch	3/8″ Tube	3/8″ Tube
Permeate inch	1/4″ Tube	1/4″ Tube
Concentrate inch	1/4″ Tube	1/4″ Tube
Dimensions L x W x H inch	14″ x 7″ x 16″	14″ x 7″ x 18″
Weight lbs	13	15

ACCESSORIES

BP-1530 Booster Pump.

- DOUBLES pure water production for all systems 600 GPD and under.
- Can siphon from a rain barrel or tank and produce full pump pressure.
- ZERO psi of incoming water pressure to produce the full flow rate.
- High-pressure cutoff automatically shuts off when used with a solenoid valve, ball valve, float valve, or watering wand, etc…
- Adjustable output pressure.
- 1 GPM flow rate.

UV-1530 Ultraviolet Filtration

- Stainless Steel Ultraviolet Filter
- Destroys 99.9% of Micro-Organisms in your water supply.
- A must for well water treatment, whole house filter systems, or any time water will be stored.

ESOK-34 Electric Shut-Off Kit

- An essential add-on to any water filter.
- Shuts down feed water BEFORE the water filter.
- Controls on/off cycling of high-pressure booster pumps.
- 120VAC piggyback cable, 20ft.
- Solenoid valve with manual override for failsafe water-making.

EP-2 Delivery Pump

- 7 GPM delivery pump.
- High-pressure cutoff automatically shuts off when used with a solenoid valve, ball valve, float valve, or watering wand etc…
- Transfer water from storage tanks to batch tanks.
- Siphons water up to 12′ in elevation.
- Able to run dry intermittently and slurp.

VA-FLV-1438 Float Valve

- 1 GPM flow rate max.
- Adjustable positioning via a thumb screw.
- Can be mounted vertically or horizontally.
- 1/4″ or 3/8″ tubing port sizes.
- Bulkhead mounting style with sealing washer.

REPLACEMENT FILTERS

- The blue color indicates filters installed in the unit.
- The green color indicates optional filters.
- Chloramine removal requires the KDF85 carbon filter.
- EX200-EX400 CARBON FILTER RATED AT 7,500 GALS TOTAL CAPACITY OR 2,500 GALS OF FILTERED WATER AT A 2:1 RATIO.
- EX400-T CARBON FILTER RATED AT 16,000 GALS TOTAL CAPACITY OR 5,300 GALS OF FILTERED WATER AT A 2:1 RATIO

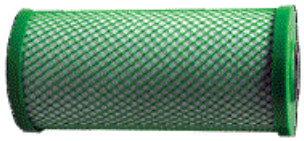
Product	Sediment	Carbon	Membrane	Ultraviolet
EX200/EX400	SF-2510-PL	CF-2510-CC	GXM-150-HR	UV-1530
	SF-2510-SP	CF-2510-GB	GXM-200-HF	
		CF-2510-KDF		
Product	**Sediment**	**Carbon**	**Membrane**	**Ultraviolet**
EX400-T	SF-2520-PL	CF-2520-CC	GXM-150-HR	UV-1530
	SF-2520-SP	CF-2520-GB	GXM-200-HF	
		CF-2520-KDF		

FILTER INDEX

GXM HIGH-FLOW COLD WATER MEMBRANES
Highest flowing ultra-low-energy membranes on the planet—with the lowest waste ratio.

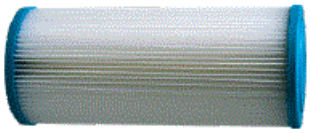
KDF85/CATALYTIC ACTIVATED CARBON FILTER
Premium carbon filter using the best catalytic activated carbon with a bed of KDF85 media. There's no better carbon filter available.

COCONUT CARBON FILTER— "GREEN BLOCK"
Premium coco carbon, produced using eco-friendly low emissions processes



COCONUT CARBON FILTER—" WHITE BLOCK"
Economy coco carbon, same performance as Green Block, for a little less money.

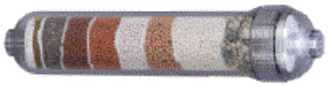
PLEATED SEDIMENT FILTER
High-flow washable sediment filters with ultra-low pressure drop.



SPUN SEDIMENT FILTER
Spun poly sediment filters with huge dirt holding capacity and a little more pressure drop.

UV STERILIZATION
Kills 99.9% of bacteria and viruses.

ALKALINE INLINE
An inline filter adds calcium & magnesium to filtered water and raises the Ph.



REMINERALIZING INLINE
An inline filter adds calcium & magnesium to filtered water.

DI INLINE
The de-Ionization filter removes the last bit of PPM.

PRECAUTIONS

Do not use the unit with inlet water pressure exceeding 80 psi. If the inlet water pressure is too high, install a water pressure regulator before the unit. Pressure regulators are available at GrowoniX.com or at your local plumbing supply. A minimum of 40psi is recommended to operate GrowoniX water filters. If your inlet water pressure is too low, a booster pump can be used to increase pressure. Slower performance may be noted in areas with colder temperatures, higher water salinity, or lower inlet water pressure. Keep the unit away from direct light. Direct light can cause algae and other biologicals to grow inside the filter housings. Do not install units near electrical outlets

or electrical devices. Do not install in places where a leak can cause damage. Do not use a flow restrictor other than the one included in your unit.

INFORMATION ON QUICK CONNECT FITTINGS

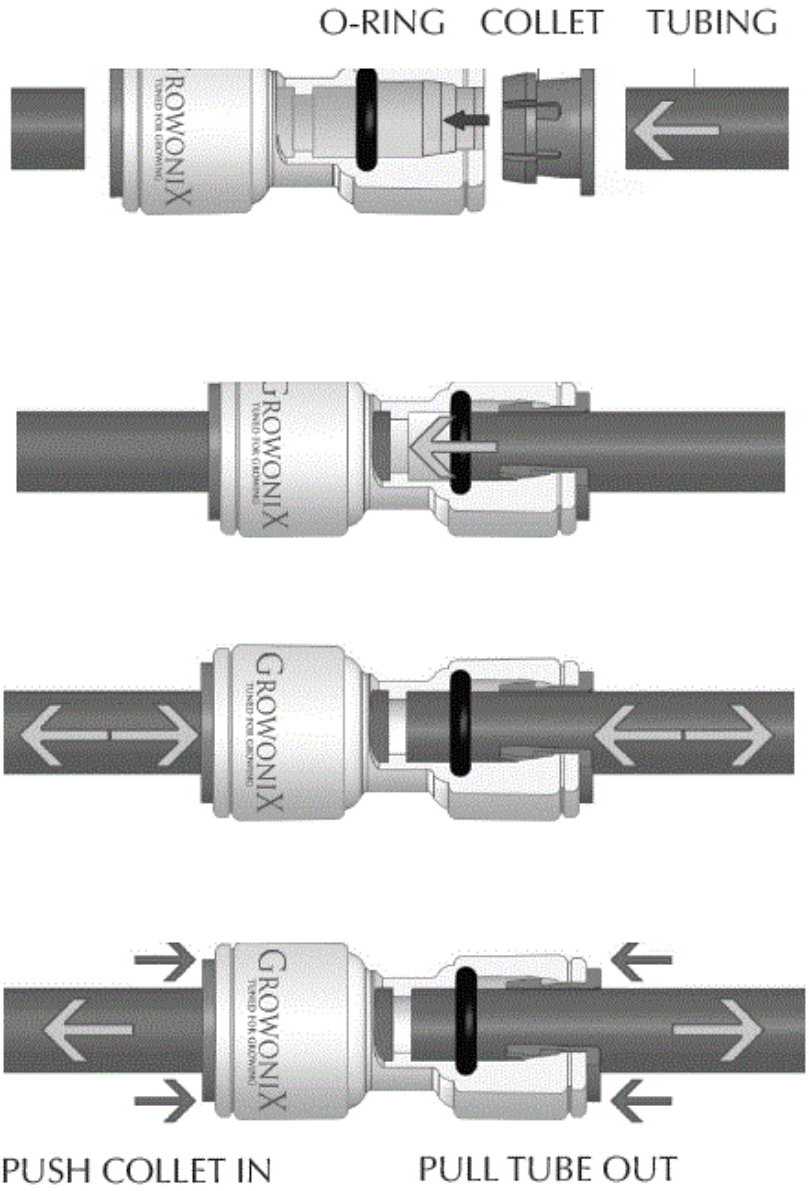
GROWONIX WATER FILTERS USE QUICK-CONNECT FITTINGS THAT ALLOW FOR EASY MAINTENANCE.

MAKE A CLEAN TUBE CUT
Cut the tube squarely and if using plastic tubing, ensure that the cut has not made the tube out of round. Also ensure that the tube has a smooth outside diameter without any burrs or score marks prior to inserting it into the fitting.

INSERT TUBE INTO FITTING
Push the tubing through the collet and dual o-rings until it bottoms out against the tube stop. The collet holds the tube in place and the dual o-rings provide a leak resistant seal.

TEST AND INSPECT
Push and pull the tubing toward and away from the fitting to ensure that it has been installed properly. Test and inspect the installation for any leaks.

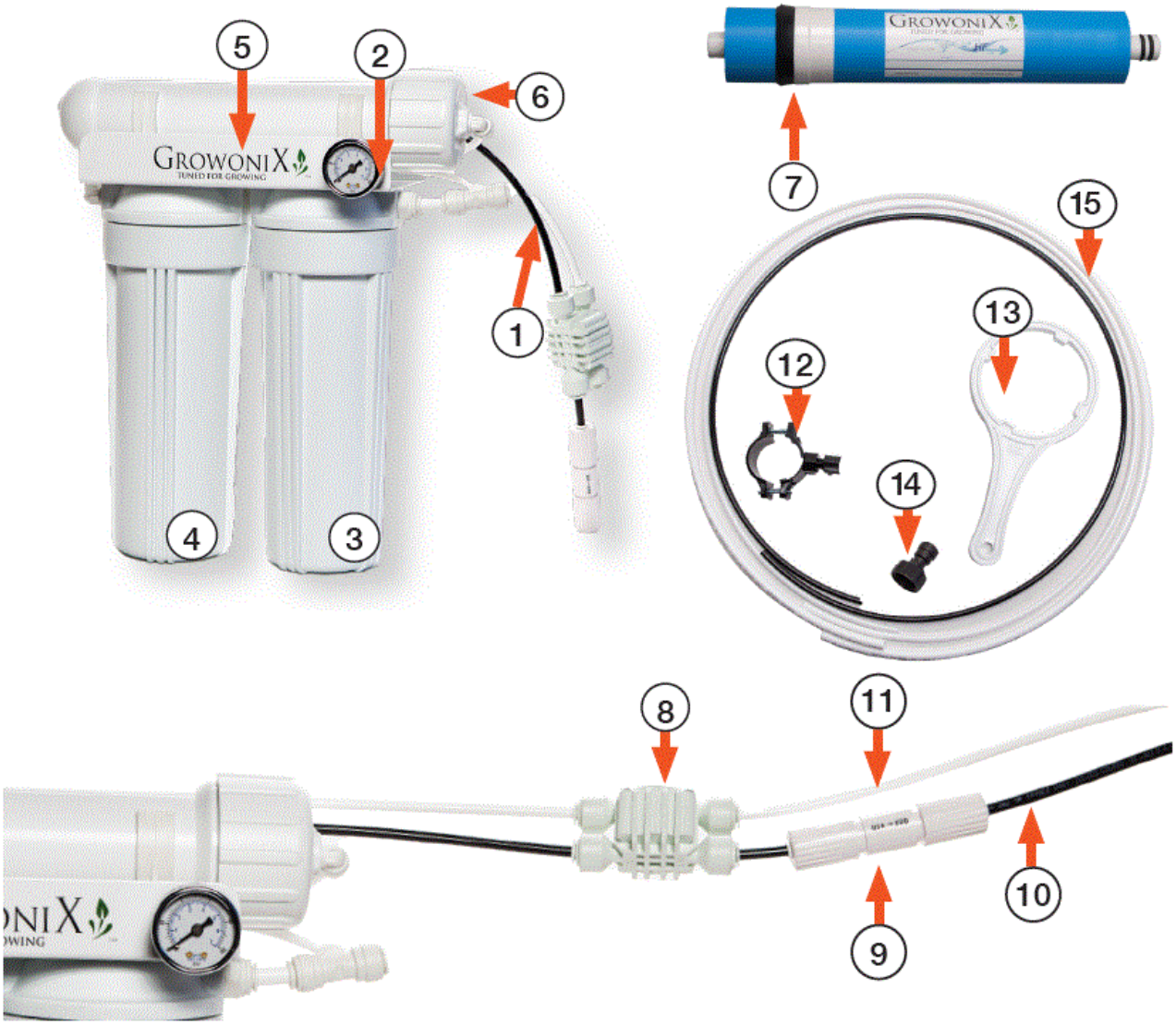
TUBE REMOVAL
Relieve pressure from the tubing and fitting. Push uniformly around the collet flange against the fitting body while pulling the tubing away from the fitting to release it.



EX200 COMPONENT DIAGRAM

1. Supply water in
2. Pressure gauge
3. Sediment filter
4. Carbon filter
5. Patented EX mounting bracket
6. Membrane housing
7. RO membrane
8. Auto shutoff valve
9. Flow restrictor
10. Waste/drain tubing
11. RO water out
12. Drain saddle clamp
13. Filter wrench

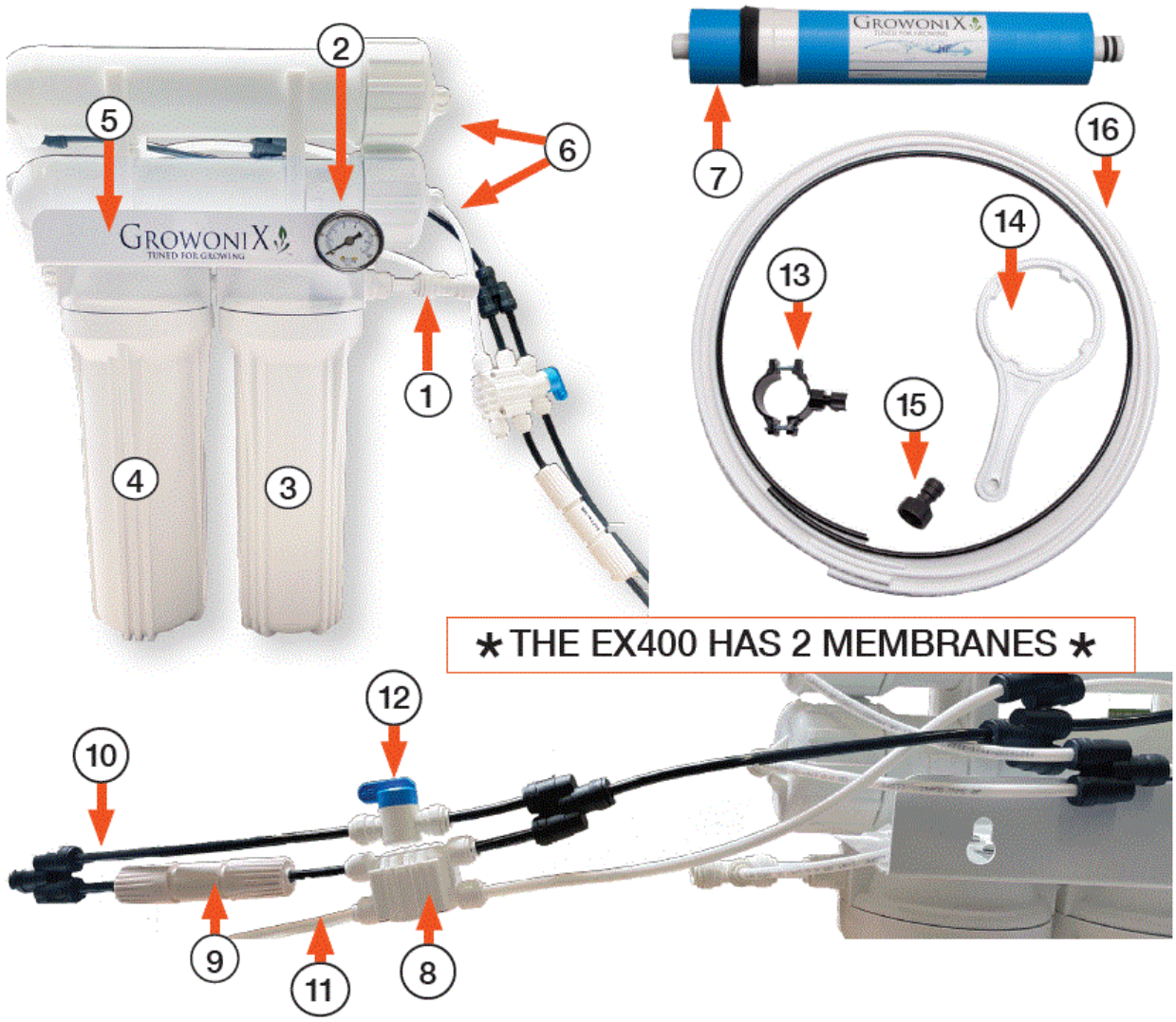
14. Garden hose adapter
15. Supply, RO, and drain tubing



THE EX400 HAS 2 MEMBRANES

1. Supply water in
2. Pressure gauge
3. Sediment filter
4. Carbon filter
5. Patented EX mounting bracket
6. Membrane housing
7. RO membranes
8. Auto shutoff valve
9. Flow restrictor
10. Waste/drain tubing
11. RO water out
12. Ball Valve
13. Drain saddle clamp
14. Filter wrench
15. Garden hose adapter

16. Supply, RO, and drain tubing



A “FLUSHKIT” IS COMPRISED OF PARTS 8-12 AND IS MENTIONED THROUGHOUT THIS MANUAL.

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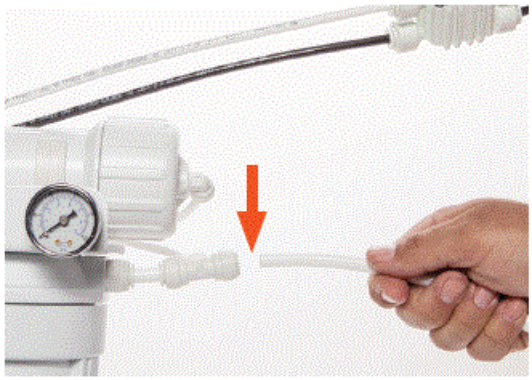
SETUP INSTRUCTIONS

- Always turn the incoming water pressure off before servicing the unit.
- Always turn incoming water pressure on slowly, allowing all air to be discharged from the system before full water pressure is restored.
- GrowoniX EX200 – EX400 water filters are designed to be used with between 40-80 psi of incoming water pressure. Do not exceed 80 psi of incoming water pressure.
- If the incoming water pressure is too high, install a pressure regulator before the unit.
- It is recommended to flush the carbon filter and membrane upon initial startup.
- (see following instructions)

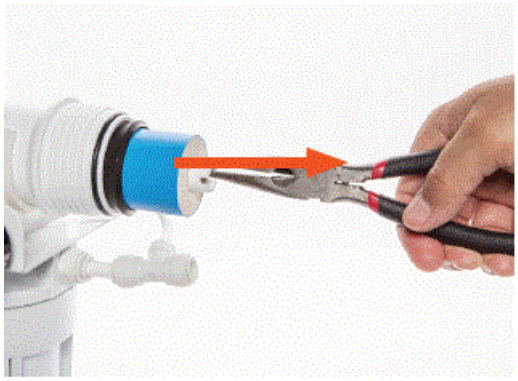
1. Connect the 3/8” white supply tubing to the inlet fitting, making sure the inlet seats all the way into the quick-connect fitting. This is the supply water line.



2. Connect the 1/4” white RO tubing to the auto shut-off valve, making sure the RO tubing seats into the quick-connect fitting. This is the filtered RO water outline.

3. Connect the 1/4” black drain tubing to the tee fitting just after the flow restrictor.

4. Mount the drain clamp to an available drain pipe. Only insert the tubing halfway into the drain pipe—do not bottom out. Connect another end of the drain tubing to the included drain clamp.



BEFORE TURNING THE INCOMING WATER SUPPLY ON, REFER TO THE NEXT STEP “FLUSHING THE KDF85 CARBON FILTER” ON THE NEXT PAGE.

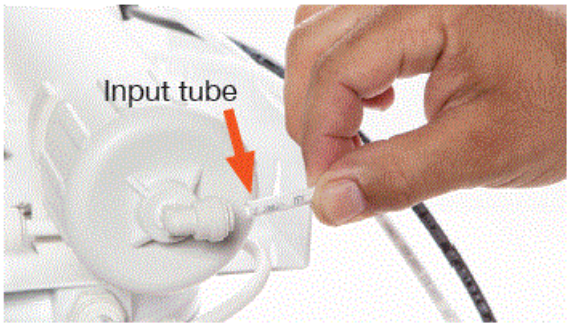
FLUSHING THE KDF85 CARBON FILTER

Growonix water filters can be upgraded with a KDF85 Catalytic Carbon Pre-Filter. The “KDF” carbon filter is a superior blend of highly reactive catalytic carbon and KDF85 process media used to remove/reduce iron, hydrogen sulfide, chlorine, chloramine, bacteria, scale, and algae. The catalytic carbon in these filters is in a loose

form and thus will discharge a small amount of carbon dust upon initial startup. It is recommended to unhook the membrane input side and flush ten gallons of water through the carbon filter before re-connecting to the RO membrane. This will ensure no dust gets into the membrane causing premature fouling.

1. Make sure the incoming feed water is shut off, ensuring the RO filter is depressurized. Disconnect the 1/4” white tubing that feeds the membrane input from the carbon filter.

2. Position the fitting over a drain or bucket and slowly turn on the incoming water pressure. Allow 10 gallons (EX200-400) and 20 gallons (EX400-T) of water to flush through carbon before reconnecting to membrane input.



3. Reconnect the tubing to the membrane inputs and resume normal filter operation.

WARNING
DISCONNECT TUBING FROM THE PUMP INPUT OR MEMBRANE INPUT, AND FLUSH KDF CARBON FILTER TO DRAIN. 10 GALS FOR CF-2510-KDF 20 GALS FOR CF-2520 & CF-4510-KDF 40 GALS FOR CF-4520-KDF MAKE SURE WATER IS FREE FROM CARBON FINES & DEBRIS BEFORE RECONNECTION TO MEMBRANE INPUT

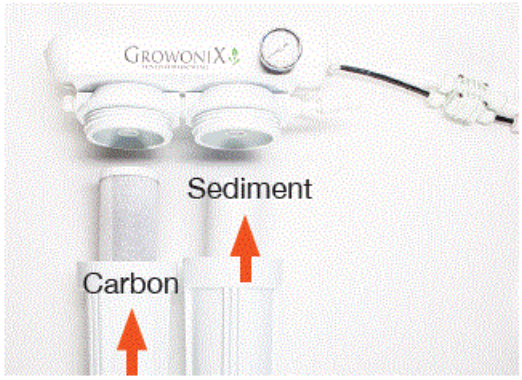
- EX200-EX400 CARBON FILTER RATED AT 7,500 GALS TOTAL CAPACITY OR 2,500 GALS OF FILTER WATER AT 2:1 RATIO.
- EX400-T CARBON FILTER RATED AT 16,000 GALS TOTAL CAPACITY, OR 5,300 GALS OF FILTERED WATER AT 2:1 RATIO.

THE EX400 AND EX400-TALL HAVE TWO RO MEMBRANES

IT IS NECESSARY TO DISCONNECT BOTH MEMBRANE FEED LINES TO PROPERLY FLUSH THE CARBON FILTER.

1. Make sure the incoming feed water is shut off, ensuring the RO filter is depressurized. Disconnect the 1/4” white tubing that feeds the membrane input from the carbon filter.

2. Hold the tubing over a sink or bucket. Slowly turn on incoming water pressure, allowing 10 gallons (EX400) or 20 gallons (EX400-T) of water to flush through the carbon filter. Once flushed, turn off incoming feed water.



3. Reconnect the tubing to the membrane inputs and resume normal filter operation.

- EX200-EX400 CARBON FILTER RATED AT 7,500 GALS TOTAL CAPACITY, OR 2,500 GALS OF FILTER WATER AT A 2:1 RATIO.
- EX400-T CARBON FILTER RATED AT 16,000 GALS TOTAL CAPACITY, OR 5,300 GALS OF FILTER WATER AT A 2:1 RATIO.

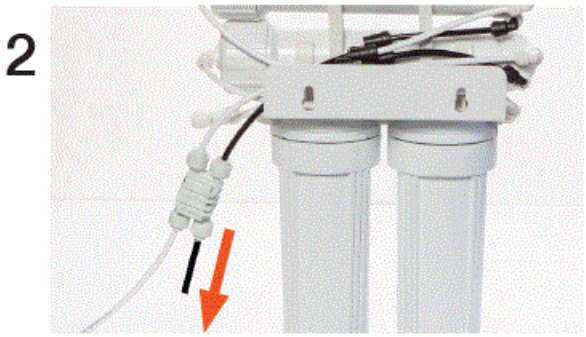
FLUSHING THE MEMBRANE ELEMENT

GrowoniX EX200 – EX400 water filters are offered with an OPTIONAL MANUAL FLUSH VALVE. Flushing the membrane element after each use for approximately 3-5 minutes will remove standing salts from the membrane, significantly extending membrane life. Even weekly flushes will improve membrane life and system performance. The flush valve is located in the waste line of the RO membrane. To flush the membrane simply turn the flush valve to the FLUSH position as seen in picture 1. The high-pressure water will bypass the flow restrictor and

shutoff valve and be sent down the drain, carrying membrane pollutants with it. If using a float valve, and the system happens to be OFF due to valve engagement, opening the flush valve will start the system again in flush mode.

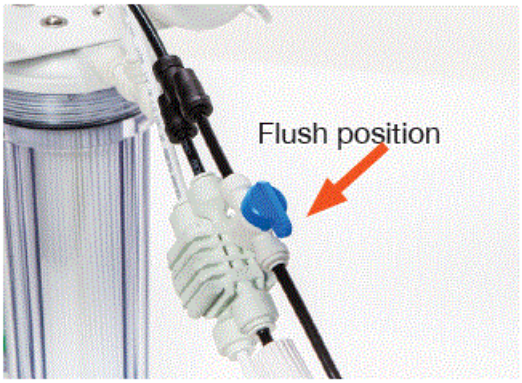
If you have a flush valve, then follow the steps below.

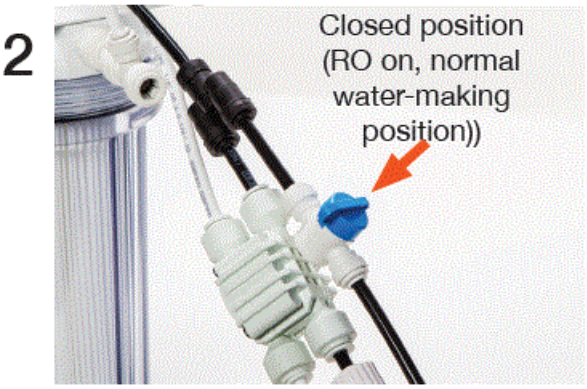
1. Make sure the flush valve is open (in the FLUSH position). Let the system run for 3-5 minutes.
2. After flushing is complete, simply turn the flush valve to the CLOSED position. The Membrane has been flushed.



If you do not have a flush valve, then flushing can be done by disconnecting the drain line either before the ASV or at the flow restrictor. Make sure the feed water is turned OFF and the system is depressurized before attempting to remove the drain line connection. Follow the steps below.

1. Remove the Flow Restrictor
2. Let the system run for 3-5 minutes. Replace the Flow Restrictor

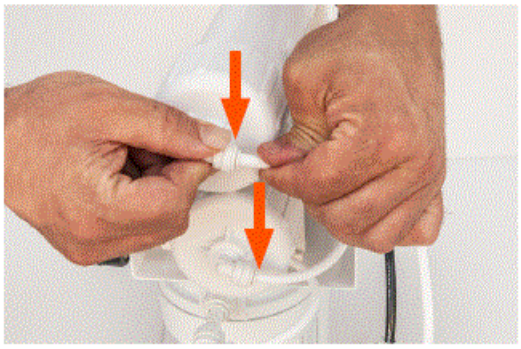




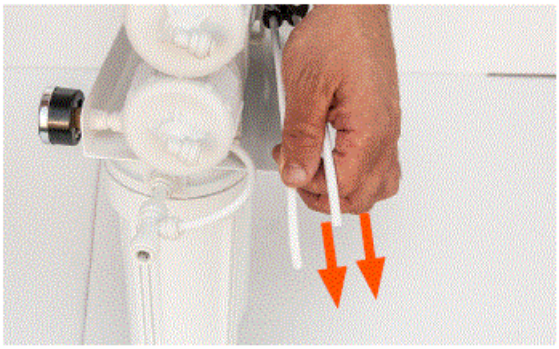
REPLACING THE PRE-FILTERS

- Sediment filters should be changed when either brown discoloration occurs, or system flow rates have significantly declined.
- Carbon filters have a gallon count: 7,500 gals total capacity, or 2,500 gals of filterd water at 2:1 ratio for the EX200 – EX400, and 16,000 gals total capacity, or 5,300 gals of filterd water at 2:1 ratio for the EX400-TALL.
- Always turn the incoming water pressure off before servicing the unit.
- Always turn incoming water pressure on slowly, allowing all air to be discharged before full water pressure is restored.

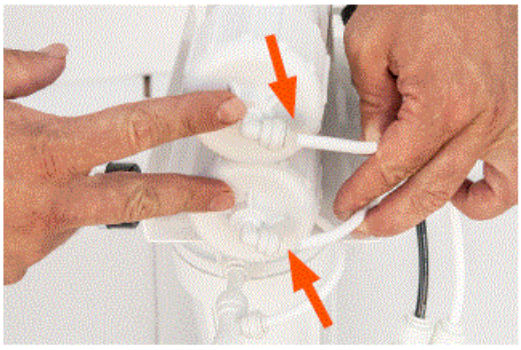
1. Unscrew the sediment and carbon filter housings using the supplied filter wrench. Wash the inside of the filter housings to remove debris.



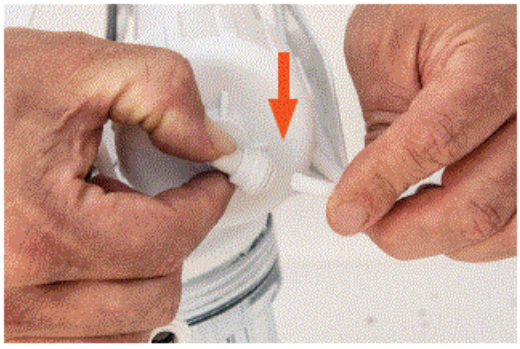
2. Install the new sediment and carbon filter, making sure they go into the correct filter housings.



3. When replacing the filter housings, make sure the housing O-rings are seated properly. Grease the O-rings with food-grade silicone grease.



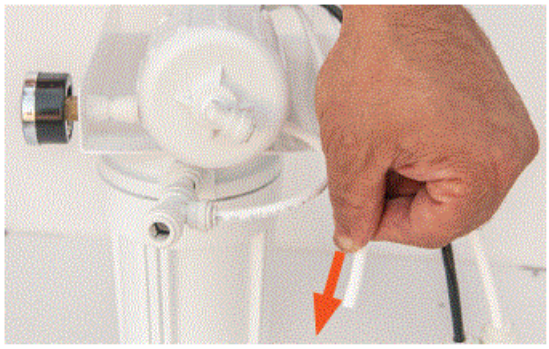
4. Tighten the filter housings by hand, do not use the filter wrench. Do not over-tighten.



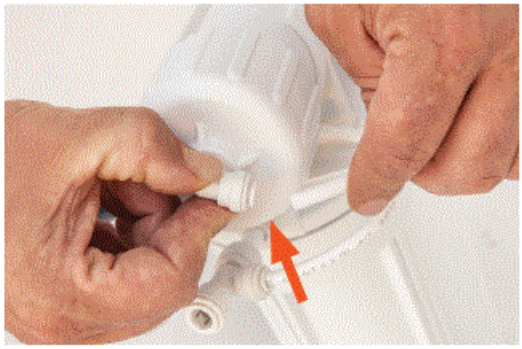
REPLACING THE MEMBRANE ELEMENT

- Before servicing membrane element system must be de-pressurized. To de-pressurize the EX200 – EX400, turn the incoming water supply completely OFF and open the flush valve.
- It is suggested that you replace sediment and carbon pre-filters as well when replacing membrane elements.
- After replacing the membrane turn incoming water pressure on slowly, allowing all air to be discharged before full water pressure is restored.
- End-caps can be difficult to re-install. To aid in installation, apply continuous pressure to the end cap. Do not strike the end cap.

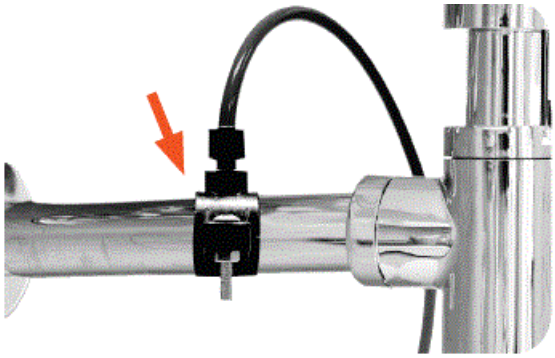
1. Disconnect the input tube(s) from the RO membrane housing.



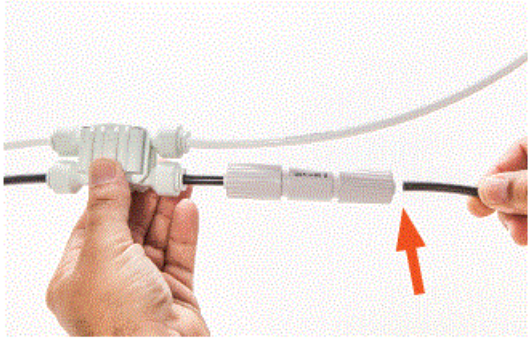
2. Unscrew the membrane housing end cap. Caps can be difficult to remove. Be sure to have a firm grip on the opposite side of the housing. Do not lose the O-ring on the inside of the cap. Each cap has two O-rings.



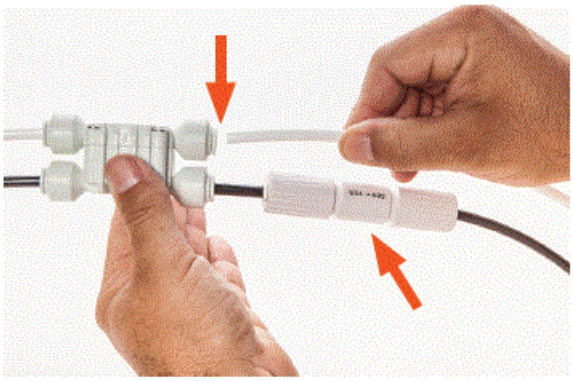
3. Pull out the membrane using needle nose pliers or another similar tool.



4. Insert the new membrane into the housing, making sure the end with the brine seal goes in last. Make sure the membrane is completely seated into the housing.



5. Replace the end cap and tighten it by hand. If the O-rings are dry, lubricate them with food-grade silicone lubricant. Allow the system to run for ½ hour before using the RO water.



SPECIFICATIONS CHARTS

PLEATED SEDIMENT FILTER 2.5 “ DIAMETER

Materials of Construction:

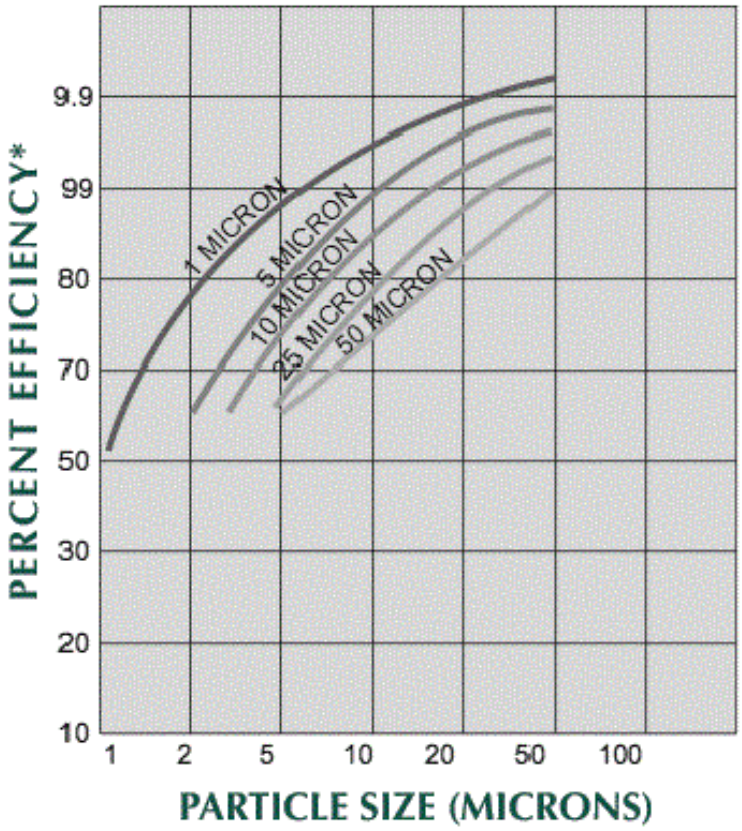
- Filter Media
- End Caps
- Core
- Temperature Rating
- Non-woven Polyester
- Vinyl Plastisol
- Polypropylene
- 40˚F to 125˚F (4.4˚C to 51.7˚C)

Size Description:

- 2 1/2” X 9 7/8”

Initial AP(psi) @ flow rate (gpm):

- 1 psi @ 10 gpm(.01 bar @ 38 L/min)



ECO COCONUT CARBON BLOCK FILTER

Materials of Construction:

- Carbon: NSF listed 61,
- Coconut Shell PAC
- End Caps: Polypropylene
- Inner/Outer Wraps: Polypropylene
- Nettings: Polypropylene
- Gaskets: NBR
- Temperature Ring: 40˚F to 180˚F

OD X Length:

- 2-3/4” X 9-3/4”

Nominal UM Rating

- 10

Initial AP(psi) @ flow rate (gpm):

- 1 PSI @ 30 GPM

Chlorine, Taste, Odor Reduction Capacity Flow

- >8,000 gallons @ 1 GPM

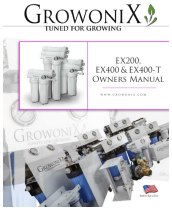
RO MEMBRANE ELEMENT

Operating Limits:

- **Membrane Type:**
  - Thin film composite
- **Maximum Operating Temperature:**
  - 110˚F (45˚C)
- **Maximum Operating Pressure:**
  - 125 PSI
- **Maximum Feed Flow Rate:**
  - 1 GPM
- **Maximum Concentrate Flow Rate:**
  - 4 x Permeate
- **pH Range, Continuous Operation:**
  - 3-10
- **Maximum Feed Water Turbidity:**
  - 1 NTU
- **Maximum Feed Silt Density Index (SDI):**
  - 5 SDI
- **Chlorine Tolerance:**
  - 0 PPM
- **Applied Pressure PSI (BAR):**
  - 65 (4.48)
- **Permeate Flow Rate GPD:**
  - 150
- **Nominal Salt Rejection(%):**
  - 97%

Built-in the U.S.A.
www.growonix.com

Documents / Resources

	GROWONIX EX400-T High Flow Reverse Osmosis System [pdf] Owner's Manual EX100, EX200, EX400, EX400T, EX200, EX400, EX400-T, EX400-T High Flow Reverse Osmosis System, EX400-T, High Flow Reverse Osmosis System, Flow Reverse Osmosis System, Reverse Osmosis System, Osmosis System

References

- Home - Growonix
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