seaXchange® by SPOTZERO®

USERS MANUAL / INSTALLATION GUIDE

XTC II

XTCII600 XTCII1200 XTCII1800 XTCII2200

www.spotzerowater.com

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1. INTRODUCTION

CONGRATULATIONS

Your Sea Xchange XTCII-Series Reverse Osmosis System is a durable piece of equipment that, with proper care, will last for many years. This User's Manual outlines installation, operation, maintenance, and troubleshooting details vital to the sustained performance of your system.

If your system is altered at the site of operation or if the feed water conditions change, please contact your local dealer or distributor to determine the proper recovery for your application.

NOTE: PRIOR TO OPERATING OR SERVICING THE REVERSE OSMOSIS SYSTEM, THIS USER'S MANUAL MUST BE READ AND FULLY UNDERSTOOD. KEEP THIS AND OTHER ASSOCIATED INFORMATION FOR FUTURE REFERENCE AND FOR NEW OPERATORS OR QUALIFIED PERSONNEL NEAR THE SYSTEM.

SAFETY

The safety section of this User's Manual outlines the various safety headings used throughout this manual's text and are enhanced and defined below:

NOTE: INDICATES STATEMENTS THAT PROVIDE FURTHER INFORMATION AND CLARIFICATION .

CAUTION: INDICATES STATEMENTS THAT ARE USED TO IDENTIFY CONDITIONS OR PRACTICES THAT COULD RESULT IN EQUIPMENT OR OTHER PROPERTY DAMAGE.

WARNING: INDICATES STATEMENTS THAT ARE USED TO IDENTIFY CONDITIONS OR PRACTICES THAT COULD RESULT IN INJURY OR LOSS OF LIFE. FAILURE TO FOLLOW WARNINGS COULD RESULT IN SERIOUS INJURY OR EVEN DEATH.

DO NOT UNDER ANY CIRCUMSTANCE; REMOVE ANY CAUTION, WARNING, OR OTHER DESCRIPTIVE LABELS FROM THE SYSTEM.

PRINCIPLES OF REVERSE OSMOSIS

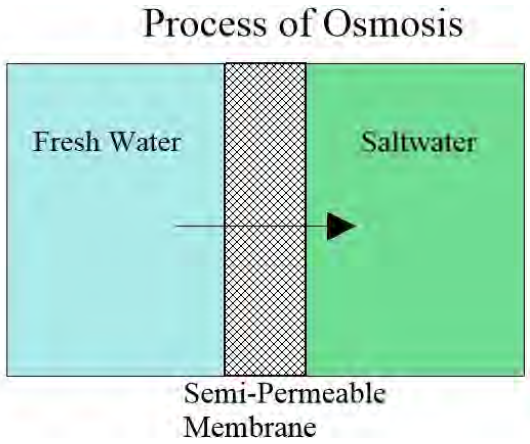
REVERSE OSMOSIS

How Fresh Water Is Produced

Reverse Osmosis or “RO” is a process where freshwater water is produced by pumping saltwater through a semi-permeable membrane.

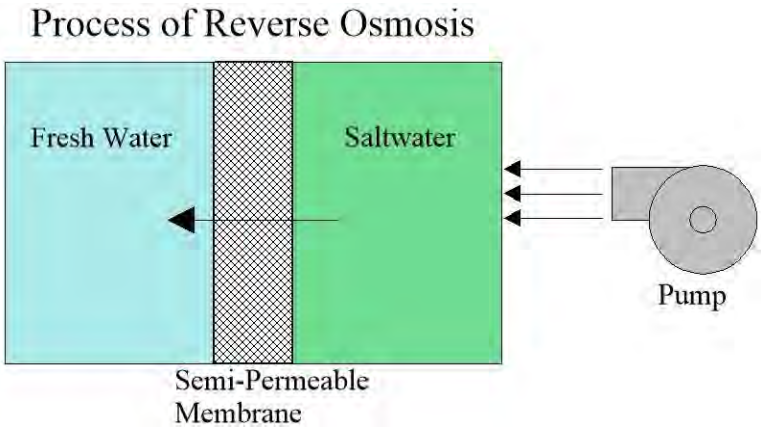
Osmosis

Osmosis is a naturally occurring process where a weak solution will cross a semipermeable membrane to mix with a highly concentrated solution. For example, a freshwater solution will naturally want to mix with a saltwater solution.



Reverse Osmosis

To reverse this process work is put into the system using a pump. The pump causes pressure to build up on the saltwater side of the membrane. This pressure forces water across the semi-permeable membrane. The membrane is designed to allow the water molecules to pass while preventing the salt and other solids from doing so. Fresh water is collected on the other side of the membrane as a result.



UNIT SPECIFICATIONS

XTCII MODEL	600	1200	1800	2200
Configuration	1 Vessel	2 Vessel	3 Vessel	4 Vessel
Feed Water Source	Sea Water	Sea Water	Sea Water	Sea Water
Rated production gpd (gpm)	600(0.41)	1200(0.83)	1800(1.25)	2200(1.52)
Rejection and Flow Rates				
Nominal Salt Rejection %	99.4%	99.4%	99.4%	99.4%
Minimum Feed Flow gpm (lpm)	4.2 (15.9)	4.2 (15.9)	4.2 (15.9)	4.2 (15.9)
Minimum Concentrate Flow gpm (lpm)	3.79 (14.3)	3.3 (12.5)	2.95 (11.2)	2.68 (10.1)
Connections				
Feed inch	¾” Hose	¾” Hose	¾” Hose	¾” Hose
Product inch	3/8” QC 9.5mm	3/8” QC 9.5mm	3/8” QC 9.5mm	3/8” QC 9.5mm
Concentrate inch	1/2” QC 2.7mm	1/2” QC 12.7mm	1/2” QC 12.7mm	1/2” QC 12.7mm
Membranes				
Membrane Per Vessel	1	1	1	1
Membrane Quantity	1	2	3	4
Membrane Size	2540	2540	2540	2540
Pumps				
High Pressure Pump Type	Piston	Piston	Piston	Piston
HP motor amps	10.6	10.6	10.6	10.6
High Pressure Motor HP (kw)	2.5	2.5	2.5	2.5
Booster motor amps	4.3	4.3	4.3	4.3
Booster Pump RPM @ 60 (50Hz)	1750 (1450)	1750 (1450)	1750 (1450)	1750 (1450)
Electrical				
Voltage	230V 50/60Hz 1Φ	230V 50/60Hz 1Φ	230V 50/60Hz 1Φ	230V 50/60Hz 1Φ
Amp Draw	14.9	14.9	14.9	14.9
System Dimensions				
L x W x H inch (cm)	48.125”x18.312”x 17.625” (122.25x46 .5x44.75)	48.125”x18.312”x 17.625” (122.25x46.5 x44.75)	48.125”x18.312”x 17.625” (122.25x46 .5x44.75)	48.125”x18.312”x 17.625” (122.25x46 .5x44.75)
Weight lb. (kg)	120 (54.4)	158 (71.6)	169 (76.6)	180 (81.6)

Systems Standard Operating Parameters

Fresh Water RO Systems	Product Flow (gpm/lpm)	Concentrate Flow (gpm/lpm)	Recycle Flow (gpm/lpm) (+/-10%)	Total Flow (gpm/lpm)	Pump Pressure (psi/bar) MAX	Concentrate Pressure (psi/bar) MAX	Pre-filter Inlet Pressure Minimum (psi/bar)	Pre-filter Inlet Pressure Maximum (psi/bar)	Pre-filter Outlet Pressure Minimum (psi/bar)	Pre-filter Outlet Pressure Maximum (psi/bar)
Model/GPD										
SZ/ZTCII/XZ (FW-RO) SERIES										
GPD 2000	1.4/5.3	1.0/3.8	2.0/7.6	4.4/16.7	150/10.3	150/10.3	15/1	85/4	15/1	85/4
GPD 3000	2.0/7.5	1.0/3.8	2.0/7.6	5/18.9	150/10.3	150/10.3	15/1	85/4	15/1	85/4
SZ-HD/XZ-HD (FW-RO) SERIES										
GPD 4000	2.7/10.2	1.5/5.7	2.0/7.6	6.2/23.5	150/10.3	150/10.3	15/1	85/4	15/1	85/4
GPD 5000	3.47/13.1	1.5/5.7	2.0/7.6	7.0/26.5	150/10.3	150/10.3	15/1	85/4	15/1	85/4
GPD 6000	4.16/15.7	2.0/7.6	2.0/7.6	8.2/31	150/10.3	150/10.3	15/1	85/4	15/1	85/4
Saltwater RO Systems	**Product Flow (gpm/lpm)**	**Concentrate Flow (gpm/lpm)**	**Recycle Flow (gpm/lpm)**	**Total Flow (gpm/lpm)**	**Pump Pressure (psi/bar)**	**Concentrate Pressure (psi/bar)**	**Pre-filter Inlet Pressure Minimum (psi/bar)**	**Pre-filter Inlet Pressure Maximum (psi/bar)**	**Pre-filter Outlet Pressure Minimum (psi/bar)**	**Pre-filter Outlet Pressure Maximum (psi/bar)**
SE SERIES										
GPD 350	.24/.9	2.26/8.6	N/A	2.5/9.5	N/A	850/58.6	15/1	85/4	15/1	85/4
GPD 600	.41/1.5	2.09/7.9	N/A	2.5/9.5	N/A	850/58.6	15/1	85/4	15/1	85/4
GPD 800	.55/2.0	1.95/7.4	N/A	2.5/9.5	N/A	850/58.6	15/1	85/4	15/1	85/4
GPD 1200	.83/3.1	1.67/6.3	N/A	2.5/9.5	N/A	850/58.6	15/1	85/4	15/1	85/4
SX/XTCII/XZ (SW-RO) SERIES										
GPD 600	.41/1.5	3.79/14.3	N/A	4.2/15.9	N/A	850/58.6	15/1	85/4	15/1	85/4
GPD 1200	.83/3.1	3.37/12.8	N/A	4.2/15.9	N/A	850/58.6	15/1	85/4	15/1	85/4
GPD 1800	1.25/4.7	2.95/11.2	N/A	4.2/15.9	N/A	850/58.6	15/1	85/4	15/1	85/4
GPD 2200	1.52/5.75	2.68/10.1	N/A	4.2/15.9	N/A	850/58.6	15/1	85/4	15/1	85/4
SXII-HD/XZ-HD (SW-RO) SERIES										
GPD 3600	2.5/9.46	5/18.9	N/A	7.5/28.4	N/A	850/58.6	15/1	85/4	15/1	85/4
GPD 4300	2.98/11.28	7.5/28.4	N/A	10.5/39.7	N/A	850/58.6	15/1	85/4	15/1	85/4
GPD 5000	3.47/13.13	7.0/26.5	N/A	10.5/39.7	N/A	850/58.6	15/1	85/4	15/1	85/4
CX SERIES										
GPD 20000	13.88/52.54	46/174	N/A	60/227	N/A	850/58.6	15/1	85/4	15/1	85/4

Standard Parameters

Total Dissolved Solids for Fresh Water Systems (PPM) Product Water Side	90% less than feed water
Total Dissolved Solids for Sea Water Systems (PPM) Product Water Side	Less than 500 PPM
Temperature (F/C)	77/25

2. INSTALLATION AND COMISSIONING

SEA XCHANGE COMMISSIONING REPORT FORM

System Information:

Model number - _____ Serial number - _____

Date of Commission - _____ Commissioned by- _____

Installed by - _____ Vessel hull number- _____

First step to commissioning a new system is to look over the install to be sure everything is installed correct. This check-list must be gone through prior to powering up the system.

___Have all plumbing connections have been made, and secured?

___Have all plumbing lines been run to the correct locations?

___Is the boost pump installed below the water line?

___Has wire reinforced hose been used on the suction side of the boost pump?

___Is raw water intake open?

___Is the overboard open and free of obstructions?

___Is the system_____voltage,_____hertz, and_____phase correct?

___Is the circuit breaker sized properly with sufficient wire gauge?

___Is the power cable connected to the power inlet terminals of the system?

Now power up the system,

___Are all displays on and functional?

At this time follow the start-up procedure in the manual and operate the system for an hour at its rated capacity, then record the following data.

System operating readings

Pre-filter inlet_____ psi Pre-filter outlet_____psi

Concentrate pressure_____ psi Concentrate flow _____ gpm

Product flow_____gpm Product TDS_____ppm

Feed water TDS_____ppm Feed water temperature_____F or C

Hours on system_____hrs Amp draw_____ Voltage _____

Location system was tested_____

Problems or other notes:

XTCII INSTALL KIT			
✓	PART NUMBER	DESCRIPTION	QTY
	B0001	Elbow 1/4" QC	4
	B0005	Tee 3/8" QC	2
	B0006	Tee 1/2" QC	2
	B0019	Adapter 1/2" QC to 1/2" MNPT	2
	B0020	Elbow 1/2" QC	4
	B0021	Elbow 3/8" QC	4
	B0024	Reducer 1/2" QC Stem to 3/8" QC	2
	B0030	Adapter 3/8" QC to 1/2" MNPT	2
	B0033	Reducer 1/2" QC to 3/8" MNPT	2
	B0043	Valve Ball 3/8" QC	1
	B0048	RELEASE TOOL SET	1
	B0052	Adapter 1/2" QC Stem to 15mm QC	1
	B0053	Adapter 3/8" QC Stem to 15mm QC Stem	1
	B0054	Elbow 15mm QC	1
	B0055	Elbow 15mm QC Stem to 15mm QC	1
	B0058	Adapter 5/8" QC Stem to 3/8" QC	2
	B0059	Adapter 1/2" CTS Stem to 3/8" CTS	2
	B1040	Elbow 3/4" MNPT to 3/4" HB Nylon	2
	B1041	Adapter 3/4" MNPT Nylon	1
	B5000	Locking Clip, 1/4", Install Kit 20pc	1
	B5001	Locking Clip, 3/8", Install Kit 20pc	1
	B5002	Locking Clip, 1/2", Install Kit 20pc	1
	E1018	Wrench for Big Clear 4.5" #10 & #20	1
	H5065	Lubricant Silicone 6 grams	1
	H5089	Install Kit 5/16" Hardware Set	1
	H5095	Install Kit - Hose clamp and end cap	1
	J0001	Hose, 3/4" White	50 ft.
	J0003	Tubing, Nylon, 0.375 in. OD	50 ft.
	J0004	Tubing, Nylon, 0.50 in. OD	50 ft.
	MN 2003	XTCII Manual	1
	P4010	GP - Oil 16Oz	1

ELECTRICAL REQUIREMENTS

ELECTRICAL The XTCII Series are available in 1Φ (phase).

230 volts at 14.9 amps (including booster pump)

50/60 Hertz available in the 230-volt unit

NOTE: IT'S RECOMMENDED THAT A QUALIFIED ELECTRICIAN WIRE YOUR SYSTEM IN ACCORDANCE WITH ALL APPLICABLE CODES, RULES, AND REGULATIONS.

WARNING: TO REDUCE THE RISK OF ELECTRICAL SHOCK, THE INCOMING POWER SUPPLY MUST INCLUDE A PROTECTIVE GROUND.

PLUMBING AND PIPING CONNECTIONS

PLUMBING

The membranes and high-pressure pumps used on XTCII-Series Reverse Osmosis Systems require a continuous flow of water with a maximum temperature not to exceed 113°F. ***Please see Complete Install Guide and the connection drawings below.***

CAUTION: ANY RESTRICTIONS OR BLOCKAGE IN THE CONCENTRATE LINE CAN CAUSE BACKPRESSURE, WHICH WILL INCREASE THE SYSTEM'S OPERATING PRESSURE. THIS CAN RESULT IN DAMAGE TO THE SYSTEM'S MEMBRANES AND COMPONENTS.

TUBE CUTTING AND INSTALLATION PROCEDURE

Cut the tube square and remove burrs and sharp edges. Ensure the outside diameter is free of score marks. For soft or thin walled tube, we recommend the use of a tube insert.

Push the tube into the fitting, to the tube stop.

To disconnect, ensure the system is depressurized, push the collet square against the fitting. With the collet held in this position the tube can be removed.

STORAGE OR WINTERIZATION OF UNIT

Option 1: Storage with Fresh Water Flush

When a system will not be used for a significant period of time (i.e. 3 months – 1 year), the best practice for storage of the system is to allow the automatic fresh water flush to operate by leaving the power to the system on and ensuring that the vessels fresh water system is ON and pressurized. Normal replacement of fresh water flush filter is still required every 4 months.

Option 2: Storage without Fresh Water Flush:

If the vessel will not be able to allow for fresh water flushing over the duration of the storage period, the membrane vessels must have static water replaced with membrane storage chemical solution. Membrane storage chemical part # is 252404263.

Option 3: Winterization

Option 3a: Winterization with membrane rack removal - The best practice for winterization is to remove membrane rack and store with membrane storage chemical in heated storage climate. The remainder of the system should be stored with propylene glycol from sea cock to overboard to prevent freeze damage (propylene glycol can be purchased at most hardware or automotive retailers).

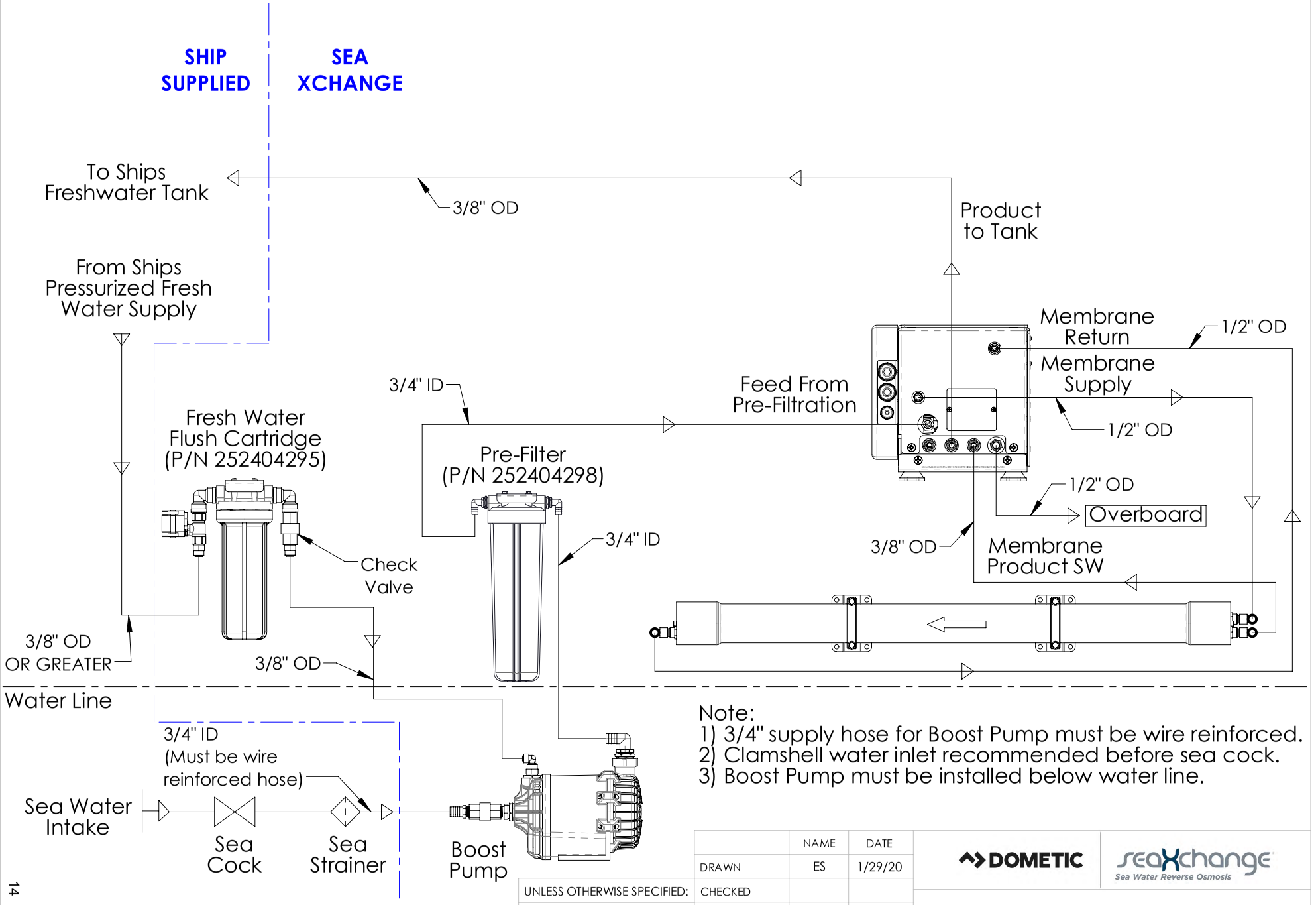
Option 3b: Winterization without membrane rack removal - If the system is going to be exposed to freezing or near freezing temperature while being stored and the membrane rack cannot be removed and stored in a heated climate, the following should be done. A 50% solution of storage chemical and 50% propylene glycol should be run through the entire system from sea cock to overboard and then valve off both sea cock and overboard. Membrane storage chemical part # is 252404263.

NOTE: PROPYLENE GLYCOL CAN BE PURCHASED AT MOST HARDWARE OR AUTOMOTIVE RETAILERS

WARNING: DO NOT USE ETHYLENE GLYCOL, ONLY NON-TOXIC PROPYLENE GLYCOL SHOULD BE USED.

Re-commissioning of System after Storage or Winterization

After storage or winterization, the system must be completely voided of all storage chemical and or propylene glycol. To do this, follow the new system startup guide on page 28.



Note:
1) 3/4" supply hose for Boost Pump must be wire reinforced.
2) Clamshell water inlet recommended before sea cock.
3) Boost Pump must be installed below water line.

	NAME	DATE
DRAWN	ES	1/29/20
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

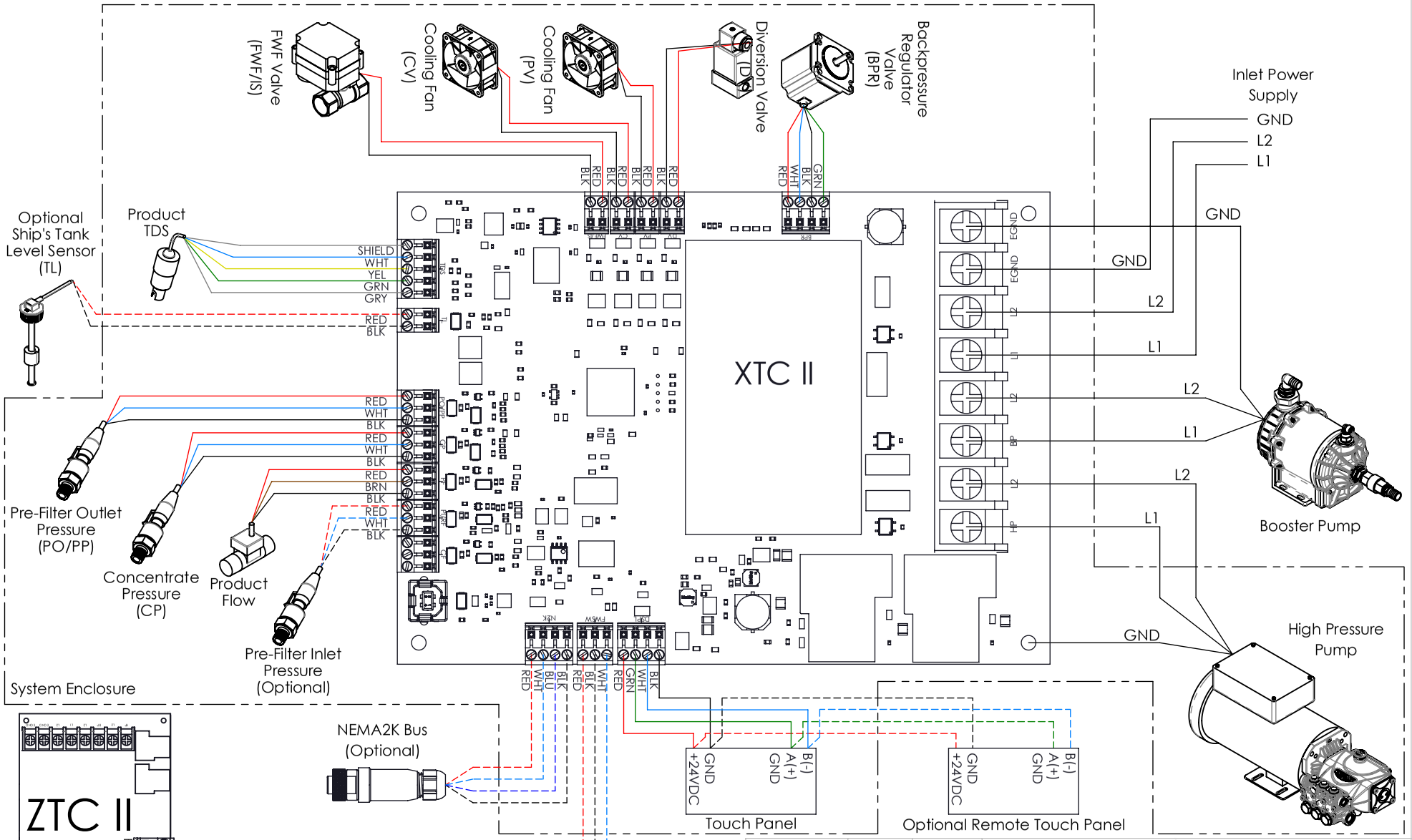
UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES: ±.015
FRACTIONAL ±1/32
ANGULAR: MACH ±1/2 BEND ±1
TWO PLACE DECIMAL ±.010
THREE PLACE DECIMAL ±.005

DOMETIC | seaXchange Sea Water Reverse Osmosis

XTCII One Line Flow Drawing

SCALE: 1:10	DWG. NO. PD0001	SHEET 1 OF 1	DWG. REV E



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PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SPOT ZERO. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SPOT ZERO IS PROHIBITED.

	NAME	DATE
DRAWN	ES	1/27/2020
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES: ±.015
FRACTIONAL ±1/32
ANGULAR: MACH ±1/2 BEND ±1
TWO PLACE DECIMAL ±.010
THREE PLACE DECIMAL ±.005

DOMETIC | seaXchange Sea Water Reverse Osmosis

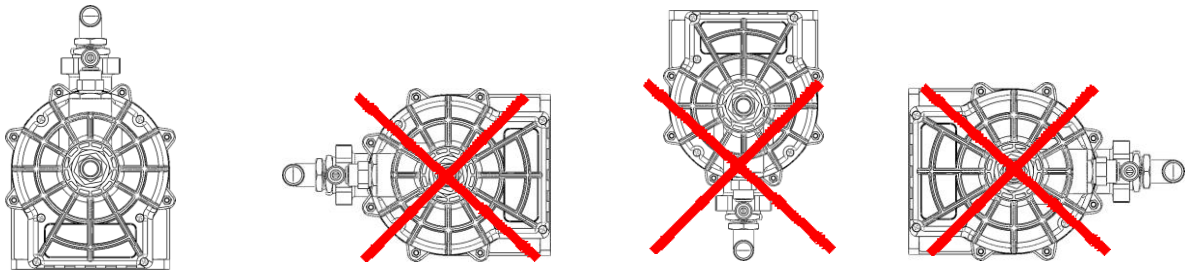
XTCII Wiring Diagram

SCALE: NTS	DWG. NO. ED1003	SHEET 1 OF 1	DWG. REV C

SEA WATER PLUMBING CONNECTIONS

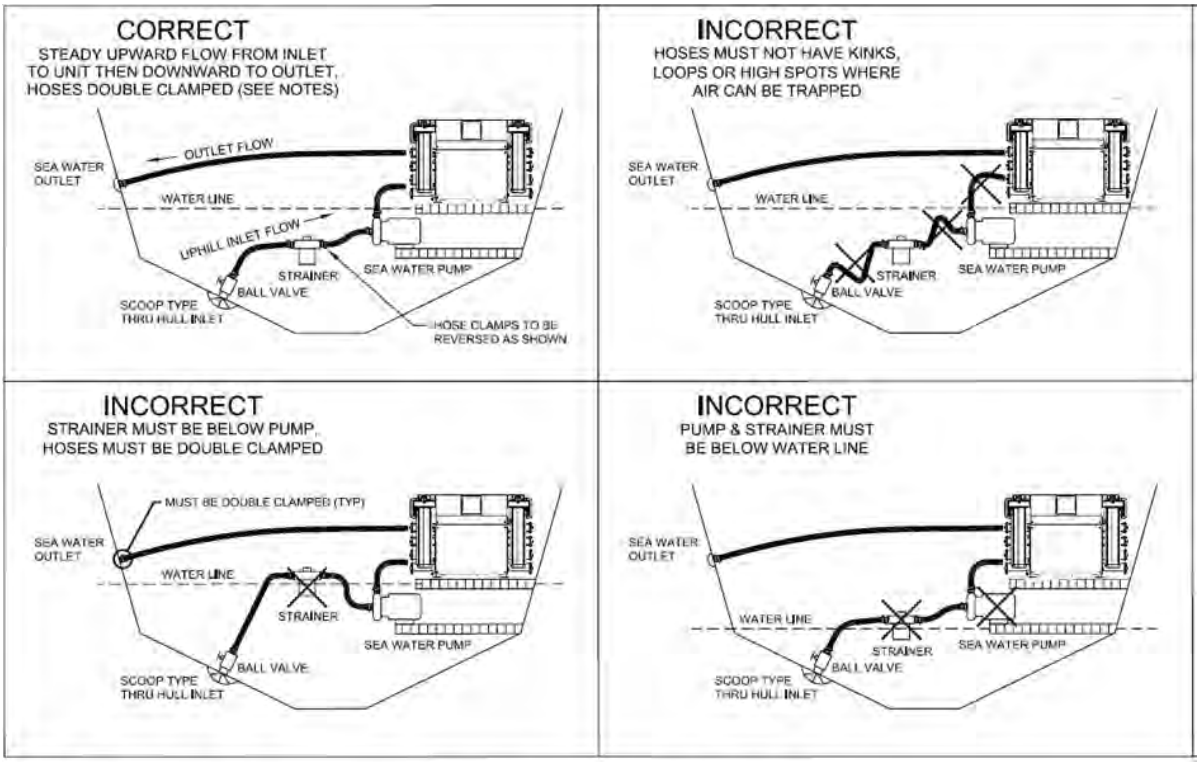
1. Locate a dedicated sea cock to be used for booster pump supply. Sea cock should be a minimum of 3/4” with a speed scoop to prevent a Venturi effect while vessel is underway.
2. Install a sea strainer with at least a 50-mesh rating after sea cock.
3. Install supplied booster pump below water line.

Note - Booster pump outlet must remain the highest point of pump and cannot be rotated 90°



4. Run reinforced suction hose from sea cock to sea strainer to booster pump in an upward flow manner to prevent air traps.

5.



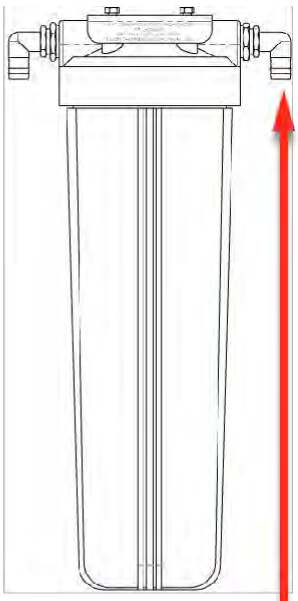
NOTES:
1) THRU HULL INLET, BALL VALVE, HOSE AND STRAINER SHOULD BE SIZED NO SMALLER THAN PUMP INLET.
2) INSTALL THRU HULL FITTING AS FAR BELOW THE WATER LINE AS POSSIBLE.
3) PUMP NEEDS DEDICATED THRU HULL NOT SHARED WITH OTHER PUMPS.
4) AVOID OR MINIMIZE 90° ELBOW FITTINGS AS MUCH AS POSSIBLE. ROTATE PUMP HEAD TOWARDS DIRECTION OF WATER FLOW.

6. Use supplied white 3/4” flexible hose from discharge of booster pump to **Pre-Filter Inlet** connection on **Sea Xchange Sediment** filter assembly located on left side of system. Filter assembly may be remote mounted if desired.

PRE-FILTRATION

XTCII-Series systems are supplied with a 5-micron sediment filter. Change when there is a noticeable loss of outlet pressure. Ask your local dealer or distributor about Pre-Filtration systems, if required.

NOTE: THE SYSTEM MUST BE OPERATED IN ACCORDANCE TO FEED WATER SPECIFICATIONS.

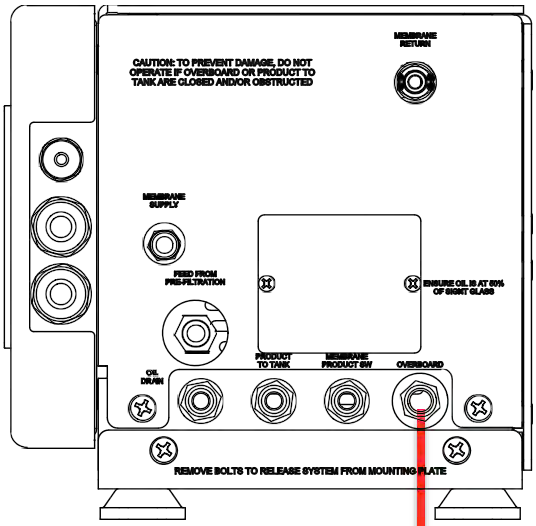


¾" Flexible hose from Booster Pump

7. Double clamp all sea water hose connections to prevent potential leaks.

8. Locate connection labeled "**Overboard**" on lower left side of system. Run supplied white 1/2" tube to a dedicated overboard connection.

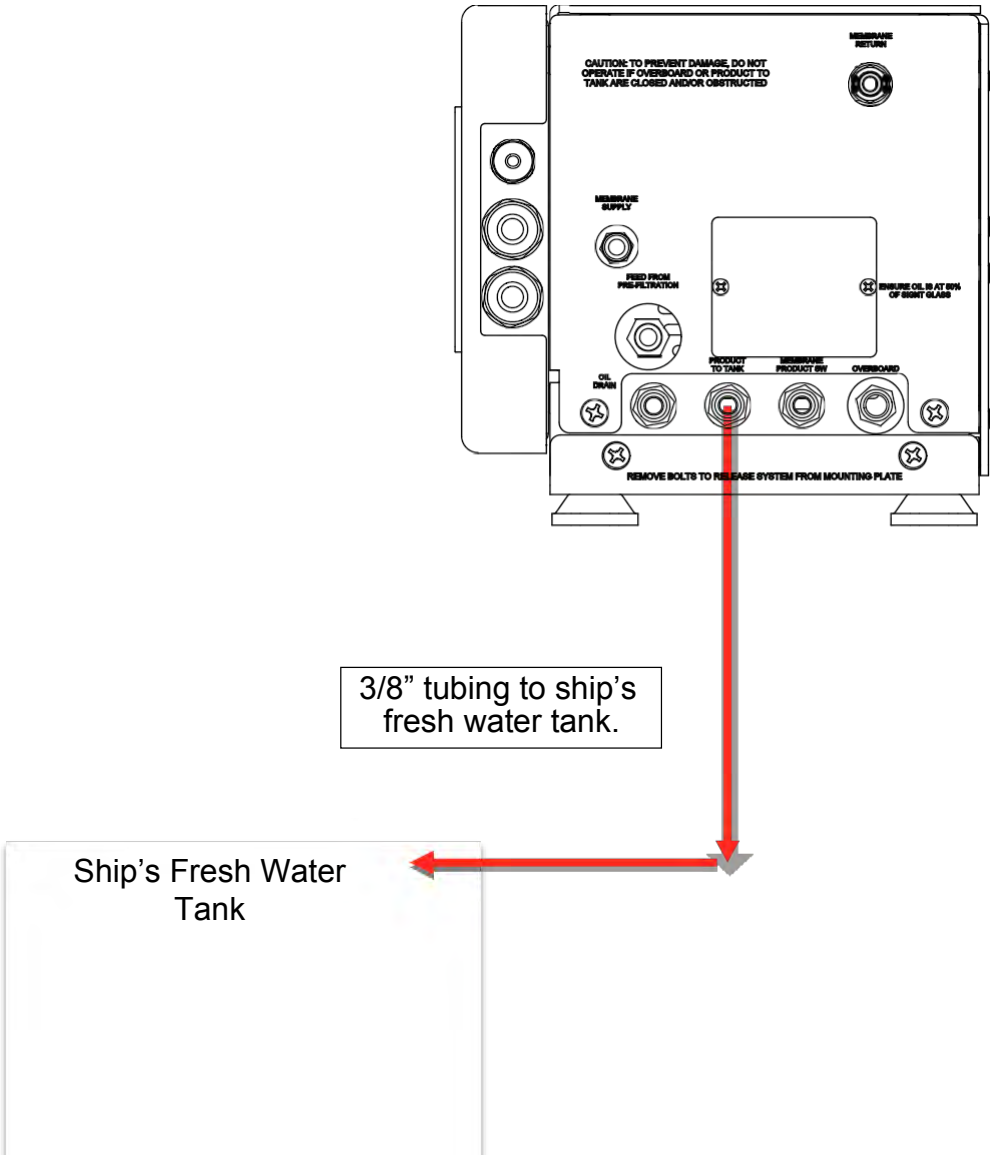
Warning - Sea water overboard must never be closed or obstructed while system is operational. Closing or obstructing the overboard flow on system may cause permanent damage to system.



1/2" Tube out to dedicated Overboard

PRODUCT TO TANK CONNECTION

9. Locate the fitting labeled **Product to Tank** on left side of system. Connect supplied white 3/8" tubing from system to the inlet of the ships freshwater tank. Be sure that there are no kinks in hose run and avoid 90's where possible to prevent restricted flow.

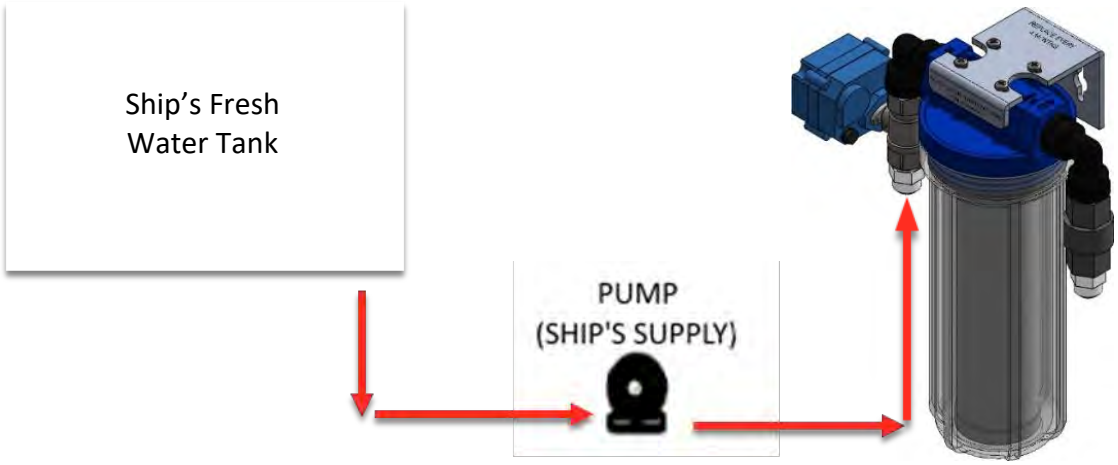


Warning - Ships freshwater tank must be vented properly to avoid back pressure on system. Failure to do so may cause permanent damage to system and/or to not function properly.

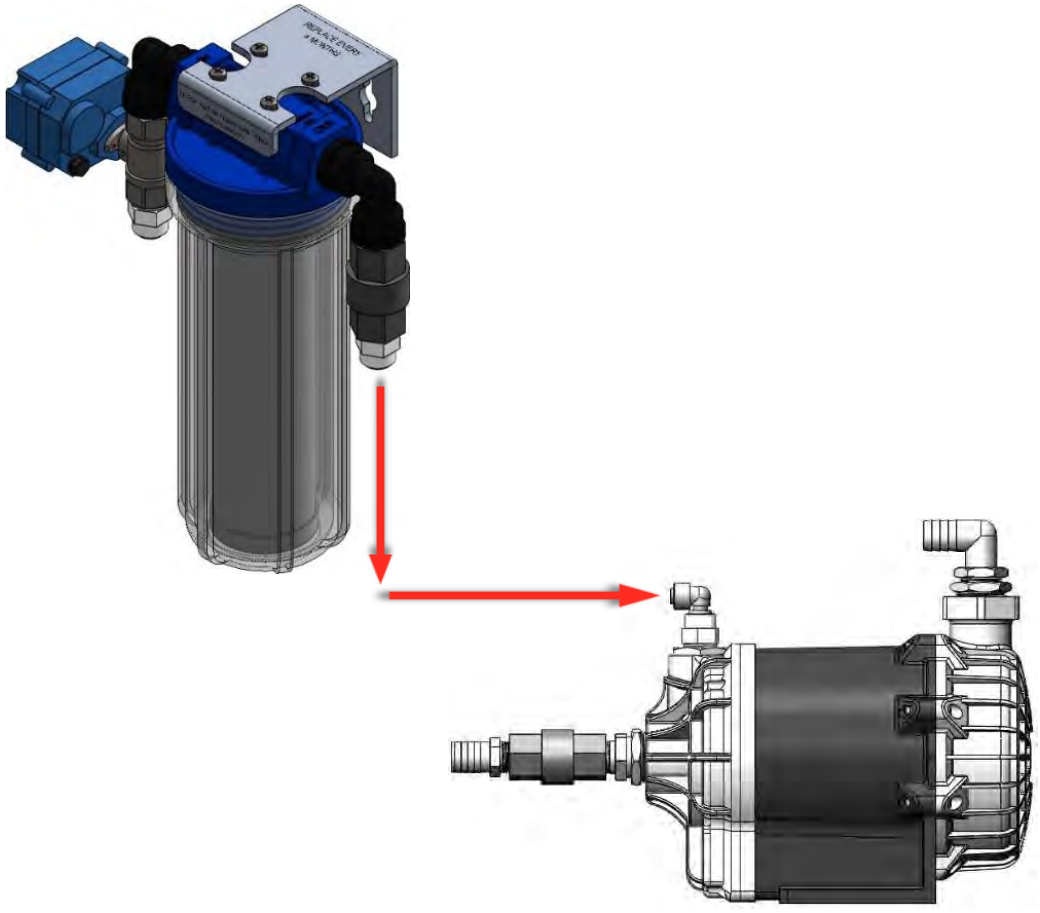
Warning - Product to tank must never be closed or obstructed while system is operational. Closing or obstructing the product flow on system may cause permanent damage to system and/or to not function properly.

FRESH WATER FLUSH CONNECTION

1. Locate filter assembly labeled **Fresh Water Flush** and connect the inlet of fresh water flush solenoid to the ships pressurized freshwater system.
   Note - a shut off valve is recommended to be installed on supply line to fresh flush assembly for service.



2. Run supplied white 3/8" tubing from outlet filter assembly labeled **Fresh Water Flush**



ELECTRICAL CONNECTIONS

1. Connect main power supply to main power terminal blocks, connect power to booster pump from contactor as shown below. Ground main power supply and booster pump to grounding bus bar. Reference DWG SX0034.

- The XTCII-Series systems pump, and motor are available in 230 Volt, 50/60 Hertz, 1 Phase
- Ensure that the electrical circuit supplying the system is compatible with the requirements of the specific XTCII model you are installing.

NOTE: IT'S RECOMMENDED THAT A QUALIFIED ELECTRICIAN WIRE YOUR SYSTEM IN ACCORDANCE WITH ABYC REQUIREMENTS.

WARNING: TO REDUCE THE RISK OF ELECTRICAL SHOCK, THE INCOMING POWER SUPPLY MUST INCLUDE A PROTECTIVE GROUND.

PC BOARD DIP SWITCH SETTINGS

XTCII DIP SWITCH SETTINGS			
Spot Zero Touch Screen	SZ	CRL	Carel Touchscreen
XZ System (Boards connected together via FWSW connections)	XZ	X/Z	Independent XTCII or ZTCII System (Boards not connected together via FWSW connections)
Color Graphics Touchscreen	CG	TXT	Text LCD Display
Fresh Water Board (Spot Zero)	FW	SW	Sea Water Board (Sea Exchange)

3. OPERATION AND MAINTENANCE

XTCII CONSUMABLE ITEMS

ITEM NUMBER		DESCRIPTION	MAINTENANCE FREQUENCY
252404298		4.5”x20” 5-Micron Sediment Filter	When Pre-Filter Inlet/Outlet Pressure Differential is <15psi
252404499		4.5”x10” 5-Micron Sediment High Capacity Pre-Filter	When Pre-Filter Inlet/Outlet Pressure Differential is <15psi
252404500		4.5”x10” 25-Micron Sediment High Capacity Pre-Filter	When Pre-Filter Inlet/Outlet Pressure Differential is <15psi
252404295		10” Fresh Water Flush Carbon Block Filter	Every 4 Months
252404179		2.5”x40” Sea Water Replacement Membrane	When Membrane Rejection % is less than 99.4%
252404178		2.5”x21” Sea Water Replacement Membrane	When Membrane Rejection % is less than 99.4%
252404401		General Pump Oil 16oz	After first 50 hours, then every 500 hours

OPERATING DO's & DON'Ts

DO:

1. Change the cartridge filters regularly
2. Monitor the system and keep a daily log
3. Adjust the system product to the recommended value
4. Always feed the pump with filtered water

DON'T:

1. Permit chlorine to be present in the feed water
2. Shut down the system for extended periods without preservation
3. Close the control valves completely
4. Operate the system with insufficient feed flow
5. Operate the pump dry

OPERATION & MAINTENANCE

The reverse osmosis process causes the concentration of impurities. The impurities may precipitate (fall out of solution) when their concentration reaches saturation levels.

NOTE: PRECIPITATION CAN SCALE OR FOUL MEMBRANES AND MUST BE PREVENTED.

DO NOT OPERATE SYSTEM BEYOND RATED PRODUCTION!

OPERATION SPECIFICATIONS

BEFORE STARTING

The reverse osmosis process causes the concentration of impurities. The impurities may precipitate (fall out of solution) when their concentration reaches saturation levels when operated beyond rated production. This precipitation can scale or foul the membranes. To prevent this, your XTCII unit should never be operated over the **rated production** listed in the **UNIT SPECIFICATION** chart (page 7) and also should not be run above **850psi pump pressure**. Water temperature and inlet water ppm are variables that affect product flow rate and pump pressure.

CAUTION: THE RATED PRODUCTION WILL HAVE TO BE CORRECTED FOR TEMPERATURE OF SEA WATER WHEN DETERMINING RATED FLOW FOR YOUR UNIT. SEE "TEMPERATURE CORRECTION FACTORS FOR WATER PRODUCTION" CHART (PAGE 40) FOR AN EXAMPLE ON CORRECTING THE RATED FLOW RATE.

PRE-FILTRATION

XTCII-Series systems are supplied with a single 20-inch 5-micron (part number 252404291) HIGH CAPACITY sediment filter or the optional selection of a 10-inch 25-micron (part number 252404292) and 5-micron (part number 252404291) HIGH CAPACITY sediment filters. These filters are made from Typar™ filter media and contain 30% more media than most 2.5" x 10" or 4.5" x 20" pleated sediment cartridges To prevent damage to the system, we recommend using the sediment filters supplied with this system. Change the pre-filters once there is a noticeable loss in outlet pressure.

BOOSTER PUMP

XTCII-series systems are supplied with a centrifugal pump. The pump must be located below the water line to maintain a positive suction head for priming purposes. Refer to pages 79-81 for the Booster Pump Manual.

THE BOOSTER PUMP MUST NEVER BE RUN DRY. OPERATING THE PUMP WITHOUT SUFFICIENT FEED WATER WILL DAMAGE THE PUMP.

HIGH PRESSURE PUMP

The pump used on the XTCII-Series systems is a piston type constructed of stainless steel. Follow these guidelines to ensure proper operation of the pump:

- Refer to the High-Pressure Pump in manufacturer's index for recommended maintenance (page 37).
- The pump must **NEVER** be run dry. Operating the pump without sufficient feed water will damage the pump.
- **ALWAYS** use the required filters when operating the unit. The high-pressure pump is susceptible to damage from sediment and debris.
- If any damage occurs to your system's pump, a re-build kit is available. Contact your local dealer or distributor and inform them of your system's model and pump size.

Follow the instructions in the FWF section on page 57.

MEMBRANES

XTCII-Series reverse osmosis systems come pre-loaded with DOW FILMTEC™ sea water membranes unless otherwise specified. For the best longevity of membranes, use the manufacturer's recommended pre-filters, operate it within it limits, and ensure the system is performing its regular FWF. Membrane element guidelines can be found in the Dow FILMTEC™ Membranes Manual on pages 82-83.

DIVERSION VALVE

The diversion valve controls the product water after the membranes. If the controller determines that the salinity of the water is acceptable, (based on the salinity set point) it will energize the di- version valve solenoid, causing the water to flow to the vessels tank. If the electrical portion of the solenoid fails or the controller fails to energize the solenoid, a manual bypass on the diversion valve may be utilized if the product water is found to be acceptable. Refer to picture on page 50 and the Diversion Valve Manual on pages 84-87.

SYSTEM CONTROLLER

The controller is a logic-based PC board that can analyze and control the electrical components within the system. Its primary functions are to monitor safety switches (high and low pressure), perform the program sequence of operations to optimize the start, normal operation, and shut- down sequence.

FEED WATER & OPERATION SPECIFICATIONS

Nothing has a greater effect on a reverse osmosis system than the feed water quality

NOTE: IT IS VERY IMPORTANT TO MEET THE MINIMUM FEED WATER REQUIREMENTS. FAILURE TO DO SO WILL CAUSE THE MEMBRANES TO FOUL AND VOID THE MANUFACTURER'S WARRANTY.

Maximum Feed Temperature °F (°C)	95 (29)	Maximum Free Chlorine ppm	0
Minimum Feed Temperature °F (°C)	40 (4.4)	Maximum TDS ppm	45,000
Maximum Ambient Temperature °F (°C)	110 (48.9)	Maximum Hardness gpg	0
Minimum Ambient Temperature °F (°C)	40 (4.4)	Maximum pH (Continuous)	11
Maximum Feed Pressure psi (bar)	40 (5.9)	Minimum pH (Continuous)	5
Minimum Feed Pressure psi (bar)	15(3.1)	Maximum pH (Cleaning 30 Min.)	12
Maximum Operating Pressure psi (bar)	850(68.95)	Minimum pH (Cleaning 30 Min.)	2
Minimum SDI Rating SDI	<1	Maximum Turbidity NTU	1

Test Parameters: 35,000 TDS Filtered (5 Micron), De-Chlorinated, Feed Water, 40 psi (4.5 bar) Feed Pressure, 850 psi (58.61 bar) Operating Pressure, 77

Degrees F (25 Degrees C), Recovery as stated, 7.0 pH. Data taken after 60 minutes of operation.

NOTE: HIGHER TDS AND/OR LOWER FEED WATER TEMPERATURES WILL REDUCE THE SYSTEM'S PRODUCTION.

ACRONYMS AND DEFINITIONS

ACRONYM/SYMBOLS	DEFINITION
FWF	FRESH WATER FLUSH
RO	REVERSE OSMOSIS
PSI	POUNDS PER SQUARE INCH
GPM	GALLONS PER MINUTE
GPD	GALLONS PER DAY
TDS	TOTAL DISSOLVED SOLIDS
PPM	PARTS PER MILLION
TCF	TEMPERATURE CORRECTION FACTOR
LP SWITCH	LOW PRESSURE SWITCH
HP SWITCH	HIGH PRESSURE SWITCH
Φ	PHASE
SW	SEA WATER
FW	FRESH WATER

REJECTION, RECOVERY, & FLOW RATES

Sea Xchange XTCII-Series Reverse Osmosis Systems are designed to produce product water at the capacities indicated. For example, the XTCII 2200 produces 1.53 gallons per minute (2200/24/60min=1.53 gpm) of permeate water at the listed operating test conditions.

The amount of total dissolved solids (TDS) rejected by the membrane is expressed as a percentage. For example, a 99.4% rejection rate means that 99.4% of total dissolved solids do not pass through the membrane. To calculate the % rejection, use the following formula.

% Rejection = [(Feed TDS – Product TDS) / Feed TDS] x 100

Example:

99.4% = [(35,000-210)/35,000] x 100

NOTE: ALL TDS FIGURES MUST BE EXPRESSED IN THE SAME UNITS, TYPICALLY PARTS PER MILLION (PPM) OR MILLIGRAMS PER LITER (MG/L).

Sea Xchange XTCII-Series Reverse Osmosis Systems are designed to reject up to 99.4% NaCl, unless computer projections have been provided or stated otherwise.

The amounts of product water recovered for use is expressed as a percentage. To calculate % recovery and % rejection, use the following formulas:

% Recovery = (Product Water Flow Rate / Feed Water Flow

Rate) x 100 Example:

36% = (1.52/4.22) x 100

% Rejection = (Feed TDS – Product TDS)/(Feed TDS)

x 100 Example:

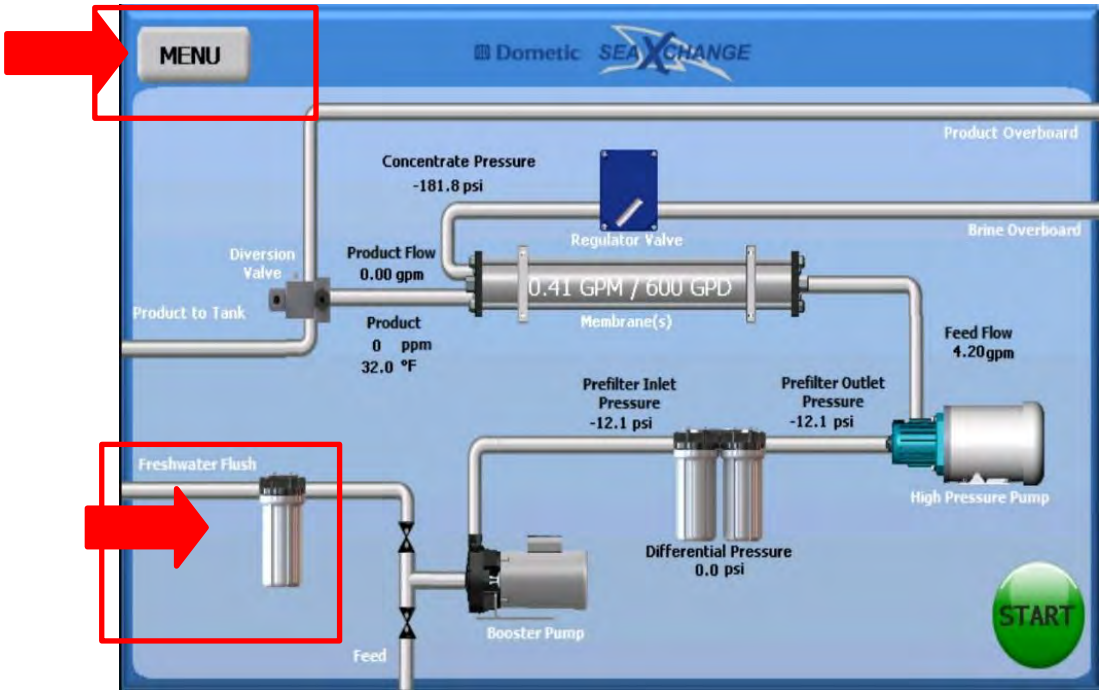
99.4% = [(35,000-210)/35,000] x 100

NOTE: ALL FLOW RATES MUST BE EXPRESSED IN THE SAME UNITS.

INITIAL START- UP

Carefully inspect your system before initial start-up. Check that all plumbing and electrical connections are not loose or have not come undone during shipment. A User's Manual, Test Results, and Filter Housing Wrench will accompany your XTCII-Series Reverse Osmosis System.

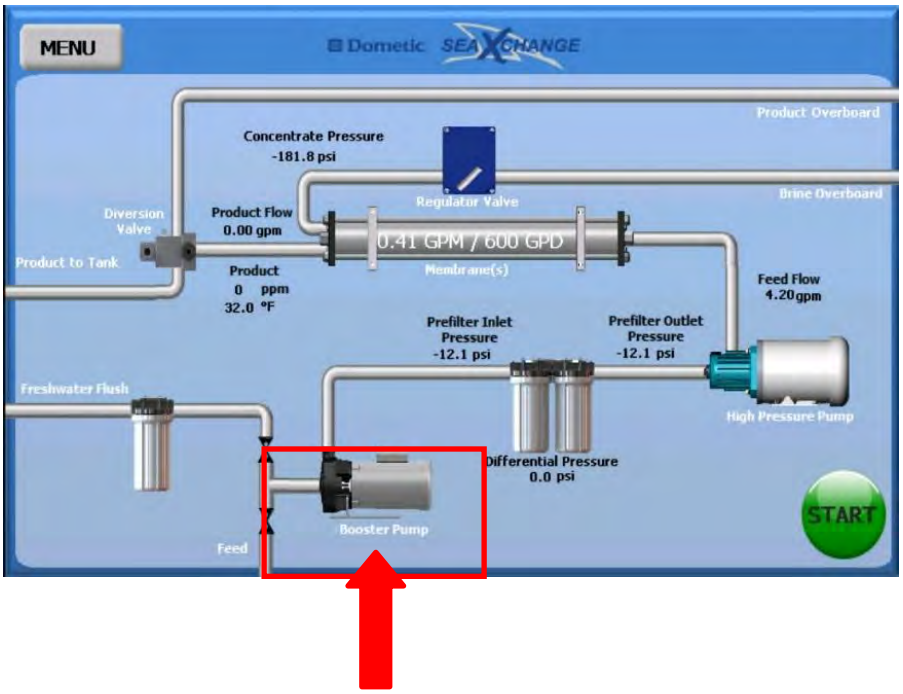
1. Maintain the permeate water line (Product to Tank) to drain for this procedure.
2. Perform a MANUAL FRESH WATER FLUSH as indicated below to purge all air out of the system.
3. Press the Fresh Water Flush image or select "Fresh Water Flush" from the service menu.



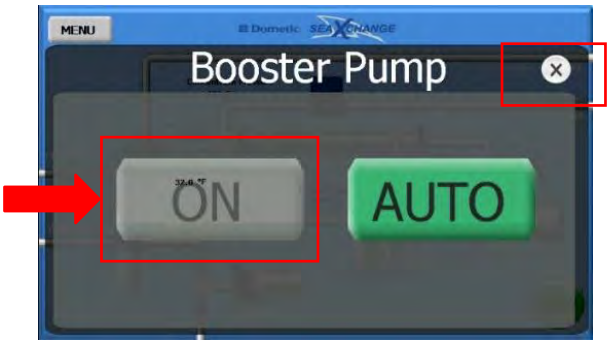
4. Press the down arrow on Mode and select the OFF option to activate MANUAL FWF

5. MANUAL FWF icon should appear. Press the button to initiate a FWF and let it run.

6. Press the Booster Pump image.



7. Press the “ON” button, then press the “X” button to exit the menu. When the Booster Pump is running wavy line should appear to the right of the Booster Pump image indicating that the motor is on.



8. Let the Booster pump run for 30 minutes to flush out all membrane preservative.
9. Check system for any leaks.
10. Return Booster Pump to AUTO mode and return FWF to AUTO mode
11. Re-direct the product water back to the tank or point-of-use.
12. Proceed to STANDARD OPERATION on the next section.

STANDARD OPERATION

1. Simply press the Start button and the system will automatically adjust to produce water.

2. You can set the system to automatically shut down as instructed on pages 46-48 or simply press the STOP button to stop the system.

OPTION 1

OPTION 2

PUMP MAINTENANCE

The pump used on the XTCII-Series systems is a piston style stainless steel type. Follow these guidelines to ensure proper operation of the pump:

1. IMPORTANT! Change oil after initial 50 hours of operation and every 500 Hours thereafter.
2. The pump must **NEVER** be run dry. Operating the pump without sufficient feed water will damage the pump

ALWAYS feed the pump with filtered water. The pump is susceptible to damage from sediment and debris.

If any damage occurs to your system's pump, a rebuild kit is available. Contact your local dealer or distributor and inform them of your system's model and pump size.

Please refer to the appendix section for General PUMPS service manual.

MEMBRANE CARE

- Maximum Operating Temperature 113°F (45°C)
- Maximum Operating Pressure 850 psi (58 bar)
- Maximum Pressure Drop 15 psig (1.0 bar)
- pH Range, Continuous Operation [a] 7-9
- pH Range, Short-Term Cleaning [b] 1 - 13
- Maximum Feed Silt Density Index SDI 5
- Free Chlorine Tolerance [c] <0.0 ppm

Operating Limits

a. Maximum temperature for continuous operation above pH 10 is 95°F (35°C).

b. Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure.

c. Since oxidation damage is not covered under warranty, FilmTec recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to technical bulletin 609-22010 for more information.

Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system operating parameters conform to design specifications so that system water quality and productivity goals can be achieved.

MEMBRANE OPERATION GUIDELINES

Avoid any abrupt pressure or crossflow variations on the spiral elements during start-up, shut- down, cleaning, or other sequences to prevent possible membrane damage. During start-up, a gradual change from a standstill to operating state is recommended as follows:

- Feed pressure should be increased gradually over a 30-60 second time frame.
- Crossflow velocity at set operating point should be achieved gradually over 15-20 seconds.
- Permeate obtained from first hour of operation should be discarded.

MEMBRANE GENERAL INFORMATION

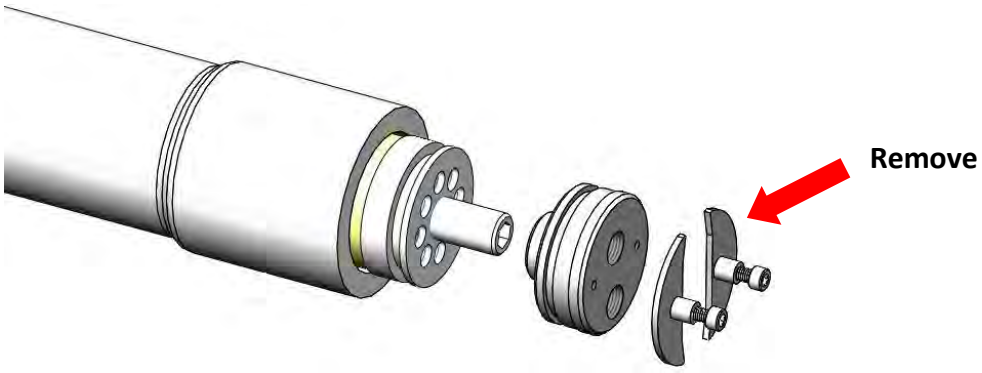
- Keep elements moist at all times after initial wetting.
- If operating limits and guidelines given in this bulletin are not strictly followed, the limited warranty will be null and void.
- To prevent biological growth during prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution.
- The customer is fully responsible for the effects of incompatible chemicals and lubricants on elements.
- Maximum pressure drop across an entire pressure vessel (housing) is 50 psi (3.4 bar).
- Avoid static permeate-side backpressure at all times.

MEMBRANE REMOVAL & REPLACEMENT

Replacing membranes in the pressure vessels is an easy process if you have the proper information and tools at hand. Please refer to the following instructions when removing and replacing membrane elements:

WARNING: ALL PRESSURE GAUGES MUST READ ZERO BEFORE PROCEEDING. BEFORE ATTEMPTING, DISCONNECT THE POWER FROM THE SYSTEM AND BLEED ALL WATER PRESSURE FROM THE SYSTEM.

1. Remove the end plugs from the side of the pressure vessels. This is done by removing the four 3/8” nuts and washers. The end plugs should then freely slide out of the pressure vessel.

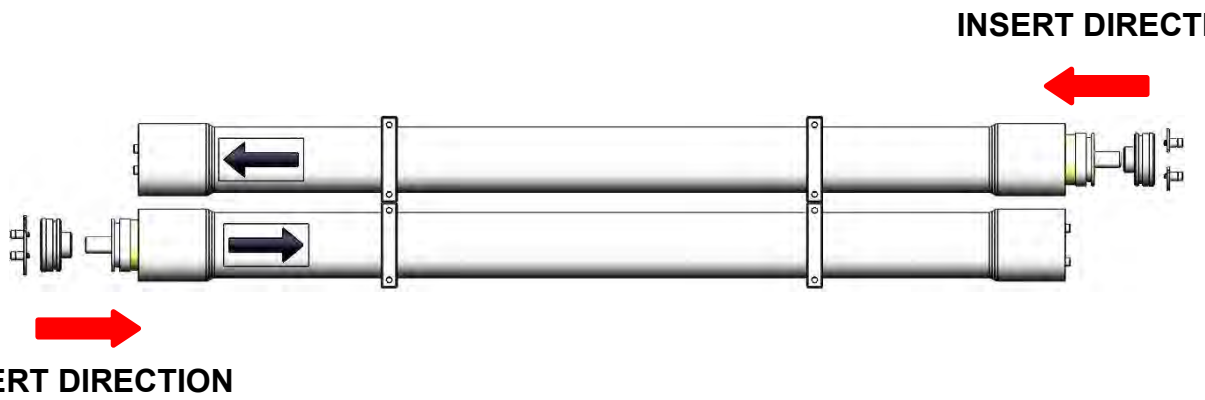


2. Remove the replacement membrane element(s) from the shipping box; the membrane(s) should be contained within a plastic oxygen barrier bag.

NOTE: WEAR GLOVES FOR THE FOLLOWING STEPS IN ORDER NOT TO CONTAMINATE THE MEMBRANE.

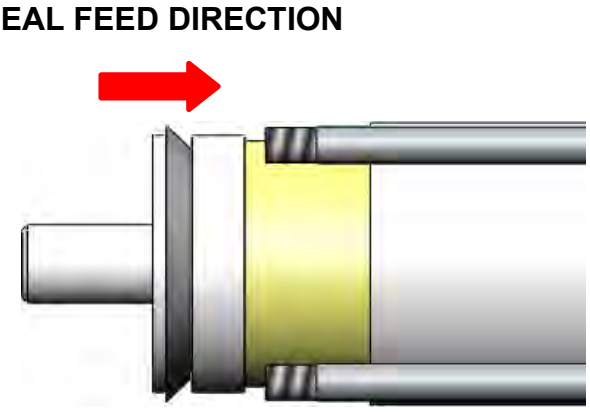
3. Cut the bag open as close as possible to the seal at one end of the bag, so the bag may be re-used if necessary.
4. Make sure that all parts are clean and free from dirt. Examine the brine seal and permeate tube for nicks or cuts. Replace the O-rings or brine seal if damaged.

5. Flow directions should be observed for installation of each element into their respective pressure vessels.



6. Remove one membrane element at a time from the pressure vessels, from the side of each housing. Long nose pliers may be necessary to pull the old membrane element out of the membrane element housing.
7. Lubricate the brine seal with a non-petroleum-based lubricant, such as Dow Corning® 111.
8. Install membranes with brine seal location depicted.

WARNING: THE BRINE SEAL MUST BE IN THE SAME POSITION FOR EACH MEMBRANE ELEMENT HOUSING. THE BRINE SEAL IS A RUBBER SEAL THAT PROTRUDES ON ONE SIDE OF THE MEMBRANE AND IS ALWAYS ON THE FEED SIDE OF THE MEMBRANE ELEMENT.



9. With a smooth and constant motion, push the membrane element into the housing so the brine seal enters the housing without coming out of the brine seal groove.
10. Re-install the end plugs by gently twisting the end cap while pushing it onto the housing.

11. Ensure that you do not pinch or fatigue any O-rings while re-installing the end plug. Push the end plug on until the plug is flush with the pressure vessel.

12. Insert the four rods through the plate and fasten using a 3/8 wrench and a flat screwdriver.

13. Reconnect any fittings that may have been disconnected when the membrane pressure vessels were disassembled.

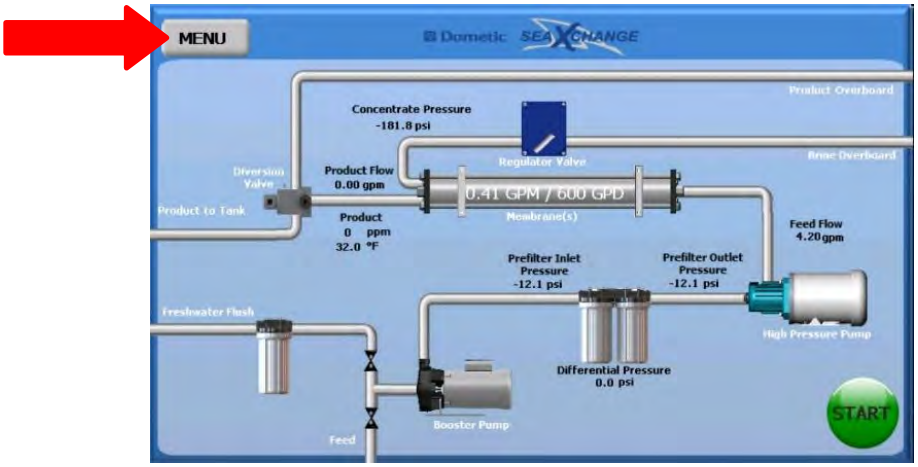
14. To Start-Up the system, please refer to the Initial Start-Up section of this manual. (See page 28)

CAUTION: WET MEMBRANES ARE SHIPPED IN A PRESERVATIVE SOLUTION. THE MEMBRANES MUST BE FLUSHED FOR AT LEAST 30 MINUTES TO RE-MOVE THE PRESERVATIVE FROM THE MEMBRANE. DISCARD ALL OF THE PERMEATE AND CONCENTRATE, WHICH IS PRODUCED DUR ING THE FLUSH PERIOD.

MANUALY FLUSHING THE SYSTEM

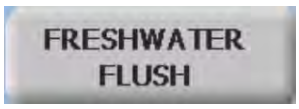
To manually flush the system, follow the preceding steps:

1. The system must be powered on during the flush procedure.
2. Press the Menu icon on the touch screen.



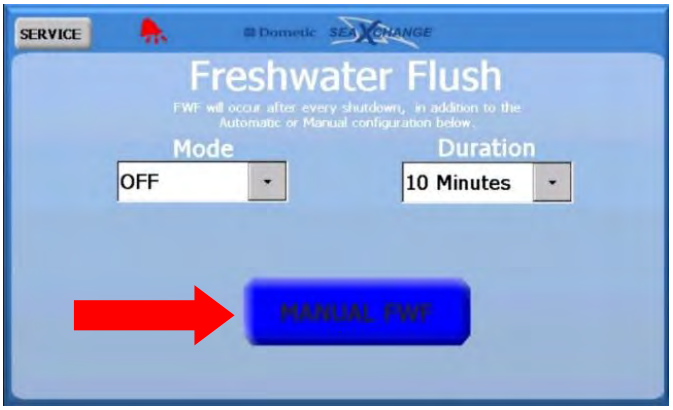
3. Press the SERVICE MENU button.

4. Press the FRESHWATER FLUSH button.

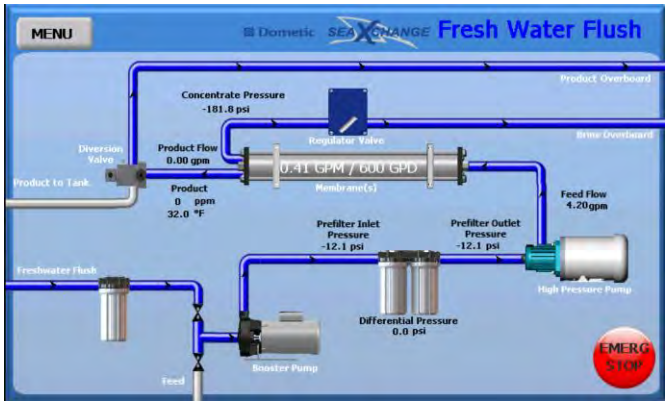


5. Press the down arrow on Mode and select the OFF option

6. Press MANUAL FWF



7. Allow the system to run for 10 to 20 minutes.



8. Press the EMERG STOP button to stop the manual FWF.

9. Repeat steps 3 – 5 to set the system back to automatic FWF.

PREPARING UNIT FOR STORAGE OR SHIPMENT

PRIOR TO SHIPPING OR STORING YOUR SYSTEM, THE SYSTEM SHOULD BE CLEANED WITH AN APPROPRIATE CLEANER, FLUSHED WITH WATER, AND PROTECTED FROM BIOLOGICAL ATTACK WITH AN APPROPRIATE SOLUTION FOR MEMBRANE ELEMENTS. THE MEMBRANE HOUSING(S) AND PLUMBING LINES OF THE SYSTEM MUST BE COMPLETELY DRAINED. ANY WATER REMAINING IN THE PLUMBING OF A SYSTEM MAY FREEZE, CAUSING SERIOUS DAMAGE.

PREPARING SYSTEM FOR STORAGE:

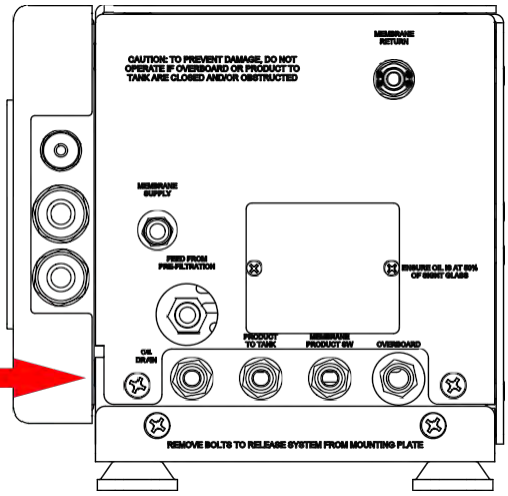
1. Totally immerse the elements in the membrane housing in a solution of 2% Memstor, venting the air outside of the pressure vessels. Use the overflow technique: circulate the Memstor solution in such a way that the remaining air in the system is minimized after the recirculation is completed. After the pressure vessel is filled, the Memstor solution should be allowed to overflow through an opening located higher than the upper end of the highest-pressure vessel being filled.
2. Separate the preservation solution from the air outside by closing all valves.
3. Repeat this process as needed.

During the shutdown period, the plant must be kept frost-free, or the temperature must not exceed

During the shutdown period, the plant must be kept frost-free, or the temperature must not exceed 113°F (45°C).

HIGH PRESSURE PUMP OIL CHANGE

OIL CHANGE STEPS

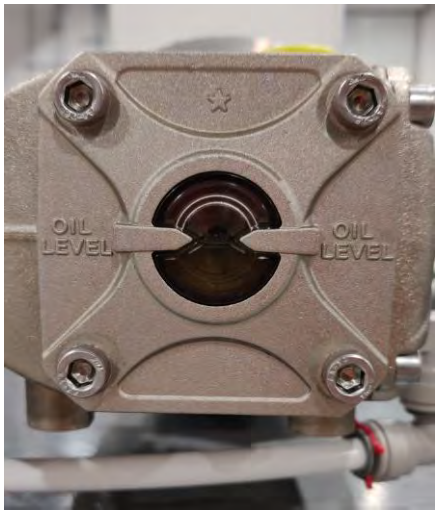


1. Run unit for 30 minutes prior to draining oil
2. Drain the oil out of the pump by opening the oil drain valve. Dispose of oil properly.
Oil drain is on the side of unit. Drain Valve Is located under front cover.
Drain Valve can also be used to fill the pump back with oil. (Recommended)

3. Close the drain valve on the high-pressure pump drain.
4. Locate and remove oil fill cap.

Oil Fill Cap

5. Fill oil above the center of sight glass not exceeding the very top of the site glass. (refer to picture to the right)



6. Screw fill cap back onto top of high-pressure pump

NOTE: OIL LEVEL MUST ONLY BE CHECKED WITH THE UNIT NOT RUNNING

4. TROUBLESHOOTING

ABNORMAL PRODUCT FLOW

As time progresses, the efficiency of the membrane will be reduced. In general, the salt rejection does not change significantly until two or three years after installation when operated on properly pretreated feed water. The permeate flow rate will begin to decline slightly after one year of operation but can be extended with diligent flushing and cleaning of the system. A high pH and/or precipitation of hardness can cause premature loss in rejection.

Permeate flow should be within 20% of the rated production, after correcting the feed water temperatures above or below 77°F. Check your permeate flow meter to determine the permeate flow rate.

NOTE: TO DETERMINE THE TEMPERATURE CORRECTION FACTOR, LOCATE THE TEMPERATURE CORRECTION TABLE IN THIS USER'S MANUAL AND FOLLOW THE DIRECTIONS. PG. 40

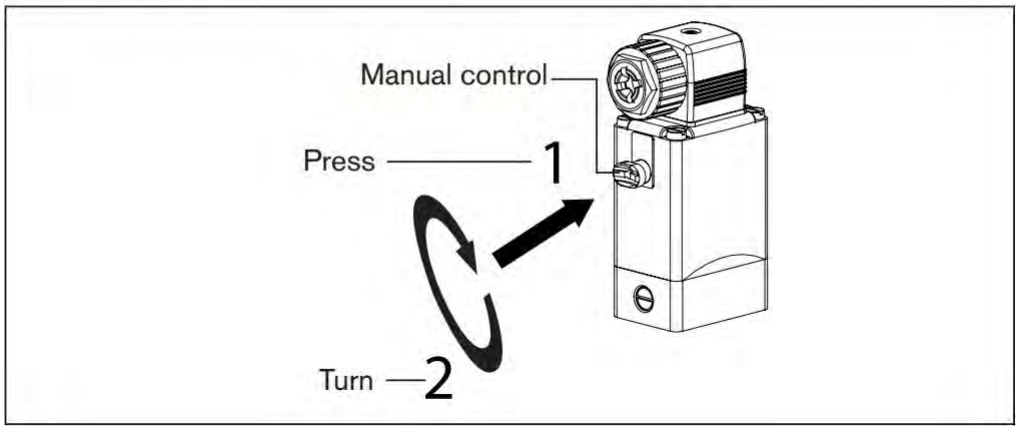
DIVERSION VALVE

BY-PASS

If the electrical portion of the solenoid fails or the controller fails to energize the solenoid, a manual bypass on the diversion valve may be utilized if the product water is found to be acceptable. Refer to picture below and the Diversion Valve Manual on pages 84-87.

NOTE!

- When the manual control is locked, the valve cannot be actuated electrically.



TEMPERATURE CORRECTION FACTORS FOR MEMBRANE

Find the temperature correction factor (TCF) from the table below. Divide the rated permeate flow at 77°F by the temperature correction factor. The result is the permeate flow at the desired temperature. (See example on the next page)

°F = (°C x 9/5)+ 32 Corrected Flow Rate = (Measured Flow Rate)*(TCF @ Feed Water Temp.)

If a system is rated to produce 5 gpm of permeate water @ 77° F. The same system will produce more water at a higher temperature. It will also produce less water at a lower temperature. Use the temperature correction table to obtain the correct flow.

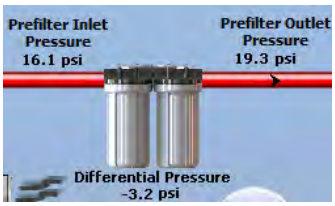
Example:

1.25 gpm @ 59° F (1.25÷1.42=.88 gpm)

1.25 gpm @ 77° F (1.25÷1=1.25 gpm)

1.25 gpm @ 84° F (1.25÷0.89=1.4 gpm)

Temperature °F (°C)	Temperature Correction Factor	Temperature °F (°C)	Temperature Correction Factor	Temperature °F (°C)	Temperature Correction Factor	Temperature °F (°C)	Temperature Correction Factor	Temperature °F (°C)	Temperature Correction Factor
50.0 (10.0)	1.711	57.2 (14.0)	1.475	64.4 (18.0)	1.276	71.6 (22.0)	1.109	78.8 (26.0)	0.971
50.2 (10.1)	1.705	57.4 (14.1)	1.469	64.6 (18.1)	1.272	71.8 (22.1)	1.105	79.0 (26.1)	0.968
50.4 (10.2)	1.698	57.6 (14.2)	1.464	64.8 (18.2)	1.267	72.0 (22.2)	1.101	79.2 (26.2)	0.965
50.5 (10.3)	1.692	57.7 (14.3)	1.459	64.9 (18.3)	1.262	72.1 (22.3)	1.097	79.3 (26.3)	0.962
50.7 (10.4)	1.686	57.9 (14.4)	1.453	65.1 (18.4)	1.258	72.3 (22.4)	1.093	79.5 (26.4)	0.959
50.9 (10.5)	1.679	58.1 (14.5)	1.448	65.3 (18.5)	1.254	72.5 (22.5)	1.090	79.7 (26.5)	0.957
51.1 (10.6)	1.673	58.3 (14.6)	1.443	65.5 (18.6)	1.249	72.7 (22.6)	1.086	79.9 (26.6)	0.954
51.3 (10.7)	1.667	58.5 (14.7)	1.437	65.7 (18.7)	1.245	72.9 (22.7)	1.082	80.1 (26.7)	0.951
51.4 (10.8)	1.660	58.6 (14.8)	1.432	65.8 (18.8)	1.240	73.0 (22.8)	1.078	80.2 (26.8)	0.948
51.6 (10.9)	1.654	58.8 (14.9)	1.427	66.0 (18.9)	1.236	73.2 (22.9)	1.075	80.4 (26.9)	0.945
51.8 (11.0)	1.648	59.0 (15.0)	1.422	66.2 (19.0)	1.232	73.4 (23.0)	1.071	80.6 (27.0)	0.943
52.0 (11.1)	1.642	59.2 (15.1)	1.417	66.4 (19.1)	1.227	73.6 (23.1)	1.067	80.8 (27.1)	0.940
52.2 (11.2)	1.636	59.4 (15.2)	1.411	66.6 (19.2)	1.223	73.8 (23.2)	1.064	81.0 (27.2)	0.937
52.3 (11.3)	1.630	59.5 (15.3)	1.406	66.7 (19.3)	1.219	73.9 (23.3)	1.060	81.1 (27.3)	0.934
52.5 (11.4)	1.624	59.7 (15.4)	1.401	66.9 (19.4)	1.214	74.1 (23.4)	1.056	81.3 (27.4)	0.932
52.7 (11.5)	1.618	59.9 (15.5)	1.396	67.1 (19.5)	1.210	74.3 (23.5)	1.053	81.5 (27.5)	0.929
52.9 (11.6)	1.611	60.1 (15.6)	1.391	67.3 (19.6)	1.206	74.5 (23.6)	1.049	81.7 (27.6)	0.926
53.1 (11.7)	1.605	60.3 (15.7)	1.386	67.5 (19.7)	1.201	74.7 (23.7)	1.045	81.9 (27.7)	0.924
53.2 (11.8)	1.600	60.4 (15.8)	1.381	67.6 (19.8)	1.197	74.8 (23.8)	1.042	82.0 (27.8)	0.921
53.4 (11.9)	1.594	60.6 (15.9)	1.376	67.8 (19.9)	1.193	75.0 (23.9)	1.038	82.2 (27.9)	0.918
53.6 (12.0)	1.588	60.8 (16.0)	1.371	68.0 (20.0)	1.189	75.2 (24.0)	1.035	82.4 (28.0)	0.915
53.8 (12.1)	1.582	61.0 (16.1)	1.366	68.2 (20.1)	1.185	75.4 (24.1)	1.031	82.6 (28.1)	0.913
54.0 (12.2)	1.576	61.2 (16.2)	1.361	68.4 (20.2)	1.180	75.6 (24.2)	1.028	82.8 (28.2)	0.910
54.1 (12.3)	1.570	61.3 (16.3)	1.356	68.5 (20.3)	1.176	75.7 (24.3)	1.024	82.9 (28.3)	0.908
54.3 (12.4)	1.564	61.5 (16.4)	1.351	68.7 (20.4)	1.172	75.9 (24.4)	1.021	83.1 (28.4)	0.905
54.5 (12.5)	1.558	61.7 (16.5)	1.347	68.9 (20.5)	1.168	76.1 (24.5)	1.017	83.3 (28.5)	0.902
54.7 (12.6)	1.553	61.9 (16.6)	1.342	69.1 (20.6)	1.164	76.3 (24.6)	1.014	83.5 (28.6)	0.900
54.9 (12.7)	1.547	62.1 (16.7)	1.337	69.3 (20.7)	1.160	76.5 (24.7)	1.010	83.7 (28.7)	0.897
55.0 (12.8)	1.541	62.2 (16.8)	1.332	69.4 (20.8)	1.156	76.6 (24.8)	1.007	83.8 (28.8)	0.894
55.2 (12.9)	1.536	62.4 (16.9)	1.327	69.6 (20.9)	1.152	76.8 (24.9)	1.003	84.0 (28.9)	0.892
55.4 (13.0)	1.530	62.6 (17.0)	1.323	69.8 (21.0)	1.148	77.0 (25.0)	1.000	84.2 (29.0)	0.889
55.6 (13.1)	1.524	62.8 (17.1)	1.318	70.0 (21.1)	1.144	77.2 (25.1)	0.997	84.4 (29.1)	0.887
55.8 (13.2)	1.519	63.0 (17.2)	1.313	70.2 (21.2)	1.140	77.4 (25.2)	0.994	84.6 (29.2)	0.884
55.9 (13.3)	1.513	63.1 (17.3)	1.308	70.3 (21.3)	1.136	77.5 (25.3)	0.991	84.7 (29.3)	0.882
56.1 (13.4)	1.508	63.3 (17.4)	1.304	70.5 (21.4)	1.132	77.7 (25.4)	0.988	84.9 (29.4)	0.879
56.3 (13.5)	1.502	63.5 (17.5)	1.299	70.7 (21.5)	1.128	77.9 (25.5)	0.985	85.1 (29.5)	0.877
56.5 (13.6)	1.496	63.7 (17.6)	1.294	70.9 (21.6)	1.124	78.1 (25.6)	0.982	85.3 (29.6)	0.874
56.7 (13.7)	1.491	63.9 (17.7)	1.290	71.1 (21.7)	1.120	78.3 (25.7)	0.979	85.5 (29.7)	0.871
56.8 (13.8)	1.486	64.0 (17.8)	1.285	71.2 (21.8)	1.116	78.4 (25.8)	0.977	85.6 (29.8)	0.869
57.0 (13.9)	1.480	64.2 (17.9)	1.281	71.4 (21.9)	1.112	78.6 (25.9)	0.974	85.8 (29.9)	0.866

PROBLEM	CAUSE	SOLUTION
System is going off on low pressure alarm	1. Sea cock valve is closed 2. There is air in the system. 3. The Pre-filters are clogged. 4. Leaks	1. Open the sea cock valve 2. Perform a “Manual FWF” for at least 1 minute. This will help purge any air out of the system. SEE MANUAL FWF Pg. 52. 3. Check the pressure difference between the Pre-filter inlet and Pre-filter outlet. Change the Pre-filter for a new one if there is a noticeable loss of outlet pressure.  4. Tighten or replace leaking part.
Low product water flow	1. Cold feed water 2. Defective membrane brine seal or membrane installed backwards. 3. Fouled or scaled membranes.	1. See temperature correction guide in the manual. 2. Replace brine seal or reposition membrane. SEE MEMBRANE INSTALLATION on Pgs. 32-33. 3. Replace membrane.
High product water flow	1. Warm water feed 2. Damaged membrane O-rings 3. Damaged or oxidized membranes.	1. See temperature correction guide in the manual. 2. Open the membrane vessel and inspect O-ring. If damaged, replace the O-rings. See membrane drawings on Pgs. 32-33. 3. Replace membrane
Poor water quality	1. Damaged product O-rings. 2. Damaged or oxidized membranes.	1. Open the membrane vessel and inspect O-ring. If damaged, replace the O-rings. See membrane drawings on Pgs. 32-33. 2. Replace membrane.

5. XTCII TOUCH SCREEN NAVIGATION

HOME SCREEEN

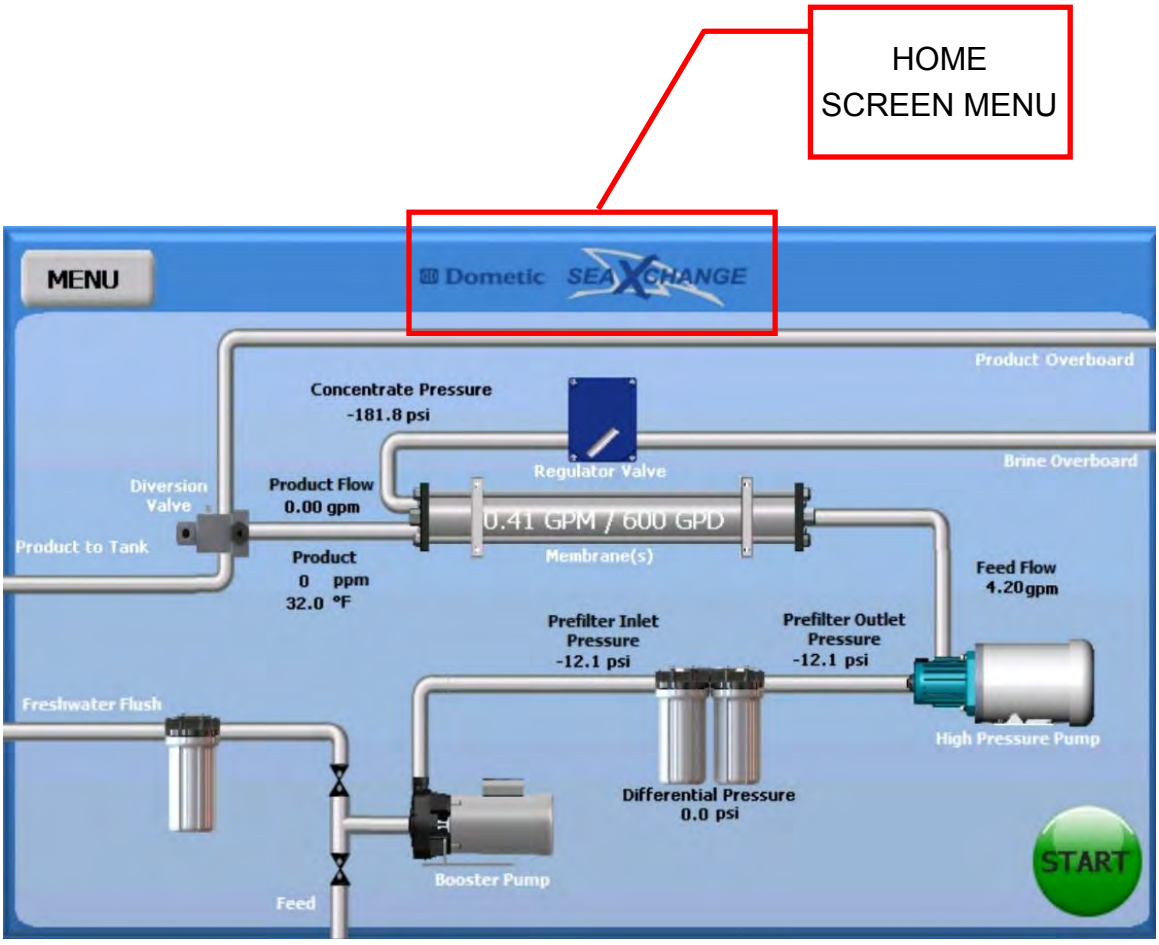
From any screen the “Sea Xchange” logo can be pressed to return to the home screen.

There is a lot of information on the home screen that is crucial for the proper operation of the system. Different component images can be pressed to bring up sub-menus for those components.

Those components are:

- Regulator Valve
- Diversion Valve
- High Pressure Pump
- Booster Pump

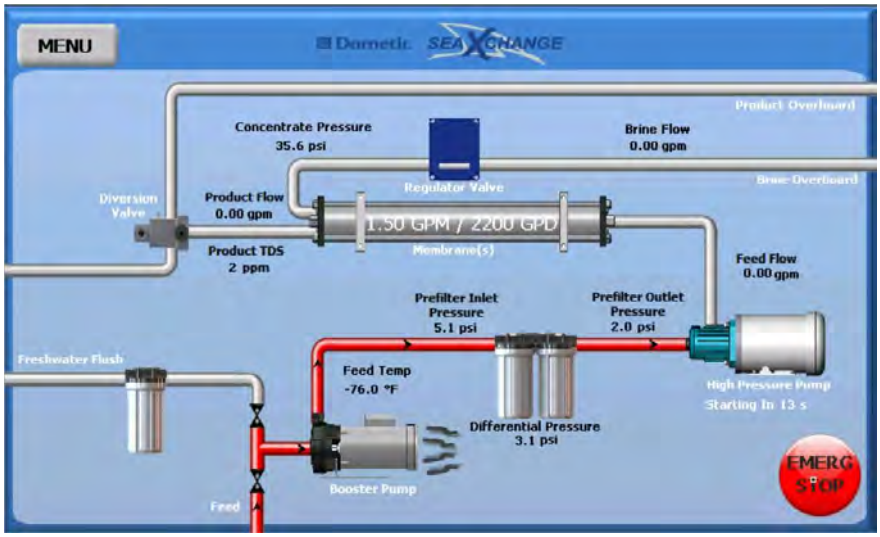
These sub-menus give the user information or options for the specific component. This manual will go through all the different options available.



STANDARD OPERATION

1. Simply press the Start button and the system will automatically adjust to produce water.

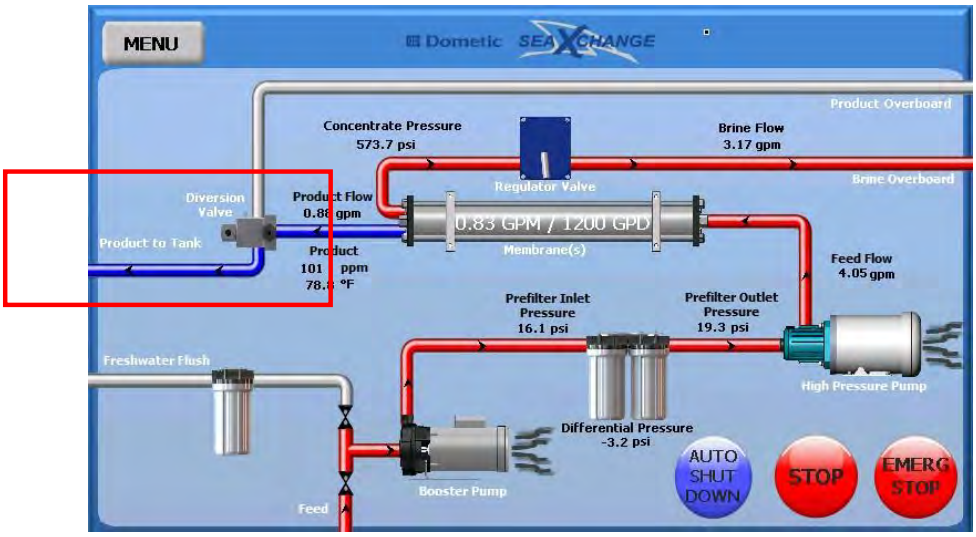
The booster pump will start to run, and the high-pressure pump will start to count down its delay. The screen will indicate water flow, inlet pressure and outlet pressure. It will also show the pressure differential between the pre-filters. The emergency stop button will appear at this time if a shutdown is necessary.



2. After the high-pressure pump delay has expired it will begin to operate. The regulator valve will start to close automatically to the systems rated flow. The flow rates, and pressures will start to register.

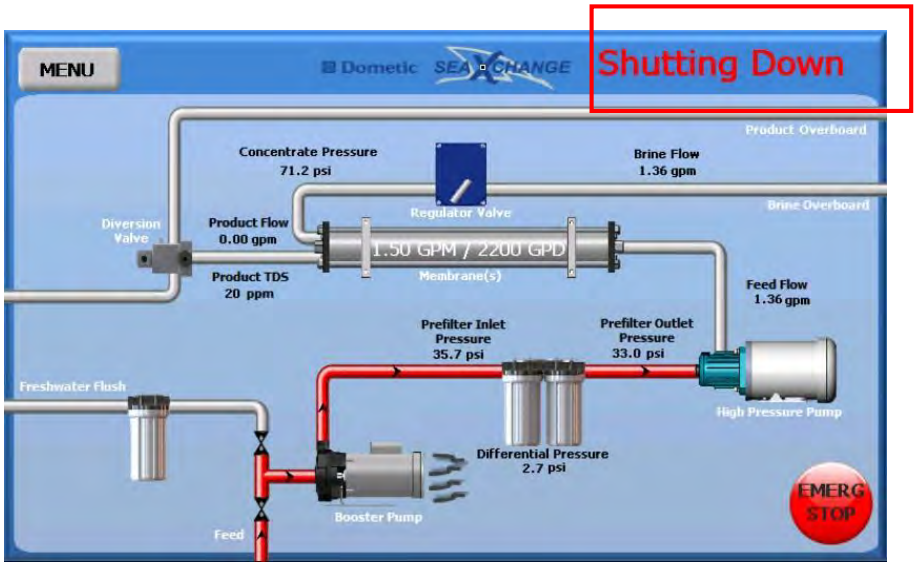
3. As the unit operates and pressure starts to build up, the stop and the auto shut down buttons will appear.

4. When the unit starts making product water below the diversion's valve set point, the valve will activate and send the product water to the vessels freshwater tank.

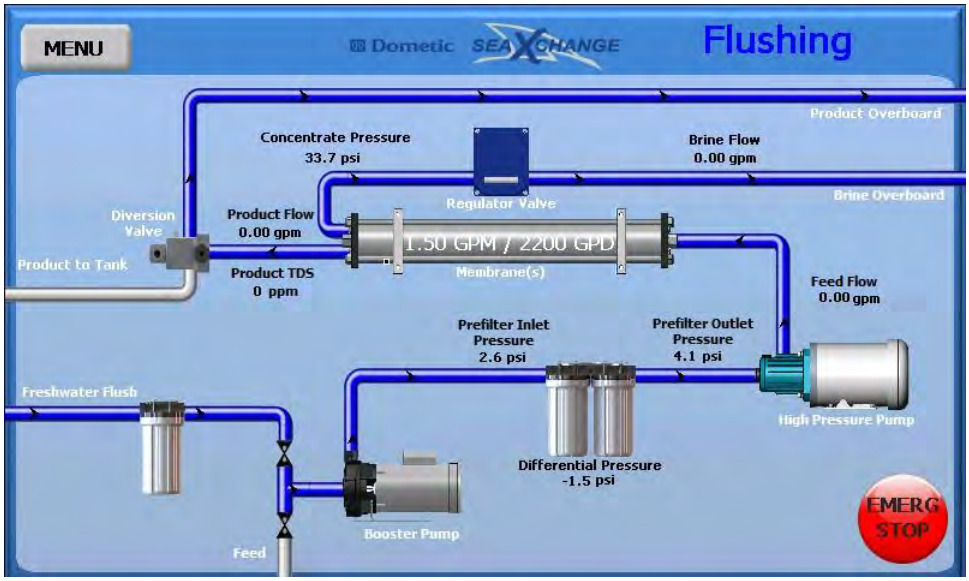


4. To stop operation of system there are three choices:

A. Normal shut down process is to press the stop button. Shutting down will appear on the screen and the high-pressure pump will stop, and the regulator valve will begin to open.



After the valve is all the way open, the booster pump will stop. After the system has shut down, it will do an automatic freshwater flush.

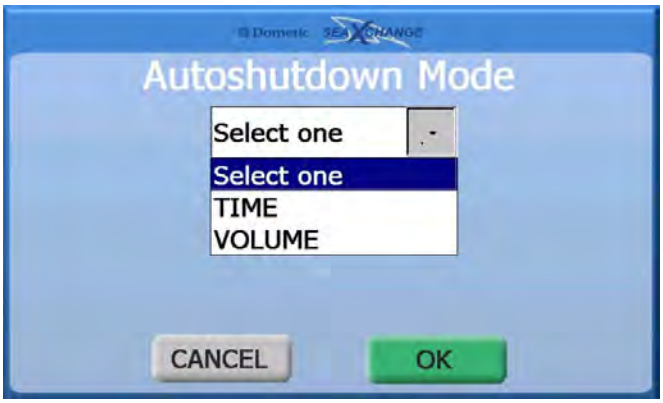


B. Emergency Shut Down button. Selecting this option will shut down the system as fast as possible and it will not do a freshwater flush.

C. Auto Shut Down button. Press this button and get the following options:

I. Auto Shut Down by time

II. Auto Shut Down by volume



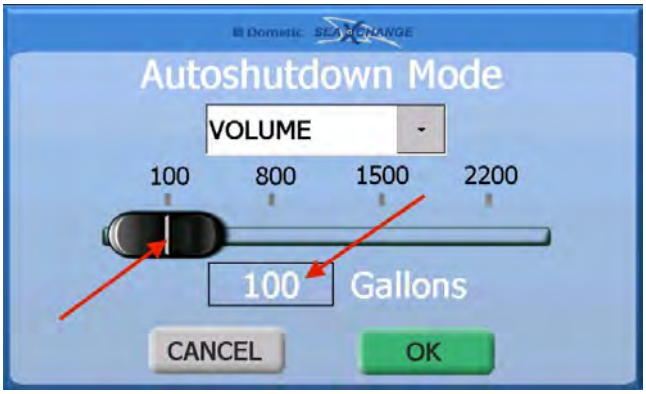
I. Auto Shut Down by time

When “Time” is selected, there will be a sliding scale to select the amount of time the system will operate for.

Touch the “Hours” box and you can manually type in the hours. Press enter after entering the hours. Then press OK.

II. Auto Shut Down by volume

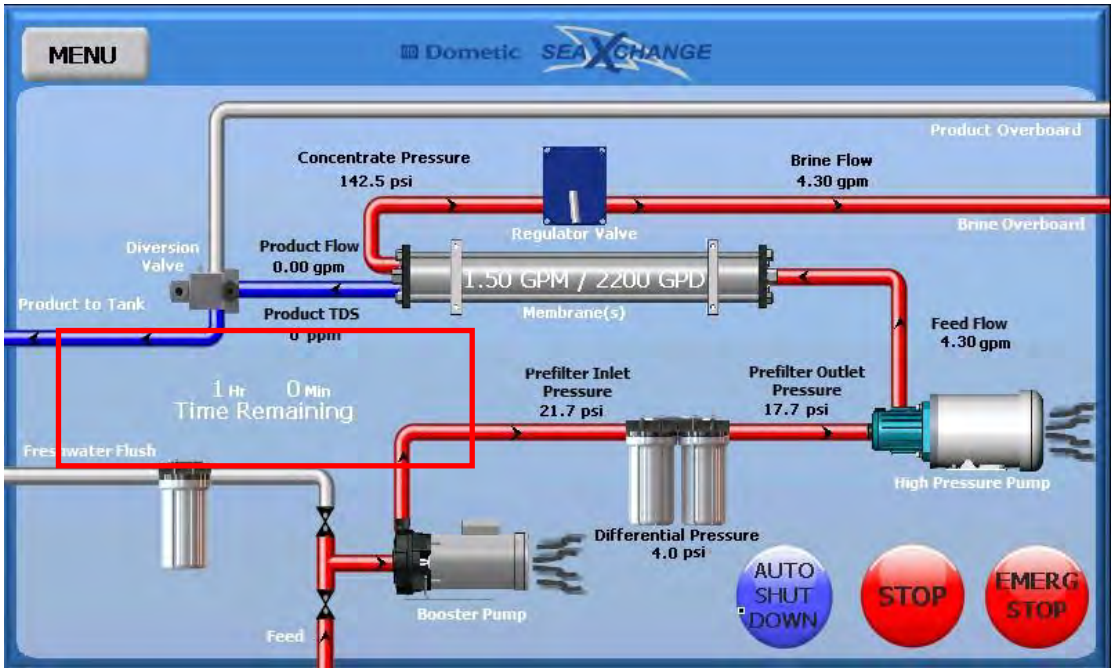
When “Volume” is selected, there will be a sliding scale to select the volume of water the system will produce.



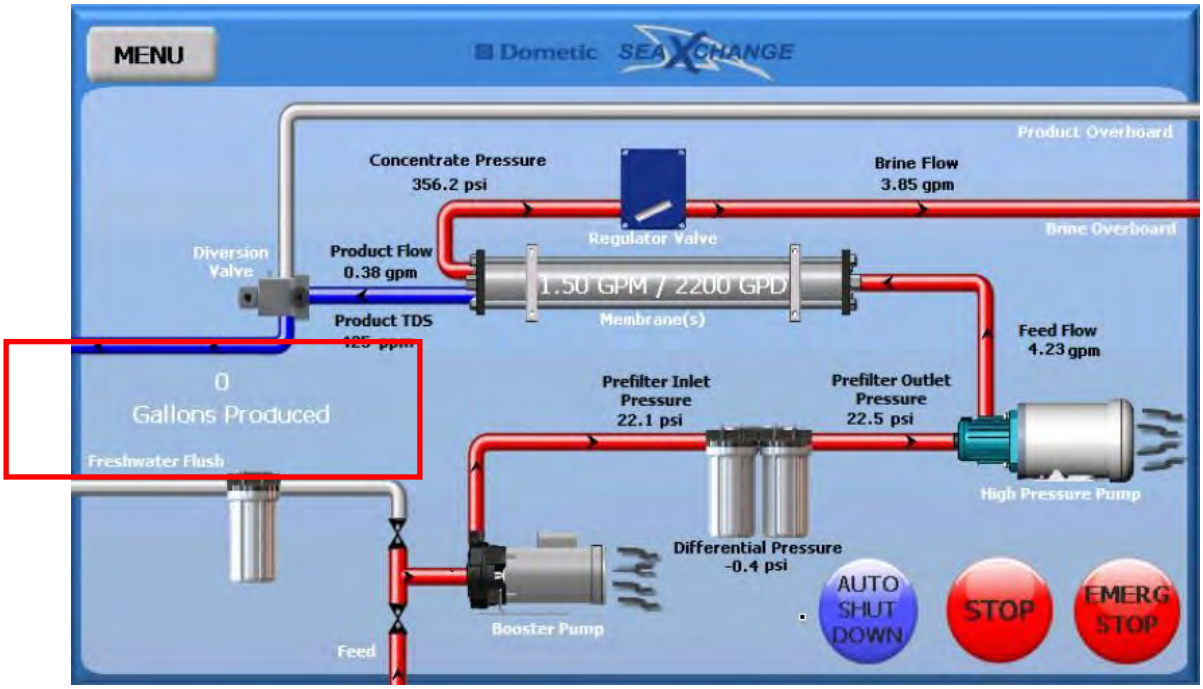
Touch the “Gallons” box and you can manually type in the gallons. Press enter after entering the gallons. Then press OK.

When the is in auto shut down mode, there will be a count on the home screen that will track the production or the time of operation. When the system has satisfied the setting, it will shut down and do a freshwater flush.

Time Remaining

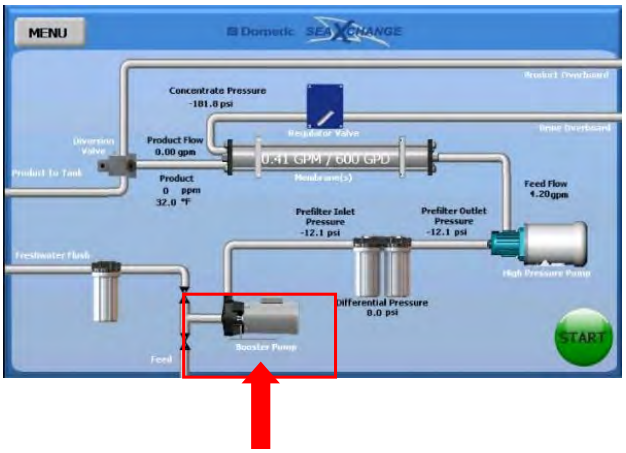


Gallons Produced

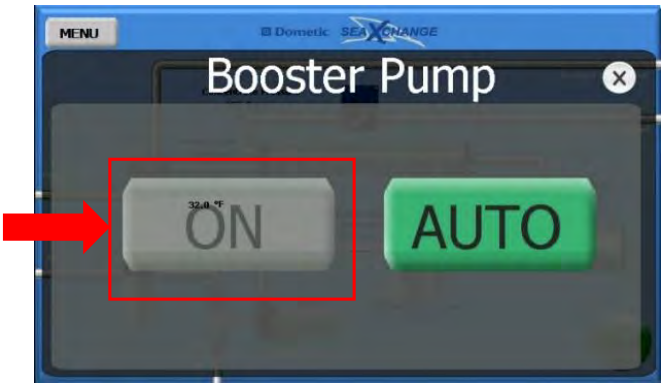


MANUAL RUN PROCEDURE

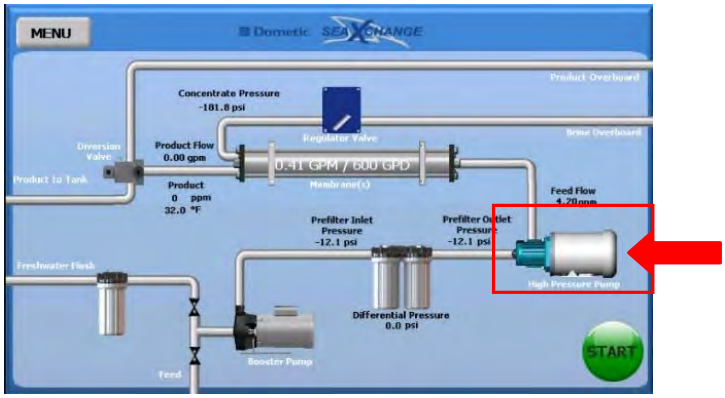
1. Prime the system by touching the Booster Pump image



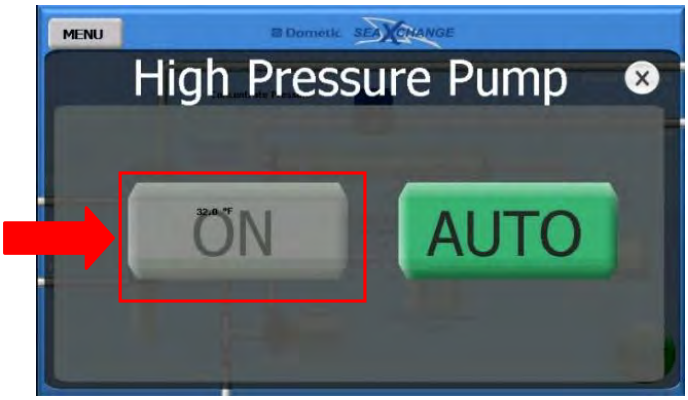
2. Press the “ON” button, then press the “X” button to exit the menu. When the Booster Pump is running wavy line should appear to the right of the Booster Pump image indicating that the motor is on.



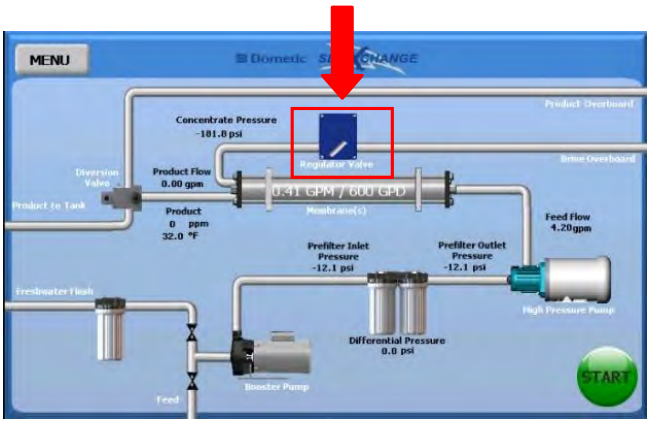
3. Press the High-Pressure Pump image



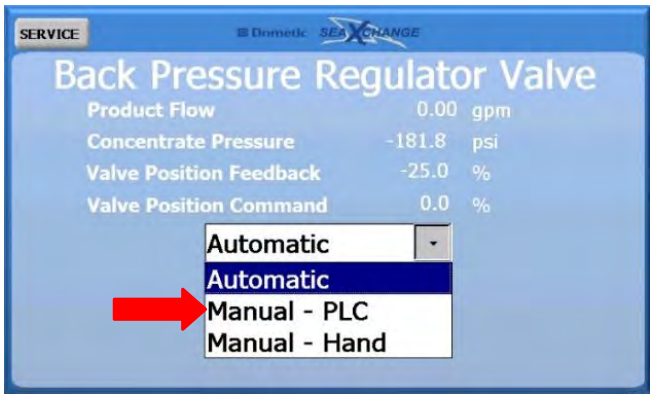
4. Press the “ON” button, then press the “X” button to exit the menu.



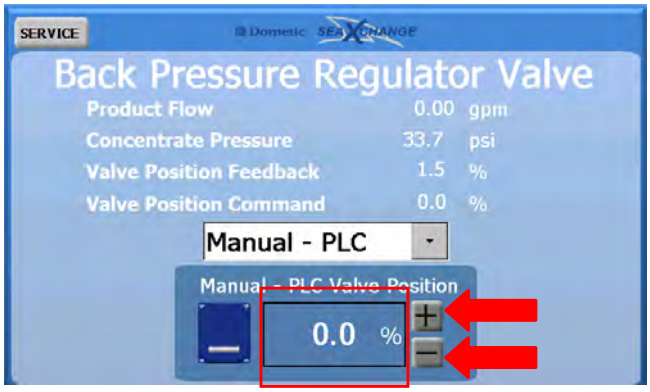
5. Press the Regulator Valve icon



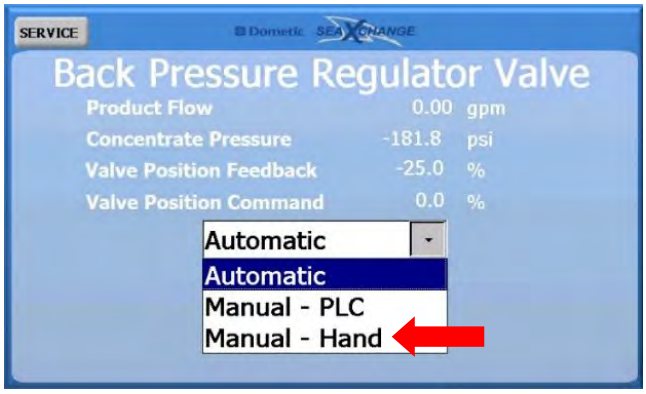
6. Press the down arrow to select “Manual – PLC” to digitally input a number for the valve to turn. The valve closes in % numbers.



6. Press the plus or minus icons to move close or open the valve digitally. You can also press the number box to enter set number for the valve to go to.



When the “Manual-Hand option is pressed you are able to mechanically turn the valve with your hand.

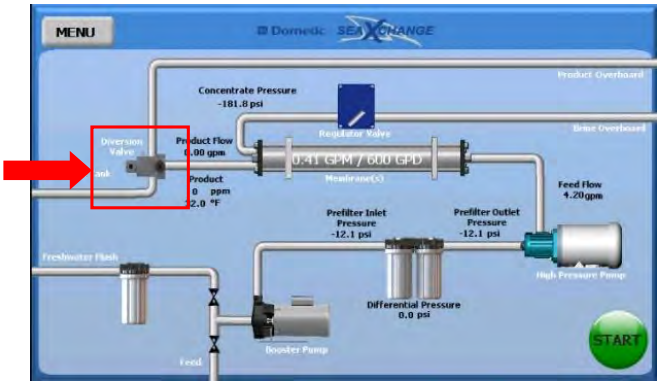


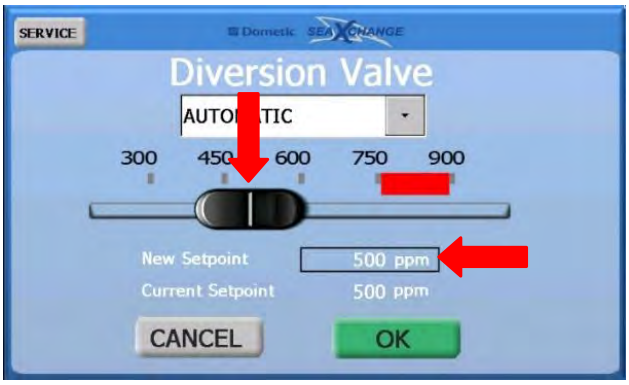
The following icon message will appear on the Home Screen:

Manually or electronically start turning the valve until you reach you rated product flow, or you reach 850 PSI, whichever comes first.

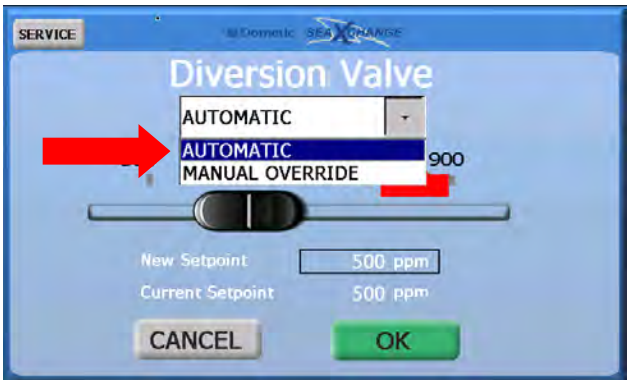
7. The Diversion valve is factory set to 650 ppm.

   A. To change the set point, just press the Diversion valve image access the sub-menu. Slide the scale to adjust the Set point or simply press the box and manually enter a number followed by the Enter key.



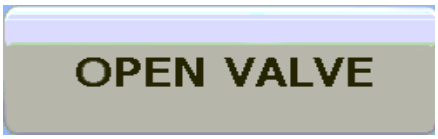


8. Press the Diversion Valve icon and select the down arrow from the selection menu and choose manual override.



DIVERT WATER will send water to the ships freshwater tank

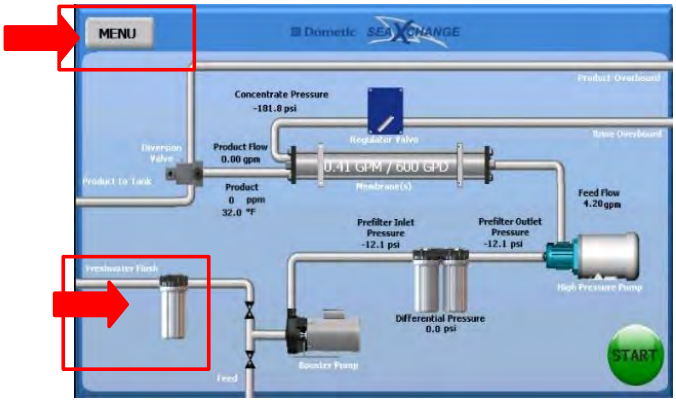
OPEN VALVE will send water overboard



9. To **SHUT DOWN** the system simply reverse steps 1 through 8 and continue to do a Fresh Water Flush as depicted on the following page.

MANUAL FRESH WATER FLUSH

1. Press the Fresh Water Flush image or select Fresh Water Flush from the service menu.



2. Press the down arrow on Mode and select the OFF option to activate MANUAL FWF.

3. MANUAL FWF icon should appear. Press the button to initiate a FWF. You would need to reverse the steps to STOP the FWF.

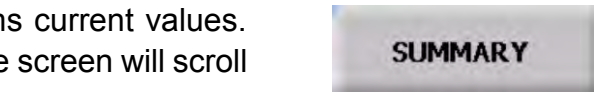
MENU OPTIONS

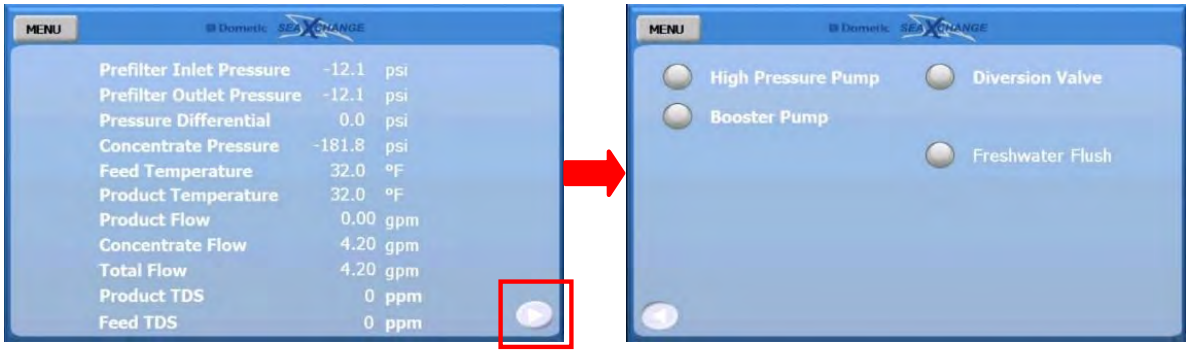
1. Press the MENU button on the Home Screen

2. The MENU screen should appear.

SUMMARY

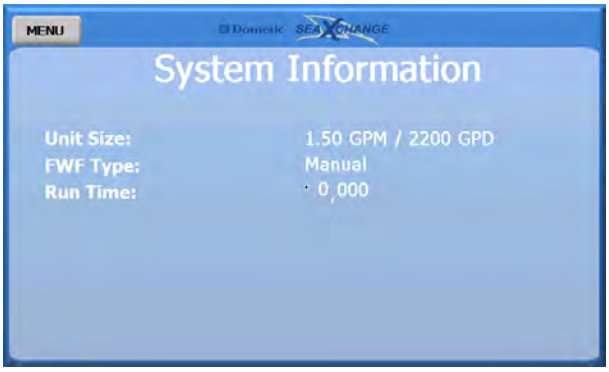
Pressing the SUMMARY button will show the systems current values. Pressing the arrow on the bottom right-hand side of the screen will scroll to the components of the system.





SYSTEM INFORMATION

Pressing the SYSTEM INFORMATION will bring up the systems specification



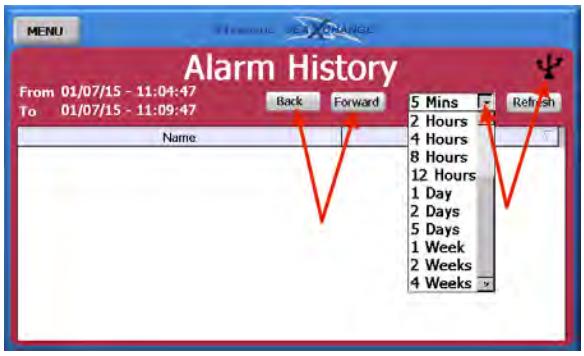
ALARMS

Pressing the ALARMS will show any active alarms present.

If any active alarms are present a flashing red bell will appear to the left of the Dometic Sea Xchange logo.

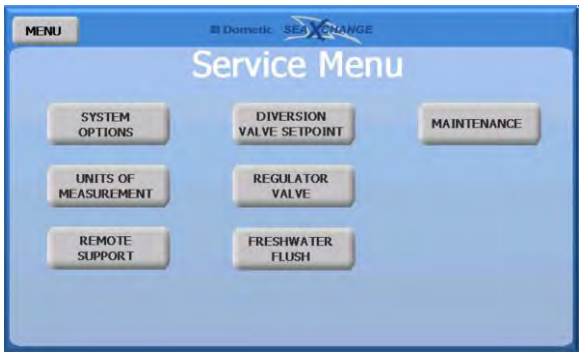
ALARM HISTORY

ALARM HISTORY will display any past and current alarms in the system. Pressing Back and Forward will scroll though the systems alarm history. The down arrow menu can also scroll through different time parameters. The USB icon can be selected to transfer history to a USB thumb drive.



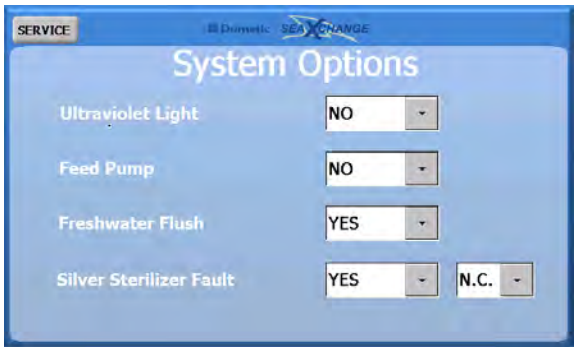
SERVICE MENU

The Service Menu gives you access to several option in the system. Some of this option can also be selected by pressing the images on the Home Screen as depicted on the MANUAL SYSTEM OPER- ATION.

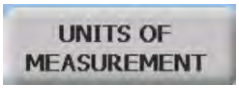


SYSTEM OPTIONS

System Options give you the ability to add or remove components to the system. Or turn OFF some components when they are not being used.

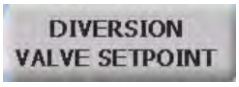


UNITS OF MEASUREMENT

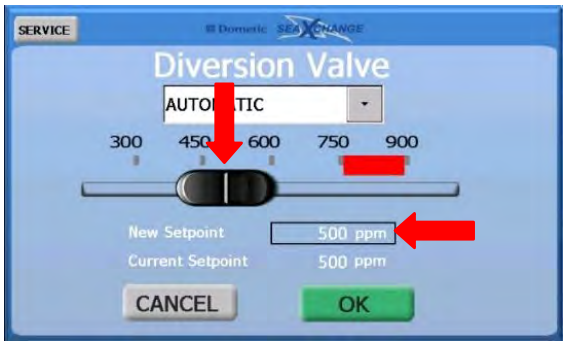


The units of measurement on the system can be changed from within this menu. Simply press the measurement you want to display and press the Home Screen logo or the Service button to go back.

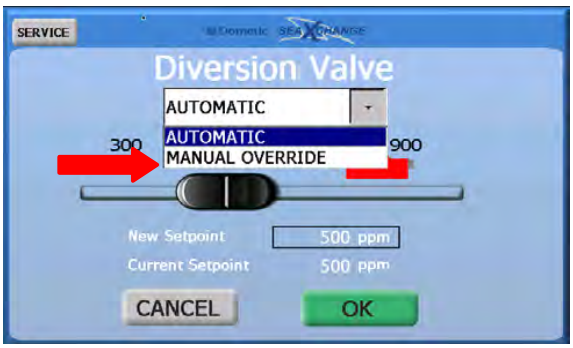
DIVERSION VALVE SETPOINT



This can also be accessed from the home screen by pressing the diversion valve image. The set point is factory set at 650 ppm. To change the set point there is a sliding scale or press the box and type in the set point desired. Then press ok to change it or cancel.

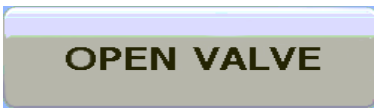


The diversion valve can be manually operated, by selecting the **MANUAL OVERRIDE** then pressing divert water button.



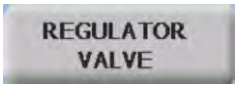
DIVERT WATER will send water to the ships freshwater tank

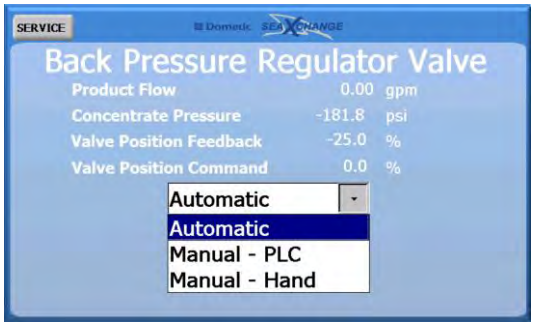
OPEN VALVE will send water overboard



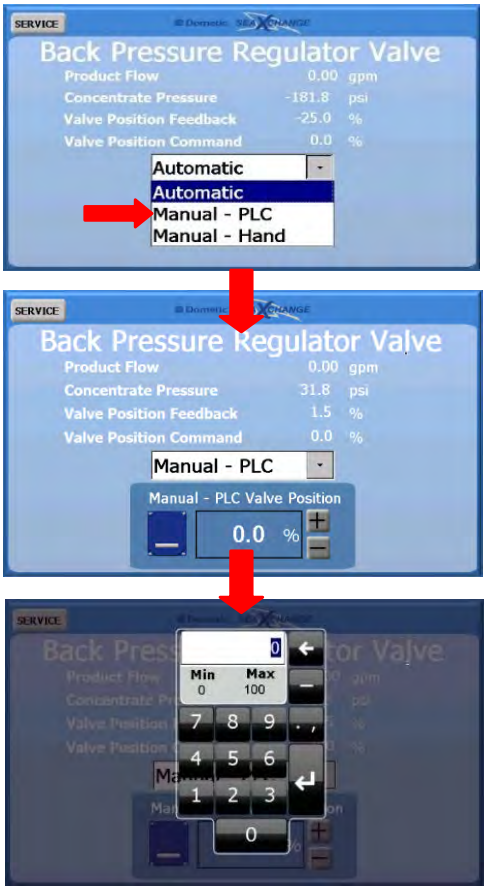
REGULATOR VALVE

This menu can also be accessed from the home screen by pressing the image of the regulator valve. The regulator valve is normally in the automatic selection. There are also two manual selections used for manual operation, and troubleshooting. The manual PLC selection allows the regulator valve to be open and closed by entering a percentage. The manual hand selection cuts the electronic functions of the regulator valve off so it may be turned by hand. *NOTE: After manual hand has been selected, the system will go into alarm when it is switched back to automatic. The alarm will have to be cleared to go back to normal operation.



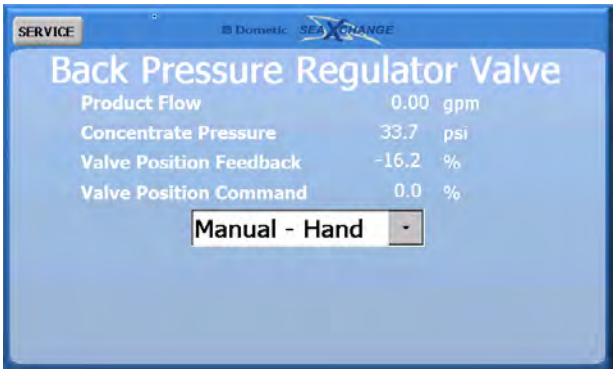


Manual-PLC will allow the user to move the valve by entering a percentage. Press the box to enter the numbers, then press enter. The valve will open or close according to the percentage entered. This will be displayed by the valve position command. The valve position feedback is the actual current position of the valve. The plus and minus buttons can be used to move the valve in smaller increments.



Manual-Hand will be displayed over the valve on the home screen.

*NOTE: After manual hand has been selected, the system will go into alarm when it is switched back to automatic. The alarm will have to be cleared to go back to normal operation.

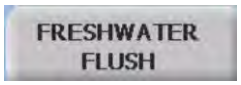


The following icon message will appear on the Home Screen:

Manually start turning the valve until you reach you rated product flow or you reach 850 PSI, whichever comes first.

Warning! Never fully close valve. It will cause permanent damage to the system.

FRESH WATER FLUSH



This screen is also accessible from the home screen by pressing the fresh water flush image. The mode, duration and frequency can be changed here. The freshwater flush can also be canceled. The time until the next flush is displayed and counted down at the bottom of this screen. A Manual flush can be done by selecting the mode and the duration preferred.

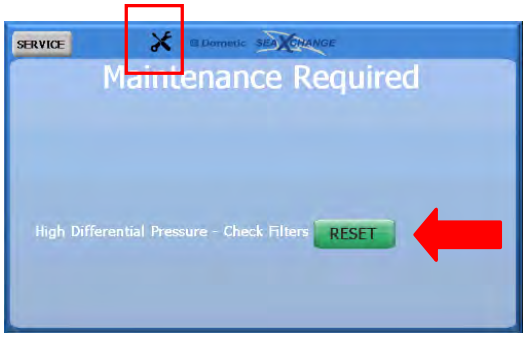
Selectin OFF Mode will make the MANUAL FWF icon appear. Press the button to initiate a FWF. You would need to reverse the steps in order to STOP the FWF.

The duration of the MANUAL FWF can also be adjusted with the Duration drop down arrow.

MAINTENANCE

This will show any maintenance that is necessary to perform at the time. If no maintenance is need-ed at this time this will be displayed.

When maintenance is required a wrench and screwdriver symbol with appear at the top of the display. On the home screen this symbol can be pressed to bring up this screen. Preform the required maintenance then press reset.



REMOTE SUPPORT

In this menu the pGD Touch IP address will be shown at the bottom of the screen if the system is wired to a router. This will be needed to connect to the VNC viewer app. This manual will be brought up if the launch manual button is pressed. The VNC viewer menu will pop up if the enable remote support is pressed. The web browser will pop up is the launch web browser is pressed. To enable remote support, see the VNC viewer procedure section of the manual.

Enable Remote Support

1. Press the green button next to Enable Remote Support

2. In the service menu, press the enable remote support button. Another menu will pop up. Press the start VNC server button, then press ok

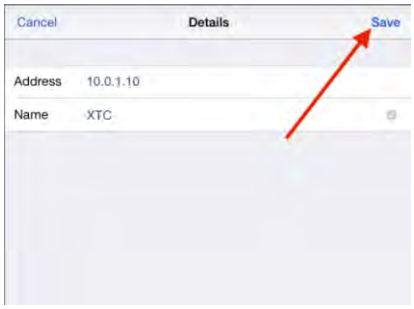
3. Download the Free VNC Viewer app from the app store.

4. Search for the VNC Viewer Icon on your device and open it.

5. Press the plus sign in the upper right-hand corner to set up new connection.

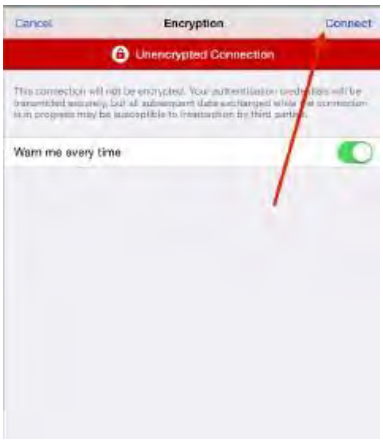
6. Type in the IP Address found in the unit's service menu, in the remote support menu at the bottom of the screen. Then give it a name.

Example



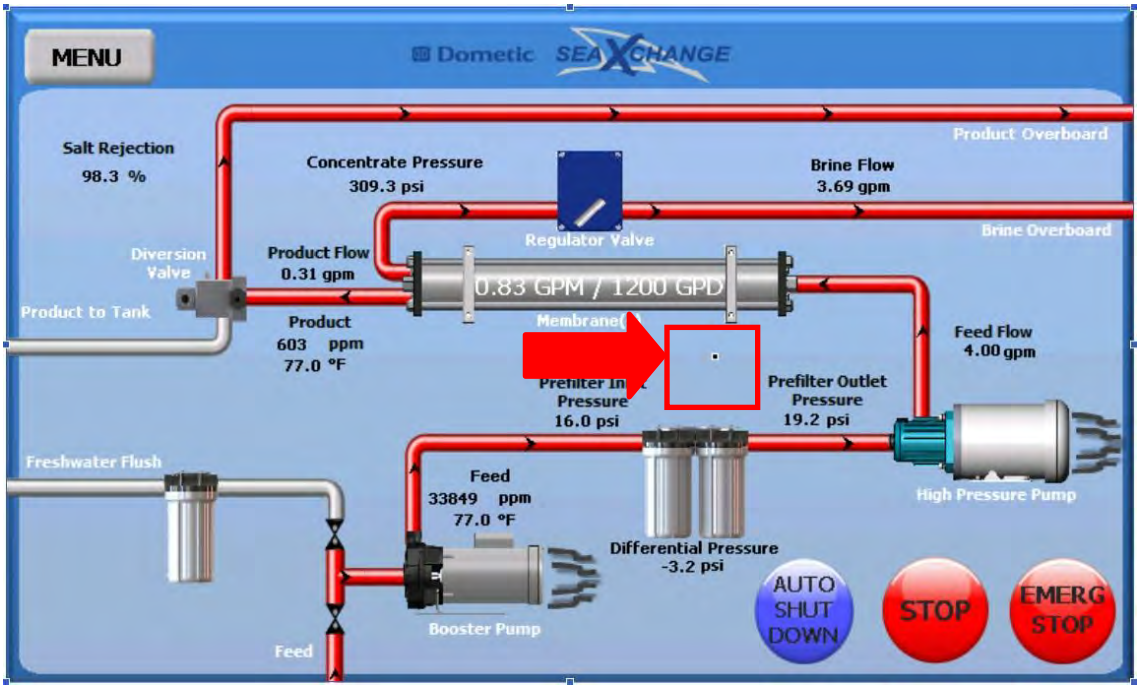
7. Next, press the “Connect” button

8. The following screen will pop up. Simply press the “Connect” option.



9. Finally, it will show you the connecting screen. When it is done connecting you will see the same image on your display and your device

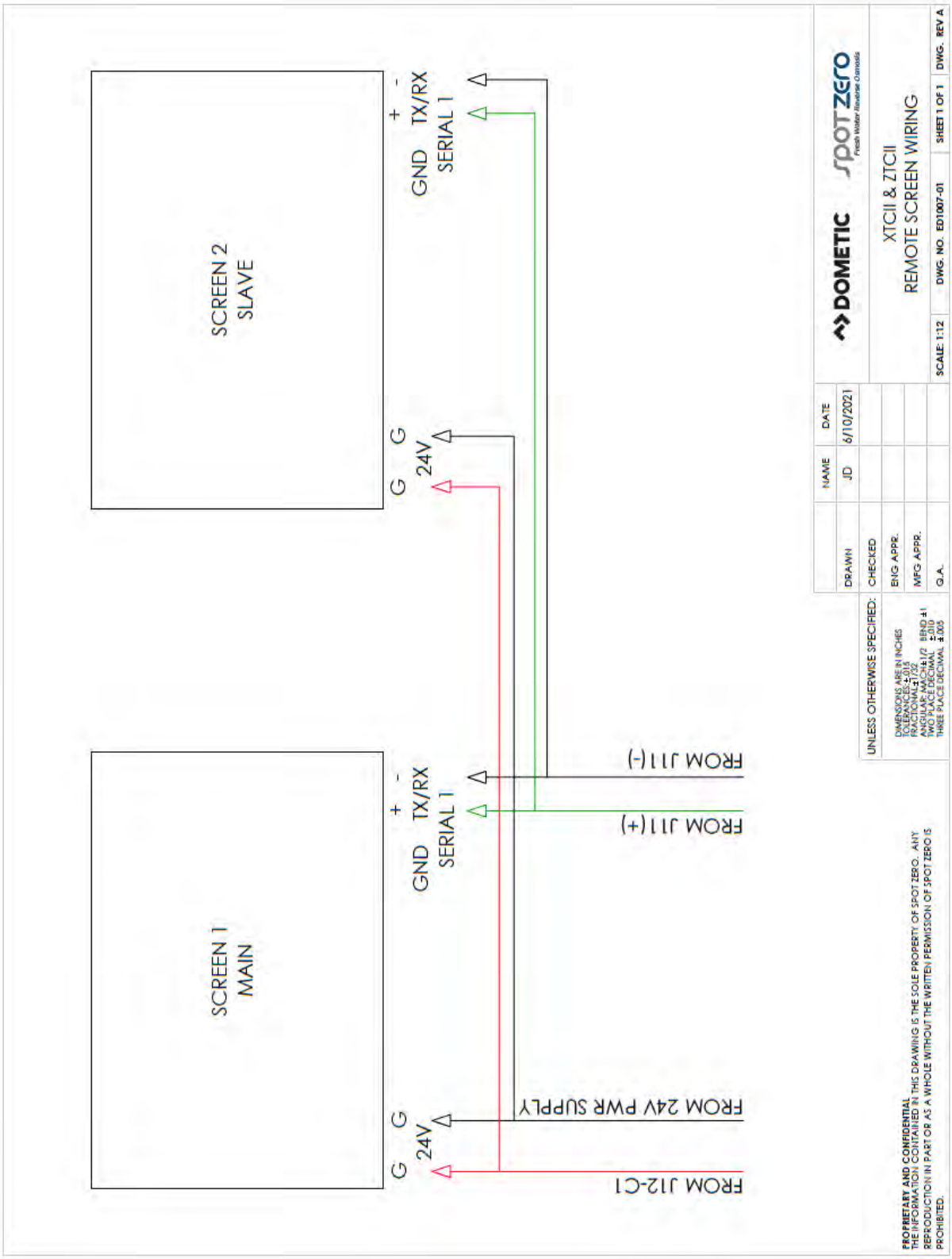
10. To browse and navigate the screen on your phone, a small dot will appear. This is a cursor that allows you to select icons and menus. Move the cursor with your finger to an icon you want to press and tap the screen to select it.



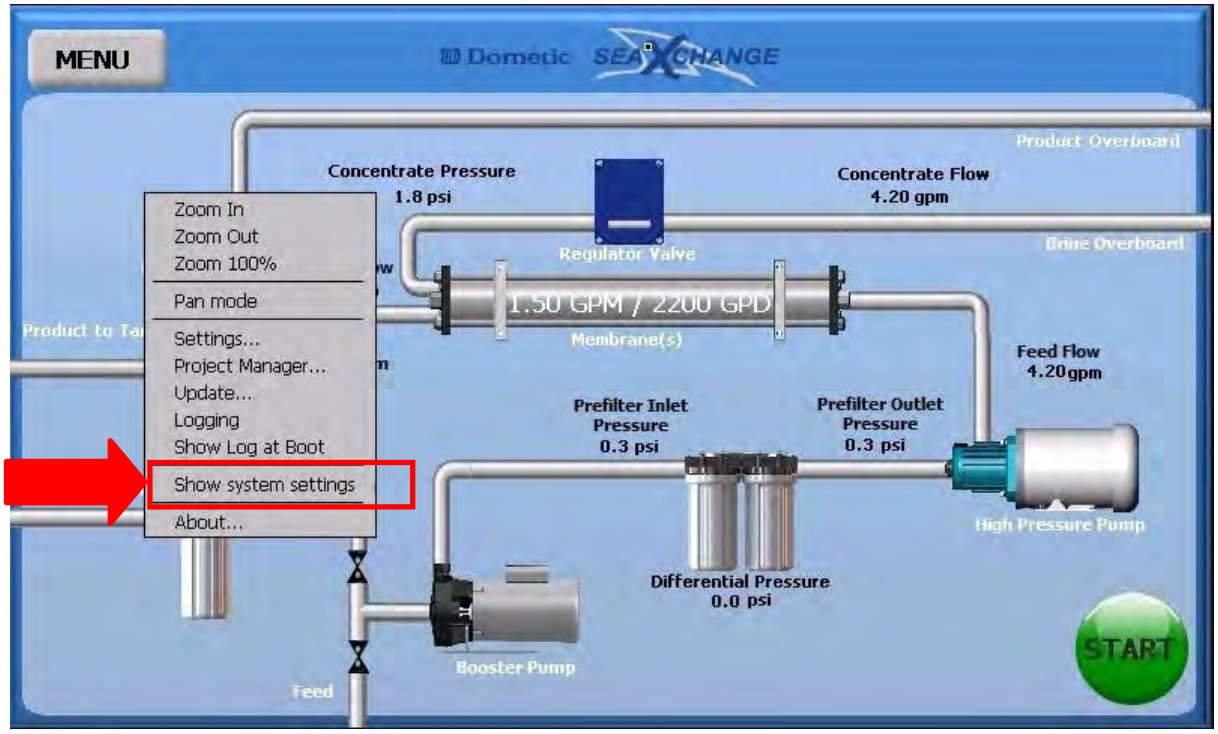
10. If there is a problem connecting, the enable remote support button can be pressed. Another menu will pop up. Select the start VNC server button and press ok. Try to connect again.

REMOTE TOUCH SCREEN SETUP

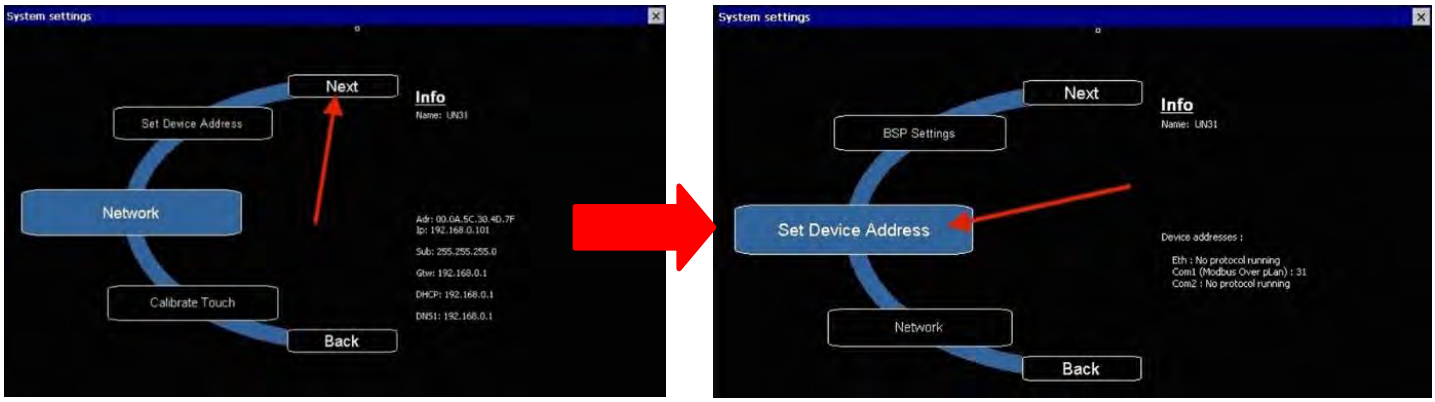
1. Run a 4-conductor cable piggy backed on the power terminal and communication terminal on the display on the unit to the same terminals on the remote display.



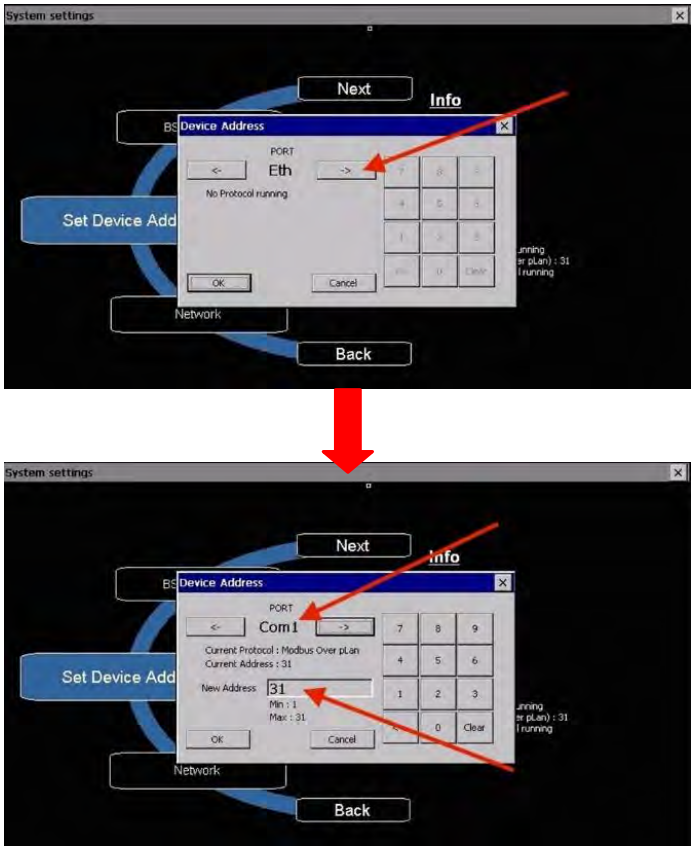
2. Press and hold the screen in a spot that does not bring you to another screen. A hidden menu will pop up. Press the Show System Settings selection.



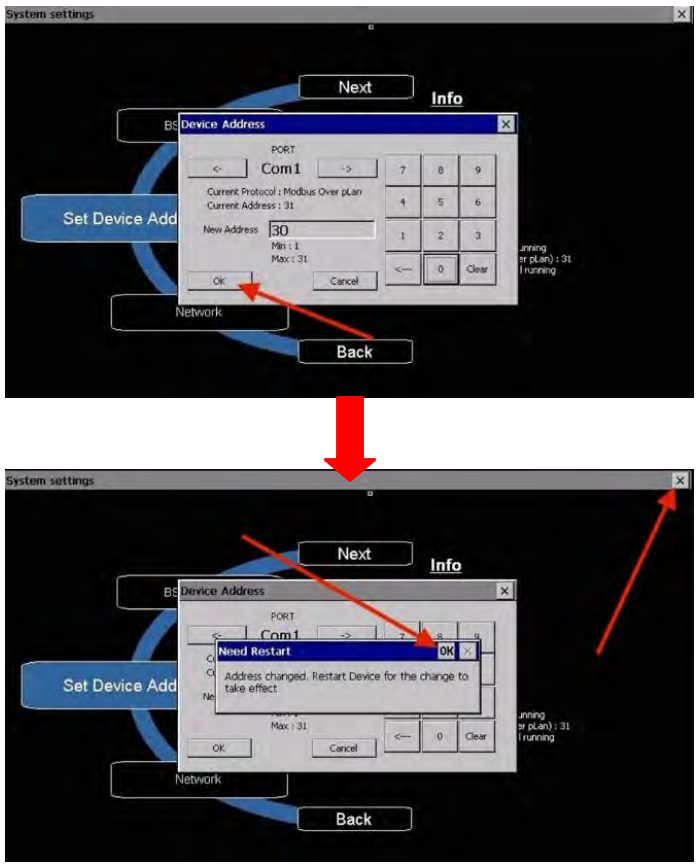
3. Press the “Next” button until Set Device Address is highlighted. Then press “Set Device Address”.



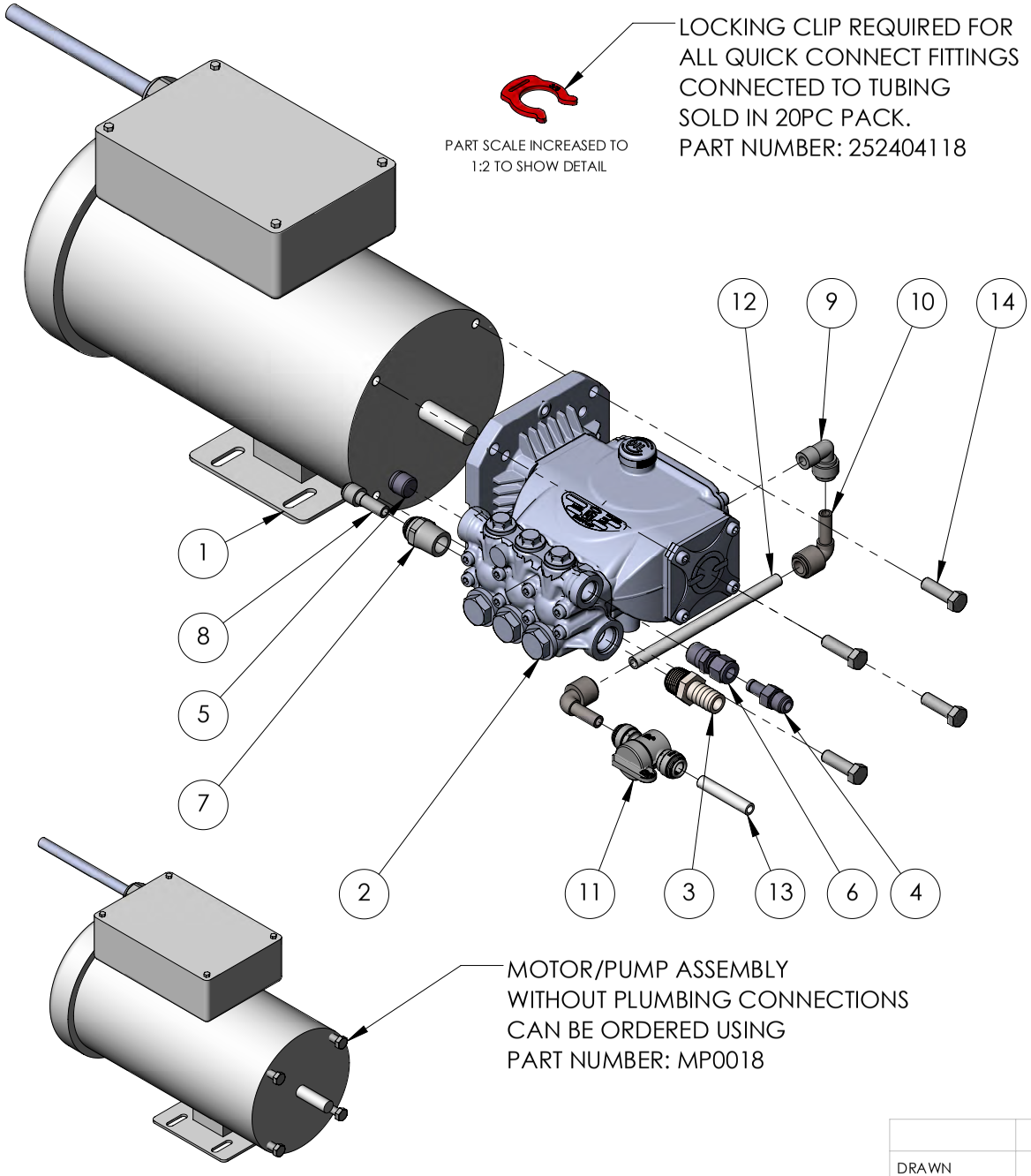
4. Press the Port selection button to select “COM 1”. You will see it set for address 31. Press the box that has the 31 in it and change it to 30.



5. Press “ok”. You will then be instructed to cycle the power of the unit for the changes to take effect. Press “ok”, then “x” out of the screen and cycle the power to the machine. Now the display should be functioning correctly.



6. XTCII SYSTEM SPECIFICATIONS & PARTS



BOM TABLE			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	252404155	MOTOR, TEFC, BALDOR 2.5 HP, 220V 50/60HZ, 56C,	1
2	252404463	PUMP, 4.2GPM, TRIPLEX	1
3	B3009	HOSE BARB 3/4 X 1/2" 316SS	1
4	252404454	ADAPTER -06 MFL TO 3/8" TUBE STEM 316 SS	1
5	252404808	PLUG CS HEX 3/8" MNPT SS	1
6	B3034	ADAPTER 3/8" MNPT TO 3/8" COMPRESSION 316SS	1
7	252404099	ADAPTER 0.375 QC TO 0.5 MNPT ACETAL	1
8	252404363	REDUCER 3/8" QC STEM TO 1/4" QC	1
9	252404408	ELBOW 3/8" QC TO 1/4" MNPT	1
10	252404112	ELBOW 3/8" QC STEM TO 3/8" QC	2
11	252404810	BALL VALVE 3/8" QC	1
12	252404002	3/8" QC TUBE 5-5/8" LONG	1
13	252404002	3/8" QC TUBE 1-5/8" LONG	1
14	H0015	3/8"X1 1/4" SS HEX BOLT	4

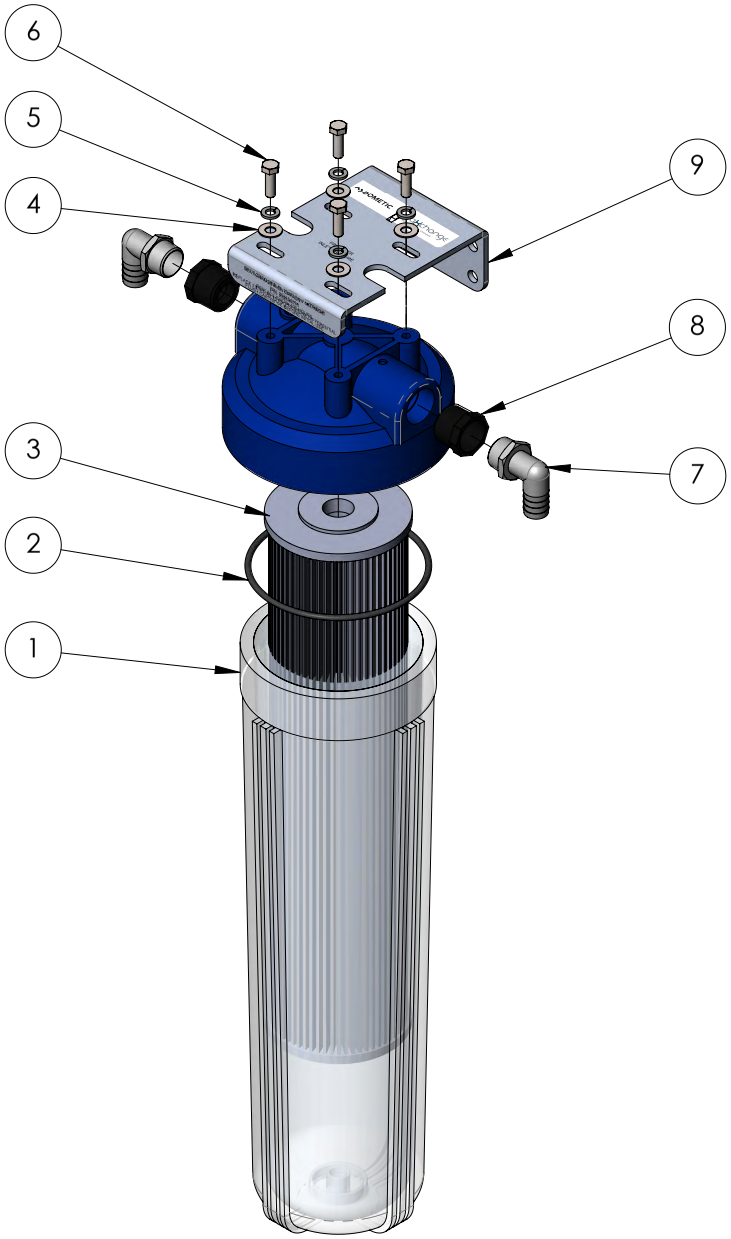
99

		NAME	DATE
	DRAWN	JD	6/8/2021
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

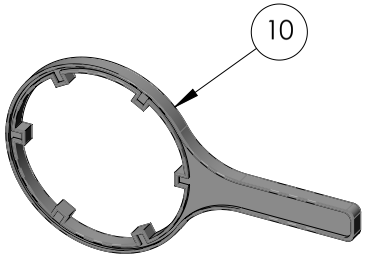
spotZero
Fresh Water Reverse Osmosis

2.5HP Motor Pump Assembly, 4.2 GPM, 5060Hz, 220V, XTCII/ZTCII

SCALE: 1:5	DWG. NO. MP0016	SHEET 1 OF 1	DWG. REV B



ITEM #	PART #	DESCRIPTION
1	252404323	4.5"X20" FILTER HOUSING
2	252404302	4.5" O-RING FILTER HOUSING
3	252404298	4.5" X 20" 5 MICRON PLEATED FILTER
4	H3008	316 SS FLAT WASHER 5/16"
5	H3013	5/16" LOCK WASHER SS
6	H0012	5/16 X 1" 18-8 SS HEX BOLT
7	252404198	ELBOW 3/4" MNPT TO 3/4" HB NYLON
8	252404388	BUSHING 1" MNPT TO 3/4" FNPT PP BLACK
9	AC0024	BRACKET, 4.5 X 10 SINGLE PRE FILTER, SEA XCHANGE
10	252404327	WRENCH FOR 4.5" FILTER HOUSING



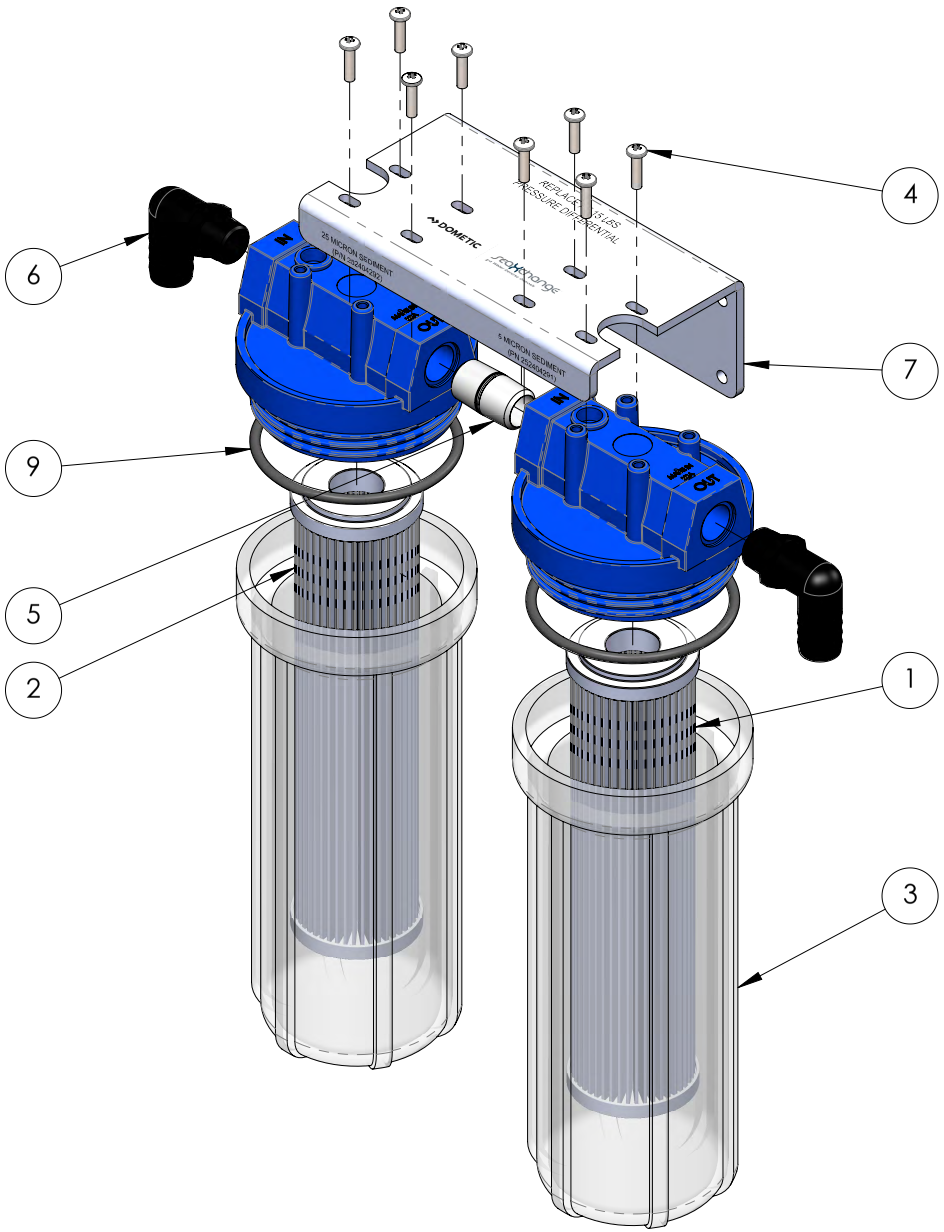
SZ P/N: AE1005rev
ENGINEERING P/N: GA0006-01 With Internal Components

		NAME	DATE
	DRAWN	JD	12/2/2020
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

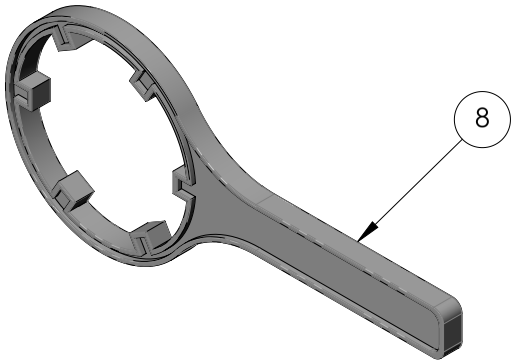
spotZero
Fresh Water Reverse Osmosis

XZII Salt Water Pre-Filter Assembly 4.5x20

SCALE: 1:6	DWG. NO. AE1005	SHEET 1 OF 1	DWG. REV A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	252404291	FILTER, 5 MICRON, HIGH CAPACITY, 6 SQ. FT. 75 PLEAT	1
2	252404292	FILTER, 20 MICRON, HIGH CAPACITY, 6 SQ. FT. 75 PLEATS	1
3	252404325	2.5X10 BLUE/CLEAR HOUSING W/O PR 1/2"	2
4	252404854	BOLT PAN HEAD 10-24 X 0.75 PHILLIPS 316 SS	8
5	252404390	NIPPLE 0.5 MNPT ALL 1.5 LONG	1
6	252404208	ELBOW ADAPTER 0.75 HB 0.5 MNPT PVC	2
7	C00033	SX-XTC DOUBLE PRE-FILTER BRACKET, OLD FILTER HOUSINGS	1
8	252404326	WRENCH FOR 2.5" CLEAR SLINE/LINE HOUSINGS	1
9	252404304	O-RING FOR 2.5"X10" FILTER HOUSING	1



SZ P/N: AE1003rev01
ENGINEERING P/N: GA0005-01

	NAME	DATE
DRAWN	JD	5/24/2021
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

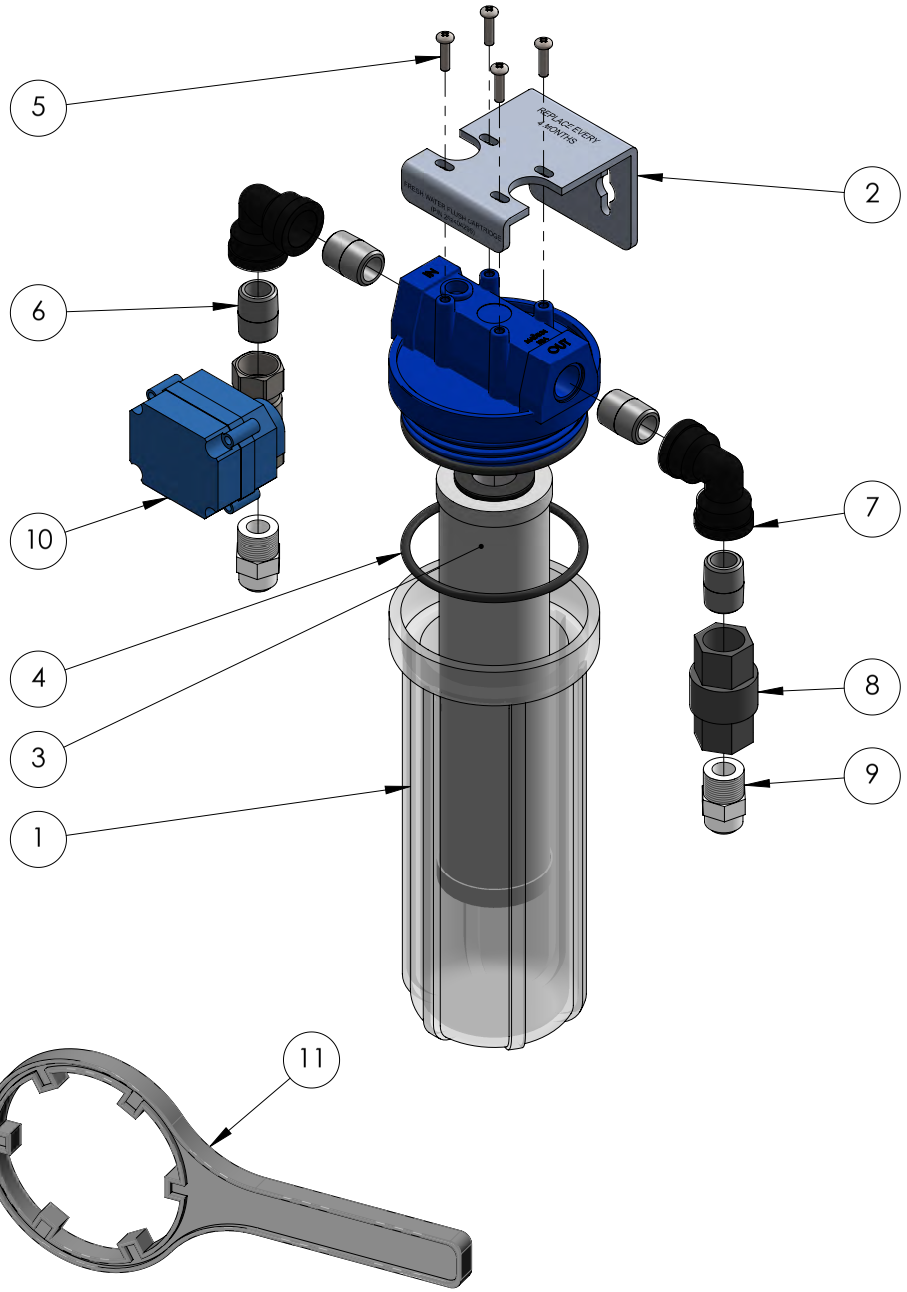
UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES: ±.015
FRACTIONAL ±1/32
ANGULAR: MACH ±1/2 BEND ±1
TWO PLACE DECIMAL ±.010
THREE PLACE DECIMAL ±.005

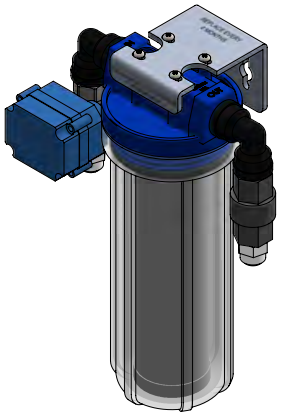
seaXchange
Sea Water Reverse Osmosis

XTC Pre-Filter Assembly

SCALE: 2:7	DWG. NO. AE1003	SHEET 1 OF 1	DWG. REV 01



BOM TABLE			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	252404325	2.5X10 BLUE/CLEAR HOUSING W/O PR 1/2"	1
2	252404549	FWF BRACKET	1
3	252404295	NSF CARBON BLOCK FILTER, 2.5"X10", 5 MICRON	1
4	252404304	O RING FOR 2.5X10 CLEAR HOUSING	1
5	252404854	BOLT PAN HEAD 10-24 X 0.75 PHILLIPS 316 SS	4
6	252404214	NIPPLE CLOSE 1/2" MNPT PP	4
7	252404852	ELBOW 1/2" FNPT PP	2
8	252404217	SPRING CHECK VALVE 1/2" FPT	1
9	252404099	ADAPTER 3/8" QC TO 1/2" MNPT	2
10	D0121	VALVE MOTORIZED BALL 1 FNPT ALL 304 SS	1
11	252404326	WRENCH FOR 2.5" CLEAR SLIM/LINE HOUSING	1



SZ P/N: FWF002rev01
ENGINEERING P/N: GA0003-03

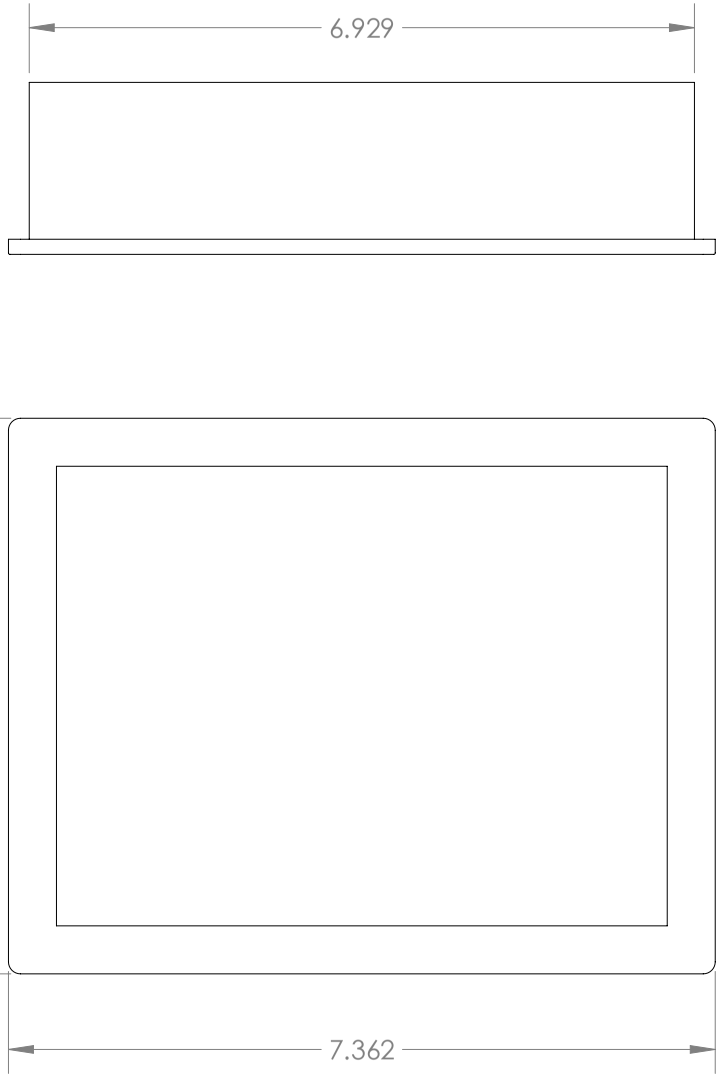
69

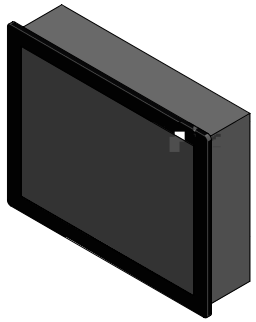
		NAME	DATE
	DRAWN	JD	12/1/2020
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

SPOT ZERO Fresh Water Reverse Osmosis

FWF Assembly

SCALE: 1:4	DWG. NO. FWF002	SHEET 1 OF 1	DWG. REV A





SZ P/N: D0011revA
ENGINEERING P/N: D0011

		NAME	DATE
	DRAWN	JD	6/8/2021
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

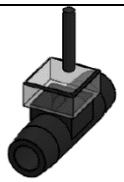
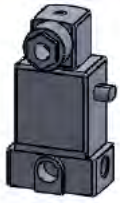
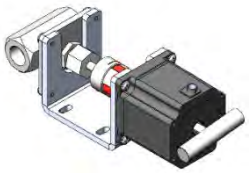
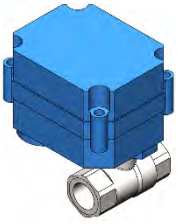
SPOTZERO Fresh Water Reverse Osmosis

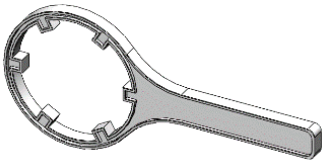
7" Touch Screen- No Logo

SCALE: 1:2	DWG. NO. D0011	SHEET 1 OF 1	DWG. REV A

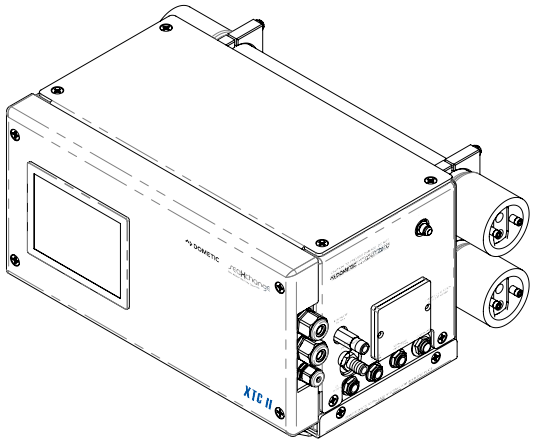
70

XTCII INTERNAL/FILTER COMPONENTS

INTERNAL COMPONENTS	
PRODUCT FLOW SENSOR PART#: 252404348	
LOW PRESSURE TRANSDUCER PART#: 252404345	
HIGH PRESSURE TRANSDUCER PART#: 252404346	
TOUCH SCREEN PART#: 252404180	
DIVERSION VALVE (24V) PART#: 252404275	
NEEDLE VALVE ASSEMBLY PART#: AD0001	
¼” MOTORIZED BALL VALVE PART#: D0117	

FILTER COMPONENTS	
WRENCH FOR 2.5” CLEAR HOUSING PART#: 252404326	
4.5” X 20” 5-MICRON SEDIMENT FILTER PART#: 252404298	
2.5” X 10” 5-MICRON SEDIMENT FILTER PART#: 252404291	
2.5” X 10” 20-MICRON SEDIMENT FILTER PART#: 252404292	
10” CARBON BLOCK FILTER PART#: 252404295	

MODEL NUMBER SELECTION WORKBOOK



MODEL SHOWN
XTCII-6002Z

XTCII - [ ] **Z**

MODEL NUMBER
XTCII

VOLTAGE
Z = 230VAC

SYSTEM CAPACITY (SHEET 2)
6001 = 600 GPD (2270 LPD) SINGLE LONG MEMBRANE
6002 = 600 GPD (2270 LPD) TWO SHORT MEMBRANES
1200 = 1200 GPD (2540 LPD) TWO LONG MEMBRANES
1800 = 1800 GPD (6810 LPD) THREE LONG MEMBRANES*
2200 = 2200 GPD (8325 LPD) FOUR LONG MEMBRANES*

NOTE: XTCII IS ONLY AVAILABLE IN 230VAC, SINGLE PHASE

*CAPACITY		
DESCRIPTION	**60 Hz**	**50 Hz**
XTCII-1800Z	1800 GPD (6810 LPD)	1494 GPD (5655 LPD)
XTCII-2200Z	2200 GPD (8325 LPD)	1826 GPD (6912 LPD)

DESCRIPTION	**AMP DRAW**	
	60 Hz	**50 Hz**
XTCII	9.9	9.0
SYLLENT BOOST PUMP	4.1	3.1
TOTAL	**14.0**	**12.1**

		NAME	DATE
	DRAWN	ES	12/2/20
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

seaXchange
Sea Water Reverse Osmosis

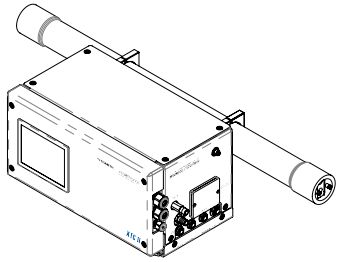
XTCII Configuration Workbook

SCALE: 1:8	DWG. NO. WD0001	SHEET 1 OF 6	DWG. REV D

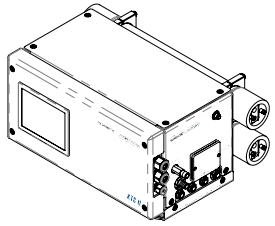
CHOOSE SYSTEM CAPACITY

MEMBRANE VESSEL UNIT MOUNT
(ADD 4.2" TO DEPTH)

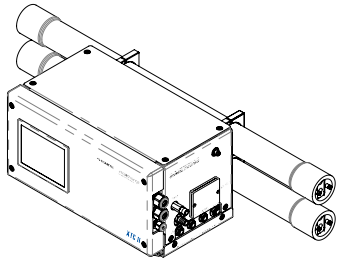
P/N: XTCII-**6001**Z
600 GPD (2270 LPD)



P/N: XTCII-**6002**Z
600 GPD (2270 LPD)



P/N: XTCII-**1200**Z
1200 GPD (2540 LPD)



REMOTE MOUNT
(MOUNTING BRACKETS INCLUDED)

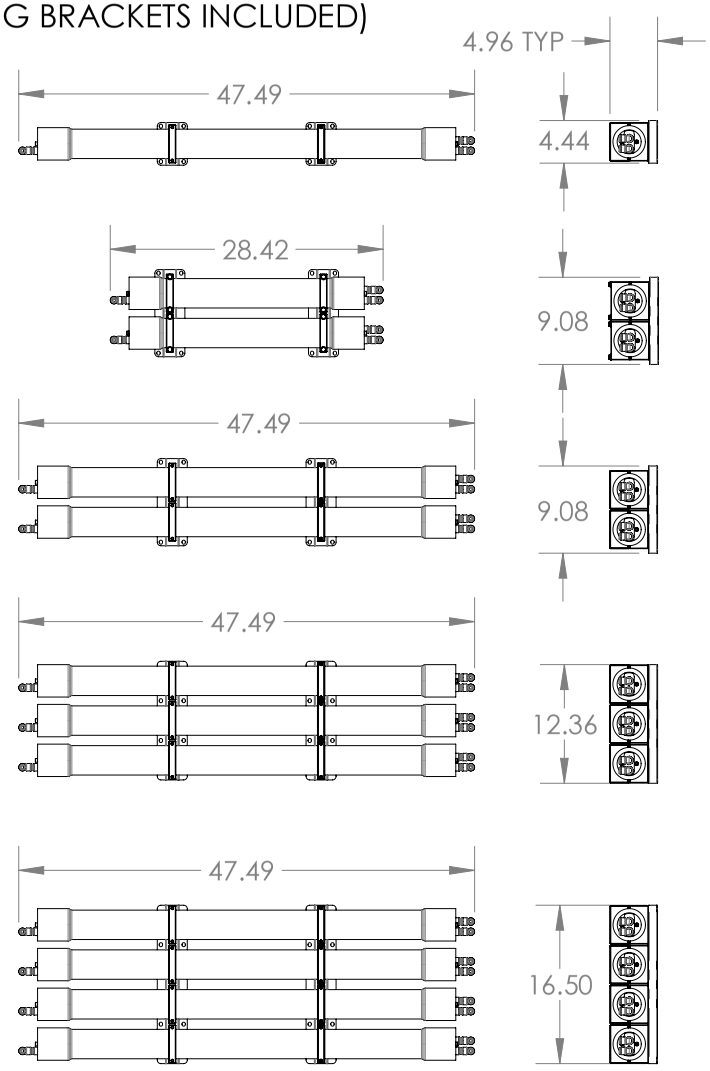
P/N: XTCII-**6001**Z
600 GPD (2270 LPD)

P/N: XTCII-**6002**Z
600 GPD (2270 LPD)

P/N: XTCII-**1200**Z
1200 GPD (2540 LPD)

P/N: XTCII-**1800**Z
1800 GPD (6810 LPD)

P/N: XTCII-**2200**Z
2200 GPD (8325 LPD)



		NAME	DATE
	DRAWN	ES	12/2/20
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

seaXchange
Sea Water Reverse Osmosis

XTCII Configuration Workbook

SCALE: 1:20	DWG. NO. WD0001	SHEET 2 OF 6	DWG. REV D

SPOT ZERO MODEL NUMBER TO DOMETIC PART NUMBER CROSS REFERENCE

ONCE THE SPOT ZERO MODEL NUMBER SELECTION PROCESS HAS BEEN COMPLETED,
FIND THE CORRESPONDING DOMETIC PART NUMBER FROM THE TABLE BELOW

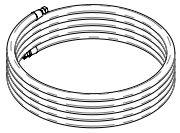
SPOT ZERO MODEL SELECTION	DOMETIC CROSS REFERENCE NUMBER	INCLUDED COMPONENTS
XTCII-**6001**Z	9610001170	2,3,4,5
XTCII-**6002**Z	9610002513	2,3,4,6
XTCII-**1200**Z	9610001403	2,3,4,7
XTCII-**1800**Z	9610001171	1,2,3,4,8
XTCII-**2200**Z	9610001562	1,2,3,4,9

STANDARD PARTS INCLUDED WITH SPECIFIC UNITS, SEE NUMBERING IN TABLE ABOVE. DIMENSIONS FOR EACH PROVIDED ON FOLLOWING PGS.

HIGH-PRESSURE HOSE (1) **ONLY** PROVIDED WITH REMOTE MOUNTED MEMBRANE OPTIONS. HOSE WILL BE PROVIDED WITH 600 AND 1200 SERIES UNITS IF REMOTE MOUNTING SPECIFIED

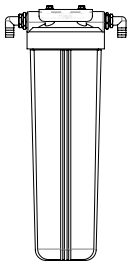
HIGH-PRESSURE HOSE

1



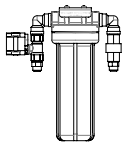
COMMERCIAL PRE-FILTER ASSY.

2



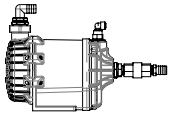
FRESHWATER FLUSH ASSY.

3



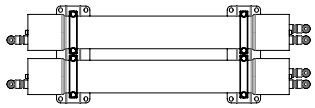
BOOST PUMP

4



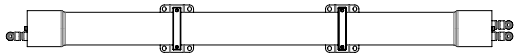
600 GPD SW SHORT MEMBRANES

5



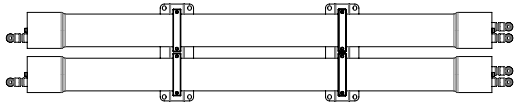
600 GPD SW MEMBRANE

6



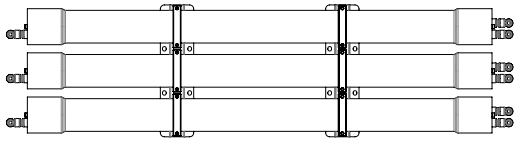
1200 GPD SW MEMBRANES

7



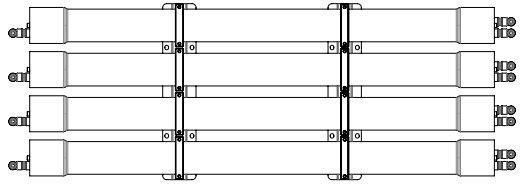
1800 GPD SW MEMBRANES

8



2200 GPD SW MEMBRANES

9



		NAME	DATE
	DRAWN	ES	12/2/20
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

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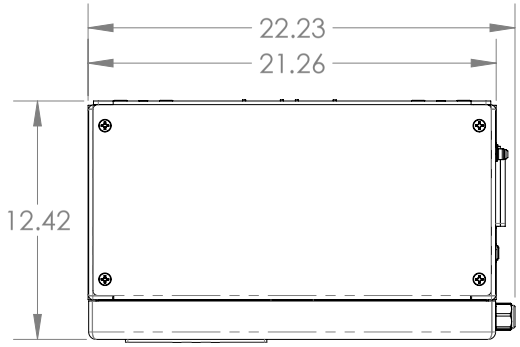
Sea Water Reverse Osmosis

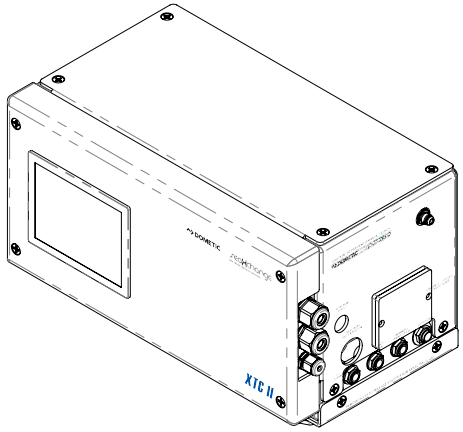
XTCII Configuration Workbook

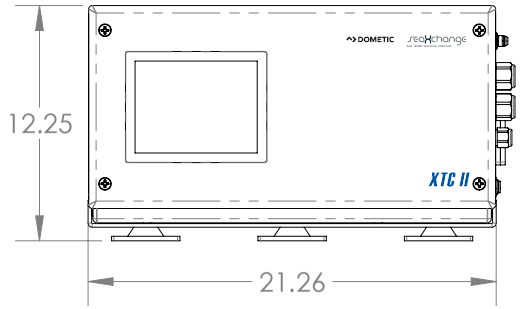
SCALE: 1:18	DWG. NO. WD0001	SHEET 3 OF 6	DWG. REV D

DIMENSIONAL DRAWING

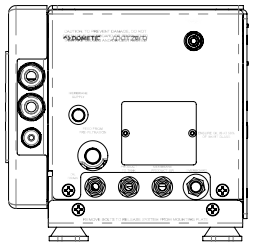


TOP VIEW



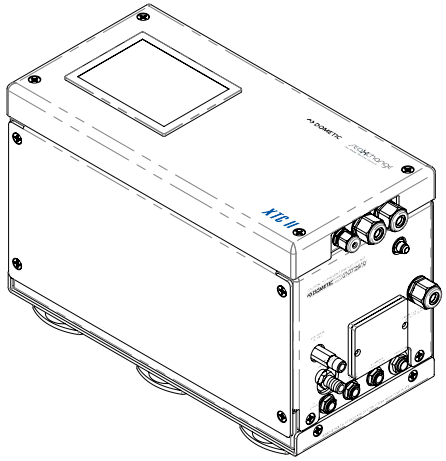


FRONT VIEW



SIDE VIEW

TOP MOUNTED VERSION AVAILABLE UPON REQUEST. CONTACT YOUR DEALER FOR MORE INFORMATION



		NAME	DATE
	DRAWN	ES	12/2/20
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

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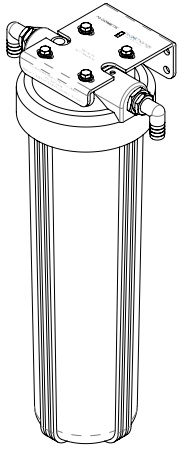
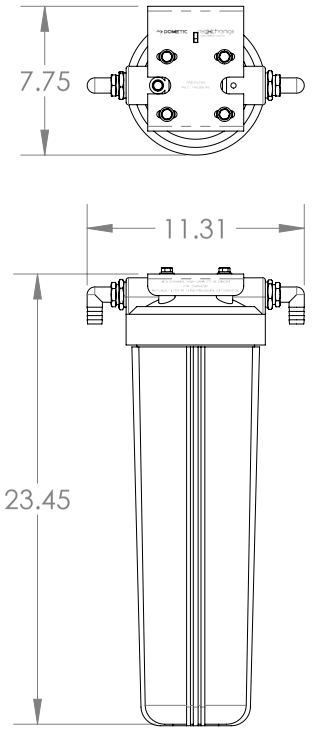
XTCII Configuration Workbook

SCALE: 1:10	DWG. NO. WD0001	SHEET 4 OF 6	DWG. REV D

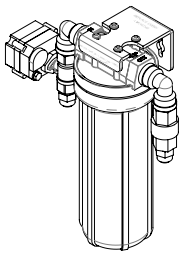
STANDARD EQUIPMENT

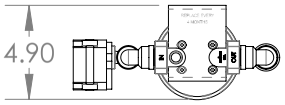
COMMERCIAL PRE-FILTER

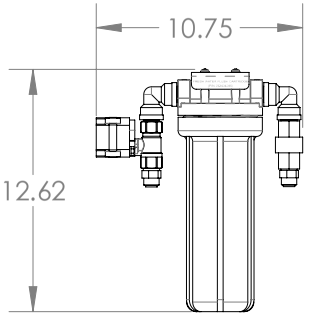




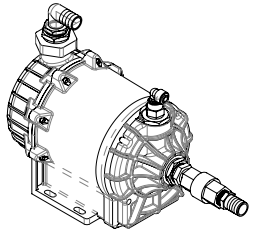
FRESH WATER FLUSH

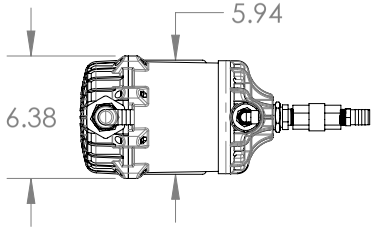


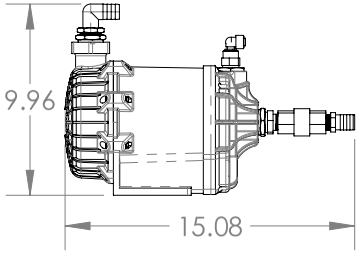




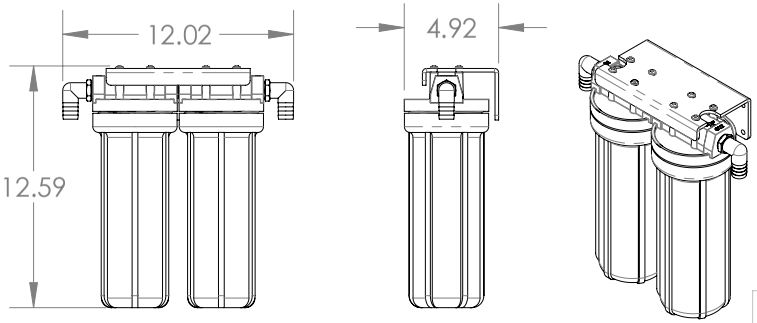
SYLLENT BOOST PUMP







SHORT PRE-FILTER OPTION AVAILABLE UPON REQUEST.
P/N 252404337



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PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SPOT ZERO. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SPOT ZERO IS PROHIBITED.

	NAME	DATE
DRAWN	ES	12/2/20
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES: ±.015
FRACTIONAL ±1/32
ANGULAR: MACH ±1/2 BEND ±1
TWO PLACE DECIMAL ±.010
THREE PLACE DECIMAL ±.005

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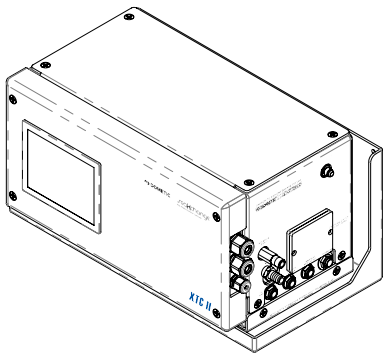
Sea Water Reverse Osmosis

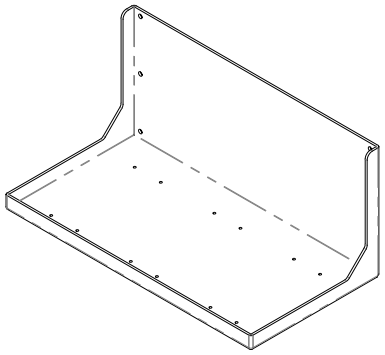
XTCII Configuration Workbook

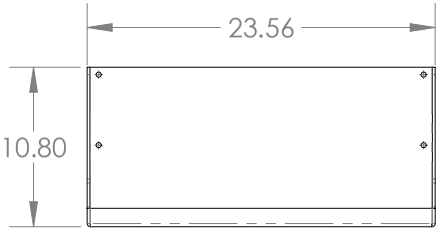
SCALE: 1:10	DWG. NO. WD0001	SHEET 5 OF 6	DWG. REV D

OPTIONAL EQUIPMENT

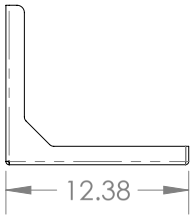
WALL BRACKET
P/N: 4471004179



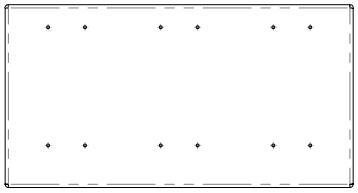




FRONT VIEW

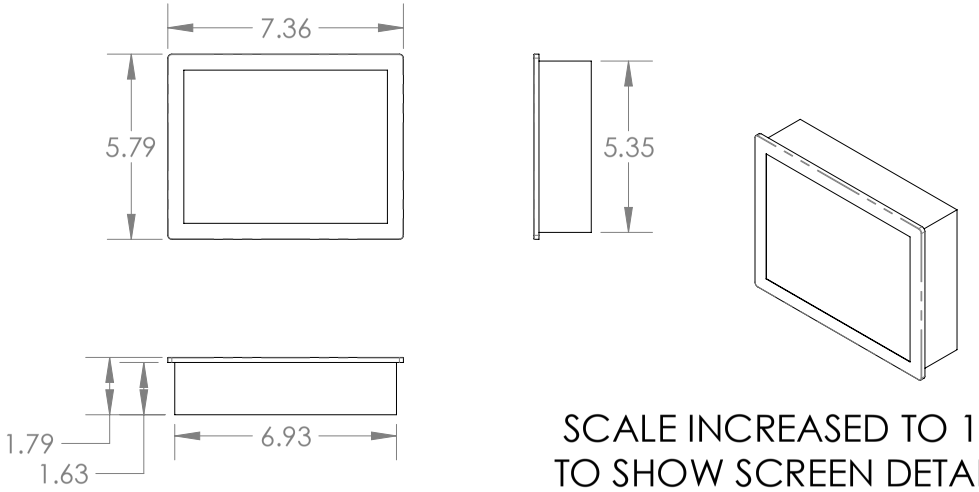


SIDE VIEW



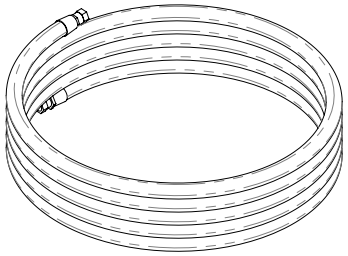
BOTTOM VIEW

ADDITIONAL REMOTE MOUNTED 7-INCH TOUCHSCREEN
P/N: D0063



SCALE INCREASED TO 1:6
TO SHOW SCREEN DETAILS

HP HOSE PACKAGE
P/N: 252404290



INCLUDING:
30FT. OF HP HOSE
30 FT. OF 3/8" TUBING
4 HIGH PRESSURE FITTINGS

		NAME	DATE
	DRAWN	ES	12/2/20
UNLESS OTHERWISE SPECIFIED:	CHECKED		
DIMENSIONS ARE IN INCHES TOLERANCES: ±.015 FRACTIONAL ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.		
	MFG APPR.		
	Q.A.		

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XTCII Configuration Workbook

SCALE: 1:13	DWG. NO. WD0001	SHEET 6 OF 6	DWG. REV D

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HIGH PRESSURE PUMP TECHNICAL DATA

GENERAL PUMP *A member of the Interpump Group*

EWM Series

5/8" Hollow Shaft

AGGRESSIVE ENVIRONMENT

FEATURES

- Å316 Stainless Steel fluid end for superior corrosion protection
- ÅDesigned for use in salt water applications
- ÅSolid ceramic plungers with advanced surface finish assure durability and longevity.
- ÅCompact design offers solutions to space limitations
- ÅNickel-plated crankcase
- Å56C mounting flange
- ÅUse motor #639610, 2.5 HP, 50/60 Hz for 4.2 GPM version

SPECIFICATIONS

Pump Model	EWM0515C	EWM0815C	EWM1015C	EWM1615C	EWM2315C	EWM3015C	EWM3715C	EWM4215C
Maximum Volume	0.5 GPM	0.8 GPM	1.1 GPM	1.6 GPM	2.3 GPM	3.0 GPM	3.7 GPM	4.2 GPM
Maximum Discharge Pressure	1,500 PSI							
Maximum Pump Speed	1750 RPM							
Rated Inlet Pressure	125 PSI							
Plunger Bore (in / mm)	.709/18 mm							
Plunger Stroke (in / mm)	.079 in/2mm	.118 in/3mm	.157 in/4mm	.197/5mm	.283/7.2mm	.370/9.4mm	.452/11.5mm	.512/13mm
Crankcase Oil Capacity	8.5 oz.							
Maximum Fluid Temperature	185º F							
Inlet Port Thread	1/2" NPT-F							
Discharge Port Thread	3/8" NPT-F							
Shaft Diameter	5/8" Hollow							
Weight	11.05 lbs.							
Dimensions	7.5" x 7.5" x 5.5"							

AGGRESSIVE ENVIRONMENT

BOOSTER PUMP TECHNICAL DATA

Installation and Operation Manual

Syllent Marine

Description:

The single stage centrifugal Syllent Marine motor pump has conjugated hydromagnetic rotor / turbine / bearings, resin encapsulated coiled stator, free from roller bearings and dynamics seals (mechanic seal type).

It doesn't need external ventilation, heat exchange is done with water and doesn't have any water contact with electricity and metal components, that makes the motor pump resistant to water submersion.

Operation:

The Syllent Marine motor pump is not self-priming, and thus require a flooded suction. **If the pump is not fully filled with water, it could damage the unit.**

Make use of a seawater strainer to avoid any sort of dirt inside the pump. Install the seawater strainer below the level of the pump with easy access to filter to do a periodical cleaning.

If a noise of water mixed with air remains in the pump, it could mean that there is false air entry through the suction piping, which should be perfectly sealed; or else, it could mean that the motor pump is cavitating, that is, the motor pump needs more water at the suction. In this case, it is necessary to reduce the discharge outflow, gradually closing the shutoff valve and increasing the column (water or pressure height) at the discharge, until the noise is reduced.

Electric Installation:

Check if the electricity voltage is the same of the motor pump.

Connect the motor pump's wiring to a circuit breaker and do not forget to connect the ground wire. Use cable gauges compatible with the electrical current.

Protection:

Priming sensor: it turns off the pump automatically after 4 seconds, it turns off the motor pump automatically in case of lack of water, rotor blocking or overheat. In this case, in order to restart the operation, it is necessary to disconnect the motor pump from the power supply (manual reset).

The motor pump has been equipped with bimetallic thermostats in the casing and in the coiling. The motor pump will shut off automatically if overheated (water temperature over 50°C). Troubleshooting procedures should be carried out to find out what might have caused overheating. The motor pump will turn on automatically when the temperature inside the pump gets lower than 35°C.

Warranty:

The Syllent Marine motor pump has a one year warranty against material and manufacture defects, as from the date of purchase, supported by the purchase invoice and as long as it has been used under normal conditions.

Cod. 314470

SPECIFICATIONS

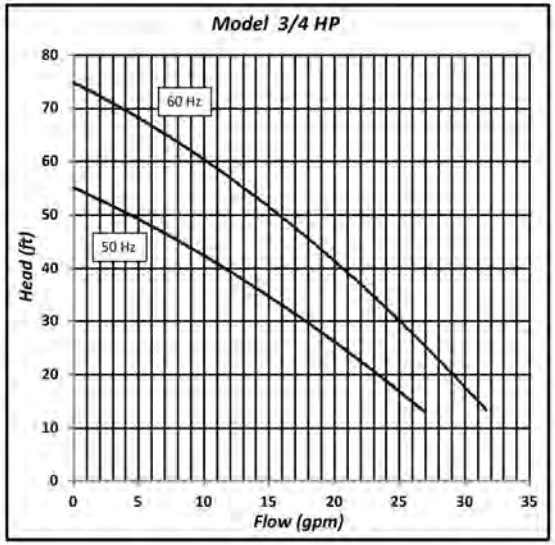
MODEL	60 Hz									50 Hz									Pump Weight		Inlet - Outlet	Max. Liquid Temperature	Max. Internal Pressure	Protection
	Max. Head		Max. Flow		ELECTRICAL					Max. Head		Max. Flow		ELECTRICAL										Sealed Motor Pump
	ft	m	gpm	lpm	V	A	P.F.	HP	kW	ft	m	gpm	lpm	V	A	P.F.	HP	kW	lbs	kg				
MS-1024	74,8	22,8	31,7	120	115	8,40	0,99	3/4	0,56	55,1	16,8	26,9	102	115	8,10	0,92	3/4	0,56	15,2	6,9	1" NPT / 1" NPT	45°C / 113°F	150 kPa / 22 psi	IP 68
MS-2024					230	4,10	0,99							230	3,10	0,99								
MS-1025	80,4	24,5	32,8	124	115	9,00	0,98	1,0	0,75	59,1	18,0	28,5	108	115	8,80	0,90	1,0	0,75	16,8	7,6				
MS-2025					230	4,55	0,97							230	3,60	0,99								
MS-1026	88,3	26,9	33,8	128	115	9,60	0,98	1,5	1,12	64,0	19,5	30,1	114	115	8,50	0,92	1,5	1,12	18,5	8,4				
MS-2026					230	5,20	0,98							230	5,20	0,88								

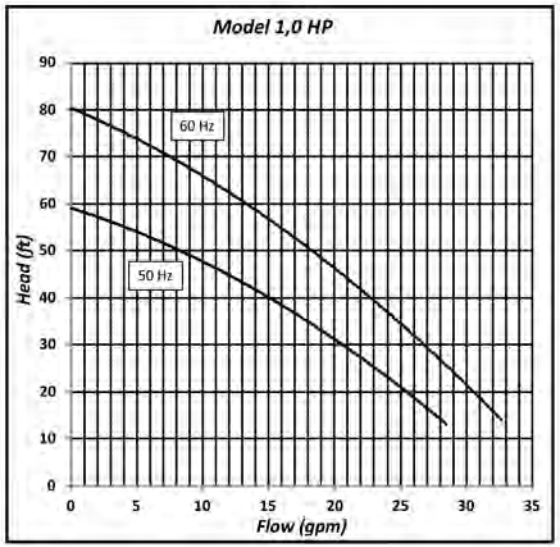
Notes:

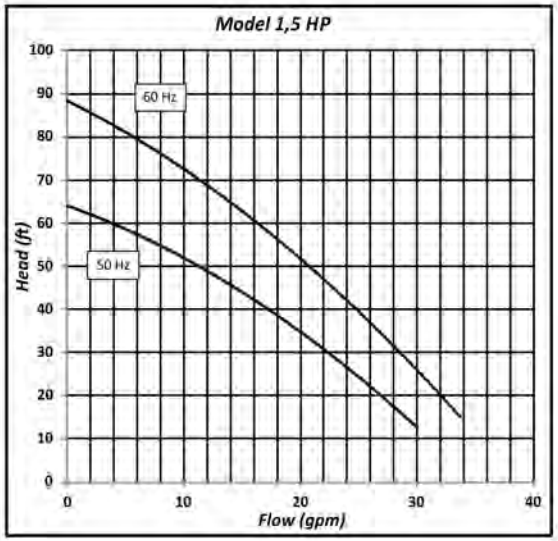
(1) Motor pump with continuous operation.

(2) All specifications may vary with different motors, this datas are a guideline only.

FLOW x HEAD CURVE

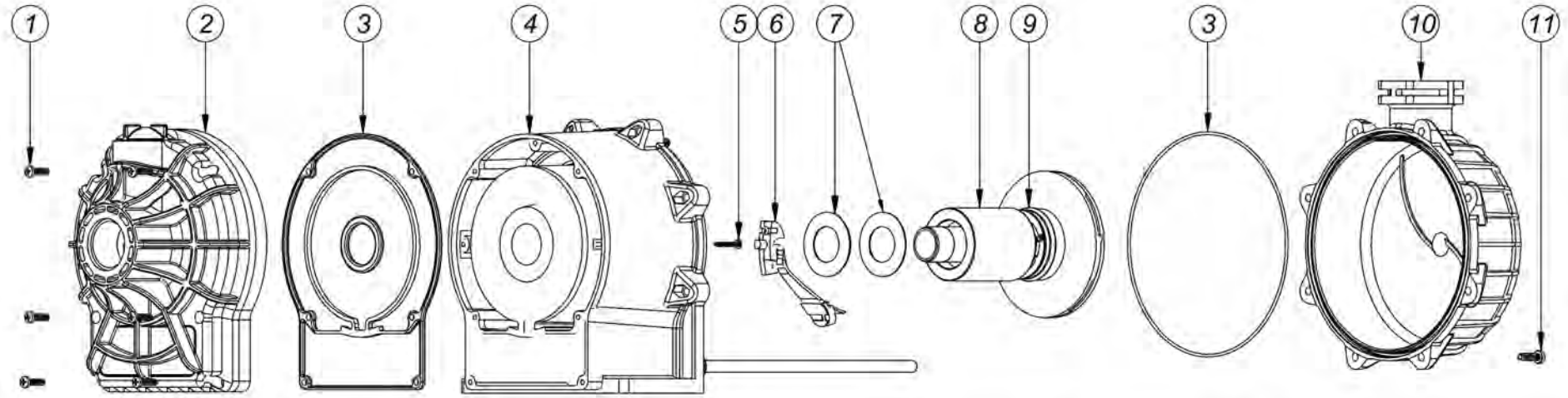






- This datas can be changed without prior advice.

PARTS LIST



#	DESCRIPTION	MATERIAL	SIZE (inches)	QTY.	PART #
1	Screw	Stainless	#0.157 x 0.630	6	3E4446P1A
2	Pump Inlet Housing Assembly	Polyamide	1 NPT	1	3D9756C4A
3	O'Ring	Nitrile Rubber		1	3D7868A
4	Motor with Encapsulant, Capacitor, Priming Circuit, Housing and Cord Assembly			N/A	Not Avaliable
5	Screw	Stainless	#0.124 x 0.787	4	3E4451P1A
6	Mechanical Priming Sensor	Acetal Polyoxymethylene (POM)		1	3E4472C1A
7	Washer	Stainless		2	3E4353P2A
8	Impeller Assembly			...	...
8-1	3/4 HP Impeller			1	3D9793C1A
8-2	1.0 HP Impeller				3D9793C2A
8-3	1.5 HP Impeller				3D9793C3A
9	Filter Gasket	Nitrile Rubber		1	3E5147A
10	Pump Outlet Housing	Polyamide	1 NPT	1	3D9794C3A
11	Screw	Stainless	#0.197 x 0.708	8	3E5134P3A

Manufactured by Eberle Equipamentos e Processos S.A.
1101 Ana Catharina Canalli
Caxias do Sul, RS, - Brazil
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Fort Lauderdale, FL, 33316 - USA
Phone: 954 - 533 - 8060
www.smsupplyinc.com

MEMBRANE TECHNICAL DATA

DOW FILMTEC™ Membranes

DOW FILMTEC Seawater RO Elements for Marine Systems

Features

Improved DOW FILMTEC™ seawater reverse osmosis elements offer the highest productivity while maintaining excellent salt rejection.

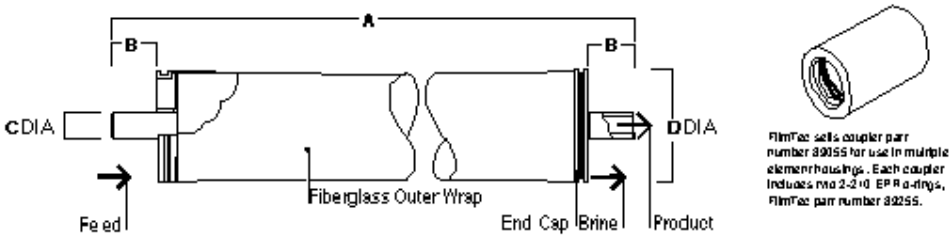
- DOW FILMTEC SW30 membrane elements have the highest flow rates available to meet the water demands of both sea-based and land-based desalinators.
- DOW FILMTEC SW30 elements may also be operated at lower pressure to reduce pump size, cost and operating expenses.
- Improved DOW FILMTEC seawater membrane combined with automated, precision element fabrication result in the most consistent product performance available.

Product Specifications

Product	Part Number	Applied Pressure psig (bar)	Permeate Flow Rate gpd (m^3/d)	Stabilized Salt Rejection (%)
SW30-2514	80733	800 (55)	150 (0.6)	99.4
SW30-2521	80734	800 (55)	300 (1.1)	99.4
SW30-2540	80737	800 (55)	700 (2.6)	99.4
SW30-4021	80740	800 (55)	800 (3.0)	99.4
SW30-4040	80741	800 (55)	1,950 (7.4)	99.4

1. Permeate flow and salt rejection based on the following test conditions: 32,000 ppm NaCl, pressure specified above, 77°F (25°C) and the following recovery rates; SW30-2514 – 2%, SW30-2521 & SW30-4021 – 5%, SW30-2540 & SW30-4040 – 8%.
2. Permeate flows for individual elements may vary +/-20%.
3. For the purpose of improvement, specifications may be updated periodically.

Figure 1



Product	Maximum Feed Flow Rate gpm (m^3/h)	Dimensions – Inches (mm) A	B	C	D
SW30-2514	6 (1.4)	14.0 (356)	1.19 (30.2)	0.75 (19)	2.4 (61)
SW30-2521	6 (1.4)	21.0 (533)	1.19 (30.2)	0.75 (19)	2.4 (61)
SW30-2540	6 (1.4)	40.0 (1,016)	1.19 (30.2)	0.75 (19)	2.4 (61)
SW30-4021	16 (3.6)	21.0 (533)	1.05 (26.7)	0.75 (19)	3.9 (99)
SW30-4040	16 (3.6)	40.0 (1,016)	1.05 (26.7)	0.75 (19)	3.9 (99)

1. Refer to DOW FILMTEC Design Guidelines for multiple-element systems.
2. SW30-2514, SW30-2521 and SW30-2540 elements fit nominal 2.5-inch I.D. pressure vessels. SW30-4021 and SW30-4040 elements fit nominal 4-inch I.D. pressure vessel.

1 inch = 25.4 mm

Operating Limits

• Membrane Type	Polyamide Thin-Film Composite
• Maximum Operating Temperature	113°F (45°C)
• Maximum Operating Pressure	1,000 psi (69 bar)
• Maximum Pressure Drop	15 psig (1.0 bar)
• pH Range, Continuous Operation[a]	2 - 11
• pH Range, Short-Term Cleaning[b]	1 - 13
• Maximum Feed Silt Density Index	SDI 5
• Free Chlorine Tolerance[c]	<0.1 ppm

[a] Maximum temperature for continuous operation above pH 10 is 95°F (35°C).

[b] Refer to Cleaning Guidelines in specification sheet 609-23010.

[c] Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, DOW FILMTEC recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to technical bulletin 609-22010 for more information.

Important Information

Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system operating parameters conform to design specifications so that system water quality and productivity goals can be achieved.

Before initiating system start-up procedures, membrane pretreatment, loading of the membrane elements, instrument calibration and other system checks should be completed.

Please refer to the application information literature entitled “Start-Up Sequence” (Form No. 609-02077) for more information.

Operation Guidelines

Avoid any abrupt pressure or cross-flow variations on the spiral elements during start-up, shutdown, cleaning or other sequences to prevent possible membrane damage. During start-up, a gradual change from a standstill to operating state is recommended as follows:

- Feed pressure should be increased gradually over a 30-60 second time frame.
- Cross-flow velocity at set operating point should be achieved gradually over 15-20 seconds.
- Permeate obtained from first hour of operation should be discarded.

General Information

- Keep elements moist at all times after initial wetting.
- If operating limits and guidelines given in this bulletin are not strictly followed, the limited warranty will be null and void.
- To prevent biological growth during prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution.
- The customer is fully responsible for the effects of incompatible chemicals and lubricants on elements.
- Maximum pressure drop across an entire pressure vessel (housing) is 50 psi (3.4 bar).
- Avoid static permeate-side backpressure at all times.

DOW FILMTEC™ Membranes
For more information about DOW FILMTEC membranes, call the Dow Water & Process Solutions business:
North America: 1-800-447-4369
Latin America: (+55) 11-5188-9222
Europe: (+32) 3-450-2240
Pacific: +60 3 7958 3392
Japan: +813 5460 2100
China: +86 21 2301 1000
www.dowwaterandprocess.com

BURKERT DIVERSION VALVE TECHNICAL DATA

Table of Contents

1 THE OPERATING INSTRUCTIONS

The operating instructions contain important information.

- Read the instructions carefully and follow the safety instructions.
- Keep the instructions in a location where they are available to every user.

The liability and warranty for the device are void if the operating instructions are not followed.

1.1 Symbols

- Designates instructions for risk prevention.

→ Designates a procedure which you must carry out.

DANGER!

Immediate danger! Serious or fatal injuries.

WARNING!

Possible danger! Serious or fatal injuries.

CAUTION!

Danger! Moderate or minor injuries.

NOTE!

Warns of damage to property.

Important tips and recommendations.

Refers to information in these operating instructions or in other documentation.

1.2 Definitions of terms

In these instructions, the term "device" always refers to the Type 0121, 0330, 0331, (0124, 0125, 0332, 0333).

2 AUTHORIZED USE

The device is designed to control, shut off and meter neutral and aggressive media up to a viscosity of 37 mm²/s.

- Use according to the authorized data, operating conditions and conditions of use specified in the contract documents and operating instructions.
- Provided the cable plug is connected and installed correctly, e.g. Bürkert Type 2508, the device satisfies degree of protection IP65 in accordance with DIN EN 60529 / IEC 60529.

Only operate the device

- when in perfect condition and always ensure proper storage, transportation, installation and operation.
- Use the device only as intended.

2.1 Restrictions

If exporting the device, observe any existing restrictions.

3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not make allowance for any contingencies and events which may arise during assembly, operation and maintenance.

Risk of injury from high pressure in the system/device.

- Before working on the system or device, switch off the pressure and vent/drain lines.

Risk of injury due to electrical shock.

- Before working on the system or device, switch off the power supply and secure to prevent reactivation.
- Observe applicable accident prevention and safety regulations for electrical equipment.

Risk of burns/risk of fire if used for a prolonged switch-on time through hot device surface.

- Keep device away from highly flammable substances and media and do not touch with bare hands.

Risk of injury due to malfunction of valves with alternating voltage (AC).

Sticking core causes coil to overheat, resulting in a malfunction.

- Monitor process to ensure function is in perfect working order.

Risk of short-circuit/escape of media through leaking screw joints.

- Ensure seals are seated correctly.
- Carefully screw valve and pipelines together.

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General hazardous situations.

To prevent injuries:

- In a potentially explosive area, the device may be used only in accordance with the specification on the type label. For the use, observe the supplementary instructions manual enclosed with the device with safety instructions for the explosion-risk area.
- The enclosed UL instructions must be followed in the UL area.
- Do not carry out any external or internal modifications and do not subject the device to mechanical loads (e.g. by placing objects on it or standing on it).
- Secure the device against unintentional activation.
- Only trained technicians may perform installation and maintenance work.
- The valves must be installed in accordance with the regulations applicable in the country.
- After an interruption in the power supply, ensure that the process is restarted in a controlled manner.
- Observe the general rules of technology.

4 SYSTEM DESCRIPTION

4.1 General description

The pivoted armature valves are direct acting 2/2 or 3/2-way solenoid valves in a wide variety of circuit functions and models. Solenoid system and media chamber are separated from one another by a separating diaphragm system. The valves are fast acting and have a long service life.

Type 0121	2/2 or 3/2-way solenoid valve, socket valve body
Type 0330	2/2 or 3/2-way solenoid valve, socket valve body
Type 0331	2/2 or 3/2-way solenoid valve, flange valve body
Type 0332	Bistable 2/2 or 3/2-way solenoid valve with 2 coil windings, socket valve body
Type 0333	Bistable 2/2 or 3/2-way solenoid valve with 2 coil windings, flange valve body
Type 0124	2/2 or 3/2-way solenoid valve, socket valve body
Type 0125	2/2 or 3/2-way solenoid valve, flange valve body

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5 TECHNICAL DATA

The following values are indicated on the type label:

- **Voltage** (tolerance ±10 %) **/ current type**
- **Coil power consumption** (active power in W - at operating temperature)
- **Pressure range**
- **Body material** (MS=brass, VA=stainless steel, PV=PVC, TE=PTFE, PP=polypropylene, PD=PVDF)
- **Sealing material** (F=FKM, A=EPDM, B=NBR, C=FFKM)

5.1 Conformity

The Types 0121, 0330, 0331, (0124, 0125, 0332, 0333) are compliant with the EC Directives according to the EC Declaration of Conformity.

5.2 Standards

The applied standards, which are used to demonstrate compliance with the EC Directives, are listed in the EC type test certificate and/or the EC Declaration of Conformity.

5.3 Operating conditions

Ambient temperature

Type 0121	max. +50°C
Other types	max. +55°C

Duty cycle
for body material

Brass or stainless steel	long-term operation, duty cycle 100%
Plastic	max. permissible duty cycle see data sheet

Important information for functional reliability.
If switched off for a long period, 1-2 switching actions are recommended prior to restart.

Service life
High switching frequency and high pressures reduce the service life.

Degree of protection	IP65 in accordance with DIN EN 60529 / IEC 60529 with correctly connected and installed cable plug, e.g. Bürkert Type 2508

5.4 Mechanical data

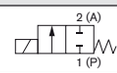
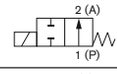
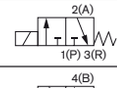
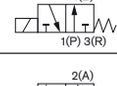
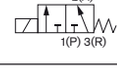
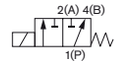
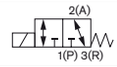
Dimensions	see data sheet
Coil material	epoxide
Connections	G 1/4 (NPT 1/4, G 1/8, G 3/8, Rc 1/4 on request)

5.5 Fluidic data

Media	aggressive, neutral, gaseous and liquid media, which do not attack body and sealing materials. (see resistance table at www.buerkert.de).

Medium temperature for sealing material

FKM	0 °C – +90 °C
EPDM	-30 °C – + 90 °C
NBR	0 °C – + 80 °C
FFKM	+5 °C – +90 °C

Circuit functions		
A (NC)		2/2-way valve, closed in rest position
B (NO)		2/2-way valve, open in rest position
C (NC)		3/2-way valve; closed in rest position, output A unloaded
D (NO)		3/2-way valve, in rest position, output B pressurized
E		3/2-way mixing valve; in rest position, pressure connection P2 connected to output A, P1 closed
F		3/2-way distribution valve, in rest position, pressure connection P connected to output B
T		3/2-way all purpose valve

5.6 Electrical data

Connections DIN EN 175301-803 (DIN 43 650), shape A for cable plug Type 2508 or 2509

5.7 Type label

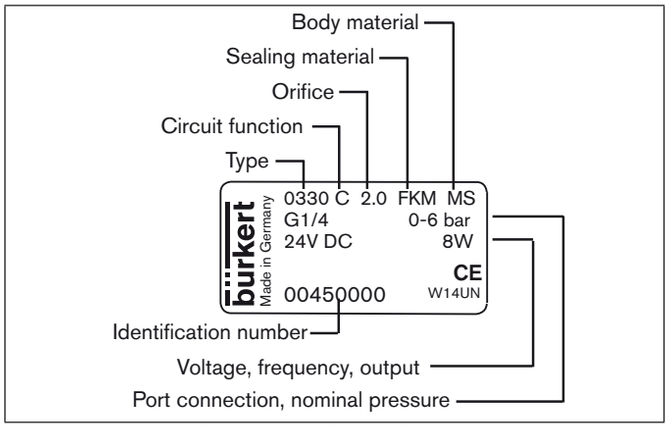


Fig. 1: Description of the type label (example)

6 ASSEMBLY

DANGER!

Risk of injury from high pressure in the system/device.

- Before working on the system or device, switch off the pressure and vent/drain lines.

Risk of injury due to electrical shock.

- Before working on the system or device, switch off the power supply and secure to prevent reactivation.
- Observe applicable accident prevention and safety regulations for electrical equipment.

WARNING!

Risk of injury from improper assembly.

- The assembly may be carried out only by trained technicians and with the appropriate tools.
- Secure system against unintentional activation.
- Following assembly, ensure a controlled restart.

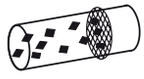
6.1 Before installation

Installation position:

The installation position is optional. Preferably: Actuator at the top.

→ Prior to installation check pipelines for dirt and clean if necessary.

Dirt filter: To ensure that the solenoid valve functions reliably, a dirt filter (≤ 500 µm) must be installed in front of the valve input.



6.2 Installation

→ Observe flow direction:
Functioning of the device is only ensured if the circuit function is maintained.

Devices in socket model

→ Use PTFE tape as sealing material.

→ Determine the maximum screw-in depth of the connecting threads as this does not comply with any standard.

NOTE!

Caution risk of breakage.

- Do not use the coil as a lifting arm.

→ Hold the device with a suitable tool (open-end wrench) on the body; screw into the pipeline.

Attaching the device:

→ Via bore holes M4x8 (made from brass or stainless steel) or self-tapping screws 3.9 DIN 7970 (made from plastic, max. screw-in depth 10 mm) on the bottom side of the body at drill pattern 38x24.

Devices in flange model

Attaching the device:

→ Via supplied screws on basic devices or manifold.

→ Tighten fastening screws on the coil to a maximum torque of 2 Nm.

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6.3 Manual control

NOTE!

- When the manual control is locked, the valve cannot be actuated electrically.

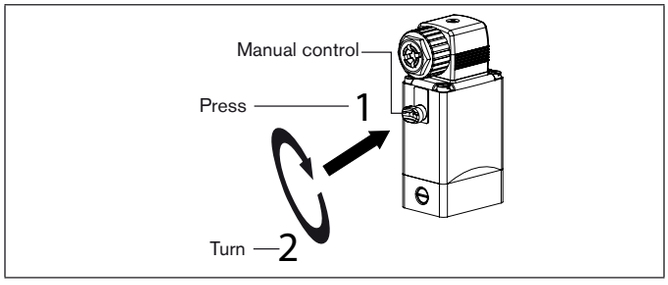

Fig. 2: Manual control

7 ELECTRICAL CONNECTION

DANGER!

Risk of injury due to electrical shock.

- Before working on the system or device, switch off the power supply and secure to prevent reactivation.
- Observe applicable accident prevention and safety regulations for electrical equipment.

If the protective conductor is not connected, there is a risk of electric shock.

- Always connect protective conductor and check electrical continuity between coil and housing.

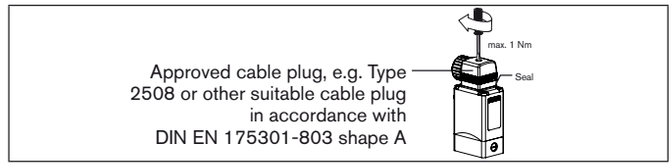

Fig. 3: Connecting the cable plug to the power supply

Note the voltage and current type as specified on the type label.

7.1 Standard model

→ Connect L1/+ and N/– to terminals 1 and 2, independent of the polarity.

→ Connect protective conductor.

→ Attach seal and check for correct fit.

→ Tighten cable plug (Type 2508 or 2509 in accordance with DIN EN 175301-803 (DIN 43 650), shape A, for order numbers see data sheet); while doing so, observe the maximum torque of 1 Nm.

→ Check electrical continuity between coil and body (protective conductor function).

7.2 Pulse model (CF 02)

In accordance with the terminals on the valves, the connection terminals in the cable plug are marked with the numbers 1 to 3.

→ Connect as shown in "Fig. 4". Pulse on terminal 1 closes the valve; pulse on terminal 2 opens the valve.

→ Attach seal and check for correct fit.

→ Tighten cable plug (Type 2508 or 2509 in accordance with DIN EN 175301-803 (DIN 43 650), shape A, for order numbers see data sheet); while doing so, observe the maximum torque of 1 Nm.

→ Check electrical continuity between coil and body (protective conductor function).

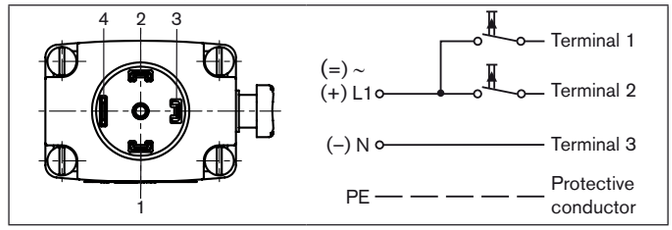

Fig. 4: Electrical connection - pulse model (CF 02)

NOTE!

- Prevent simultaneous pulsing on both coil windings.
- Parallel to the terminals, no other consumers (relay, etc.) may be connected.
- The respective coil connection that does not carry current must be galvanically isolated (open).
- In case two or more valves are connected in parallel, the use of two-pole or multi-pole switches must ensure that this requirement is met.

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8 DISASSEMBLY

DANGER!

Risk of injury from high pressure in the system/device.

- Before working on the system or device, switch off the pressure and vent/drain lines.

Risk of injury due to electrical shock.

- Before working on the system or device, switch off the power supply and secure to prevent reactivation.
- Observe applicable accident prevention and safety regulations for electrical equipment.

WARNING!

Risk of injury from improper disassembly.

- Disassembly may be carried out only by trained technicians and with the appropriate tools.

Risk of injury from hazardous media.

- Before loosening lines or valves, flush out hazardous media, depressurize and drain the lines.

9 MAINTENANCE, TROUBLESHOOTING

9.1 Safety instructions

DANGER!

Risk of injury from high pressure in the system.

- Turn off the pressure and vent the lines before loosening lines or valves.

Risk of injury due to electrical shock.

- Before working on the system or device, switch off the power supply and secure to prevent reactivation.
- Observe applicable accident prevention and safety regulations for electrical equipment.

WARNING!

Risk of injury from improper maintenance work.

- Maintenance may be carried out only by trained technicians and with the appropriate tools.
- Secure system against unintentional activation.
- Following maintenance, ensure a controlled restart.

9.2 Malfunctions

If malfunctions occur, check whether:

→ the device has been installed according to the instructions,

→ the electrical and fluid connections are correct,

→ the device is not damaged,

→ all screws have been tightened,

→ the voltage and pressure have been switched on,

→ the pipelines are clean.

Malfunction	Possible cause
Valve does not switch	Short circuit or coil interrupted
	Medium pressure outside the permitted pressure range
	Manual control locked
Valve does not close	Inner compartment of the valve is dirty
	Manual control locked

9.2.1 Repairs

Repairs may only be carried out by the manufacturer. Operating data may change if spare parts are replaced by the user.

10 TRANSPORTATION, STORAGE, DISPOSAL

NOTE!

Transport damage.

Inadequately protected devices may be damaged during transportation.

- Protect the device against moisture and dirt in shock-resistant packaging during transportation.
- Prevent the temperature from exceeding or dropping below the permitted storage temperature.

Incorrect storage may damage the device.

- Store the device in a dry and dust-free location.
- Storage temperature -40 – +80°C.

Damage to the environment caused by parts contaminated with media.

- Dispose of the device and packaging in an environmentally friendly manner.
- Observe applicable disposal and environmental regulations.

7. WARRANTY

OWNER'S LIMITED WARRANTY

Spot Zero warrants to the original purchaser/owner, and to subsequent owners during the applicable Limited Warranty Period, Spot Zero's Water Purification Products, Pumps, Related Accessories and Replacement Parts against failure from defects in material or workmanship arising in the periods specified in the Table of Limited Warranty Periods below. If a covered product or part fails during the applicable warranty period, Spot Zero will remedy same by repairing or replacing the defective warranted product or part as outlined below in the Table of Limited Warranty Periods. Defective parts shall be replaced free of charge and labor shall be paid for by Spot Zero only as set forth in the Table.

Spot Zero reserves the right to refund the purchase price of the subject product or part as an alternative remedy to repair or replacement. The remedy allowed hereunder (repair, replacement, or refund) shall be at Spot Zero's sole option.

SECTION I

WHAT'S COVERED

What does the Limited Warranty cover?

Water Purification Products, Pumps, Related Accessories and Replacement Parts manufactured and/or marketed by Spot Zero for the durations set forth in the Table of Limited Warranty Periods.

What is disclaimed, and are the warranties and remedies exclusive of all others?

Spot Zero does not disclaim the implied warranty of merchantability but limits the duration of that implied warranty to the duration of the Limited Warranty offered herein.

This Limited Warranty, as well as the implied warranty of merchantability and the remedies offered by Spot Zero herein, are EXCLUSIVE and are made or provided in lieu of all other express or implied warranties, obligations, or liabilities. In no event shall Spot Zero be responsible or liable for any incidental or consequential damages alleged to have resulted from any defect in or failure of any warranted product or part. In those instances, in which a cash refund is made, **such refund shall effect the cancellation of the contract of sale and such refund shall constitute full and final satisfaction of all claims which the purchaser has or may have against Spot Zero due to any actual or alleged breach of warranty, either express or implied, including, without limitation, the implied warranty or merchantability or fitness for a particular purpose.** Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation may not apply to you. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

The Dealer is not an agent for Spot Zero, except for the purpose of administering the above warranty to the extent herein provided. Spot Zero does not authorize the dealer or any other person to assume for Spot Zero any liability in connection with such warranty, or any liability or expense incurred in the replacement or repair of its products other than those expressly authorized herein. Spot Zero shall not be responsible for any liability or expense except as is specifically authorized and provided herein. Spot Zero reserves the right to improve its products, through changes in design or material without being obligated to incorporate such changes in products of prior manufacture. Spot Zero can make changes at any time in design, materials, or part of units of anyone, model year, without obligation or liability to owners of units of the same year's model of prior manufacture.

This warranty gives you, the purchaser/owner, specific legal rights, and you may also have other rights which vary from state to state.

OWNER'S LIMITED WARRANTY

SECTION II

WHAT'S NOT COVERED

What does this Limited Warranty not cover?
This Warranty Shall Not Apply to:

1. Failures resulting from improper installation or use contrary to instructions.
2. Failures resulting from abuse, misuse, accident, fire, or submergence.
3. Any part manufactured by Spot Zero, which shall have been alteredto impair its original characteristics.
4. Any parts which fail as a result of misuse, improper application, or improper installation.
5. Items not manufactured by Spot Zero, i.e., items, which are purchased from another manufacturer and supplied as received by Spot Zero without alteration or modification except as any part of a Spot Zero manufactured unit or component.
6. Components or parts used by or applied by the purchaser, as an integral part of products not manufactured by Spot Zero.
7. Labor resulting from difficult access to a Spot Zero product. The original installer or OEM is responsible for accessibility of unit.
8. Leaks due to improper installation of system, for example: hose clamps, fittings, flare nuts, quick disconnects.
9. Freight Damage.
10. Pumps that have been run dry, are water damaged or have blown freeze plugs.
11. Pumps with cracked heads.
12. Pump seals are not covered.
13. UV light bulbs are not covered.
14. Sea strainer elements are not covered.
15. Cartridge filter elements are not covered.
16. Sand & gravel in a multi-media filter are not covered.
17. Pump packing assemblies are not covered.
18. Pump valve assemblies are not covered.
19. Pump crankcase oil is not covered.
20. Gauge instrument calibration is not covered.
21. Fuses are not covered.
22. Valve seals and packings are not covered.
23. Exterior corrosion is not covered.
24. Membrane elements are not covered.
25. Logic boards with water damage.
26. Logic boards with blown MOV's (Power Surge)
27. Mis-programmed displays.
28. Displays or remotes with water damage.
29. Failures due to improper winterization.
30. Unit damage as a result of improper return packaging.
31. Travel costs are included in the hourly labor allowances and should not be billed as a separate item without preapproval from the factory.

Installation and application of Spot Zero components are not warranted by Spot Zero, because Spot Zero has no control or authority over the selection, location, application, or installation of these components.

OWNER'S LIMITED WARRANTY

SECTION III
COVERAGE PERIOD

What is the period of coverage?

SEE TABLE OF LIMITED WARRANTY PERIODS BELOW.

How does one determine when the Limited Warranty Period begins? All Spot Zero products bear a data plate on which there are model and serial numbers. The date of manufacture of the product can be determined by Spot Zero based on the serial number on the product. To determine whether any Spot Zero component is in warranty, proceed as follows:

1. Determine the model and serial number on the data plate located on the product. Write or call the Spot Zero Customer Service Department to obtain the manufacture date of the product. The hours of the Customer Service Department are 8:00 a.m. - 5:00 p.m. (USA, Eastern Standard Time Zone) Monday through Friday excluding holidays.
2. It is possible that a considerable time lag exists between the date a product or component is manufactured and the date it is put in service. In such instances, the date of manufacture could indicate that the item is out of warranty. However, based on the date the equipment is first put in service, the item may still be covered by the Spot Zero Limited Warranty. For proof of date put in service, Spot Zero will require a copy of the bill of sale of the Spot Zero equipment from the installer or new boat dealer to the original owner.

OWNER'S LIMITED WARRANTY

SECTION IV

GETTING COVERED WARRANTY SERVICE

How does the purchaser/owner get warranty service?

Please read the following Warranty Procedure: If the failure of a Spot Zero component is determined to be covered under the Spot Zero warranty and the time in service is determined to be within the warranty time limit, the owner has the following three options:

1. Preferred option: Have a Spot Zero authorized Servicing Dealer, perform the work needed. The customer needs to call Spot Zero Customer Service Department for a recommendation as to the closest dealer. If the customer already knows an authorized servicing dealer, the dealer should be contacted directly.
2. Second option: If the customer contacts Spot Zero Service Department for a Servicing Dealer and Spot Zero has no one in that particular area, Spot Zero will authorize the use of a local service company and Spot Zero will work with the local company to assist in any way possible.

The customer may contact the Spot Zero Service Department at 1(800) 542-2477, Monday-Friday, 8:00am - 5:00pm.

TABLE OF LIMITED WARRANTY PERIODS

Important Notes Regarding Product Start-up/ Commissioning:

1. Warranty periods begin from the date of possession of the boat/vessel by the first owner if OEM installed or date of installation if dealer installed, but not to exceed three (3) years from date of production of the product. However, if the product is started for any reason by the OEM or dealer, notwithstanding any provision to the contrary, the warranty period will be for a period of one (1) year commencing from the date that the product was started by the OEM or dealer. The warranty is transferable and will carry the remainder of the original owner's warranty based on the original date of purchase or date of installation.
2. Proof of purchase or installation may be required to verify warranty coverage.
3. Any unit or replacement part installed due to a warranty failure carries the remainder of the original warranty. Warranty coverage does not start over from the repair/replacement date.
4. Warranty coverage shall not exceed three (3) years from the date of production of the product.
5. These warranty periods are effective February 1, 2014.

WATER PURIFICATION PRODUCTS:
PRODUCT SALE TYPE WARRANTY COVERAGE

Spot Zero OEM 1-year warranty, parts and labor, from date of delivery of vessel. Not to exceed 3 years from date of production of product, and subject to **Important Notes above**. Pump warranty, see Pump section.

Dealer Installed 1-year warranty, parts and labor, from date of installation. Not to exceed 3 years from date of production of product, and subject to **Important Notes above**. Pump warranty, see Pump section.

Sea Xchange OEM 1-year warranty, parts and labor, Not to exceed 3 years from date of production of product, and subject to **Important Notes above**. Pump warranty, see Pump section.

Dealer Installed 1-year warranty, parts and labor, from date of installation. Not to exceed 3 years from date of production of product, and subject to **Important Notes above**. Pump warranty, see Pump section.

(SE SERIES, SX SERIES FROM DATE OF DELIVERY OF VESSEL. XTC SERIES, CX SERIES)

PUMPS, ACCESSORIES, REPLACEMENT PARTS:
PRODUCT SALE TYPE WARRANTY COVERAGE

Pumps OEM or Dealer Installed 1 year warranty, parts and labor. Wearable parts such as pump seals, brushes and plastic valves are not covered under warranty.

Dealer Installed and 1 year warranty, parts only. Wearable parts such as pump seals, brushes and plastic valves are not covered under warranty.

Accessories OEM, Dealer Installed, 1-year warranty, parts only. Replacement Parts Aftermarket sales. 90-Day warranty, parts only.