



USER MANUAL / INSTALLATION GUIDE



ZTC II

ZTCII2000

ZTCII3000

www.spotzerowater.com

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1. INTRODUCTION

CONGRATULATIONS

Your Spot Zero™ reverse osmosis system is a durable piece of equipment, which, 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. Your system is designed to operate at a pressure of 80-150 psi, unless otherwise stated. The recovery set for your system is between 50%-75%.

NOTE: Prior to operating or servicing the Spot Zero reverse osmosis system, this User's Manual must be read and fully understood. Keep it and other associated information for future reference and for new operators or qualified personnel near the system.

SYSTEM REQUIREMENTS AND OPERATION GUIDELINES

PLUMBING

The membranes and high-pressure pumps used on Spot Zero systems require a continuous and nonturbulent flow of water to the system with a minimum feed pressure of 20 psi during operation, which does not exceed 105°F.

The tubing or piping used for the inlet of the feed water is 3/4" ID. The tubing or piping used for the discharge of the concentrate is 1/2" O.D. and should be run to an open overboard free and unrestricted

The tubing or piping used for the product is 3/8" O.D. and can be transported to the holding tank or directly through a high-quality nylon tubing or PVC pipe or other FDA accepted materials.

Material must not precipitate in the system. Be certain that all the components of the feed water are soluble at the concentrations attained in the system.

CAUTION: Any restrictions or blockage in the overboard discharge line can cause back pressure, which will increase the system's operating pressure. This can result in damage to the system's components and possible leaks of components or tubing.

ELECTRICAL

The motors used on Spot Zero™ systems are pump and motor combinations. They are available in single- phase 115 volt or 230-volt AC.

Please ensure that the electrical circuit supplying the system is compatible with the requirements of the specific Spot Zero™ model.

PRE-FILTRATION

Spot Zero™ systems are supplied with a 1-micron sediment pre-filter (part # 252404005) that filters out most particles over 1-micron, a GAC/KDF (part # 252404004) Cartridge that removes chlorine, chloramine, VOCs and heavy metals. CAUTION: a traditional carbon block filter must not be used as it will not remove chloramines and will cause permanent membrane damage. Pre-Filters should be changed every 100 hours and/or whenever there is a pressure difference of 15 psi or more between the pressure readings before and after the filter. 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.

NOTE: THE SZ10KDF2 CARTRIDGE MUST BE FLUSHED OUTSIDE OF SYSTEM BEFORE OPERATING TO REMOVE CARBON DUST.

You can head to www.spotzero.com/support to see demo videos. Do not attempt to clean used filter cartridges. The SZ10KDF2 is rated to absorb chlorine, chloramine, heavy metals, etc. up to 18,000 gallons of feed water, which is the equivalent to approximately 100 hours of run time.



CAUTION: If the pre-filter becomes clogged and the water flow to the pump is reduced or interrupted, cavitation will occur. This will damage the pump.

DOMETIC | **SPOTZERO**
Fresh Water Reverse Osmosis

Reverse Osmosis Systems

SZ-10KDF2
Dometic P/N#252404004

COCONUT SHELL GAC/2 LBS KDF
4.5" OD x 1.1" ID x 9.875"L

DIRECTIONS FOR USE: Flush with water hose for minimum of 60 seconds prior to use to remove carbon dust. Use only with microbiologically safe & adequately disinfected water. These filters must be replaced every 100 hours of use to prevent chlorine and/or chloramine damage to membranes.

- Superior Chlorine Reduction
- Superior Chloramine Reduction
- Effective Bad Taste & Odor Reduction
- Greater VOC Reduction than Standard GAC Cartridges
- Post-Filter to Reduce Carbon Fines
- 15,000 US Gallon Capacity
- Water-washed Coconut Shell Activated Carbon
- Available in a Variety of Sizes and Flow Rates
- 2.0 lbs KDF-55 Media

Temperature Ratings: 40°F to 100°F

2000 N Andrews Ave. Ext.
Pompano Beach, FL 33069
954-973-2477 F 954-979-4414
marinesales@dometicUSA.com www.spotzerowater.com

DOMETIC | **SPOTZERO**
Fresh Water Reverse Osmosis

Reverse Osmosis Systems

SZ-45-1001
Dometic P/N#252404005

SEDIMENT DEPTH FILTER: 4.5" ODx1" IDx9.785"L

- 1 µ Nominal Filtration
- 100% Polypropylene Sediment Filter Cartridge
- Four Separate Layers of Filtration
- Excellent Dirt Holding Capacity
- High Efficiency, Low Pressure Drop and a Long Life
- Tested for Performance & Verified by Independent Laboratory.

Temperature Ratings: 40°F to 100°F

2000 N Andrews Ave. Ext.
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Do not use with microbiologically unsafe water and water of unknown quality without proper disinfection before or after the filter.

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

PRINCIPLES OF REVERSE OSMOSIS

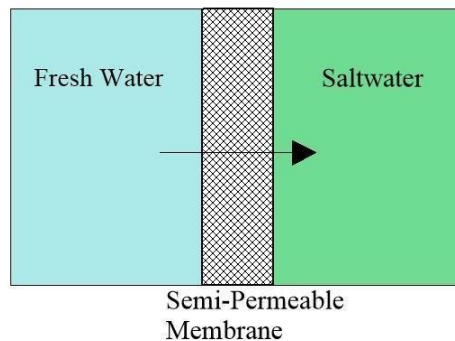
HOW FRESH WATER IS PRODUCED

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 semi-permeable membrane to mix with a highly concentrated solution. For example, a freshwater solution will naturally want to mix with a saltwater solution.

Process of Osmosis



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

ZTCII MODEL	2000	3000
FW Configuration (Spot Zero)	1 Vessel	2 Vessels
Feed Water Source	Fresh Water	Fresh Water
Rated Production Dock Water gpd (lpd)	2000(7571)	3000(11356)
Rejection and Flow Rates		
FW Nominal TDS Rejection % (Spot Zero)	95%	95%
FW Minimum Concentrate Flow gpm (lpm)	1 (3.7)	1(3.7)
Connections		
FW Feed inch (Spot Zero)	3/4"	3/4"
Product inch	3/8" QC 9.5mm	3/8" QC 9.5mm
Concentrate inch	1/2" QC 12.7mm	1/2" QC 12.7mm
Membranes		
FW Membrane Per Vessel	1	1
FW Membrane Size	4041	4041

Pumps		
FW Pressure Pump Type	Vane	Vane
FW RO Motor amps	5.1	5.1
Electrical		
Voltage	230V 50/60Hz 1Φ	230V 50/60Hz 1Φ
Weight lb. (kg)	108(49)	116(53)

SYSTEMS STANDARD OPERATING PARAMETERS

	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)
Fresh Water RO Systems										
Model/GPD										
SZ/TCII/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										
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/TCII/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 COMMISSIONING

SPOT ZERO 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:

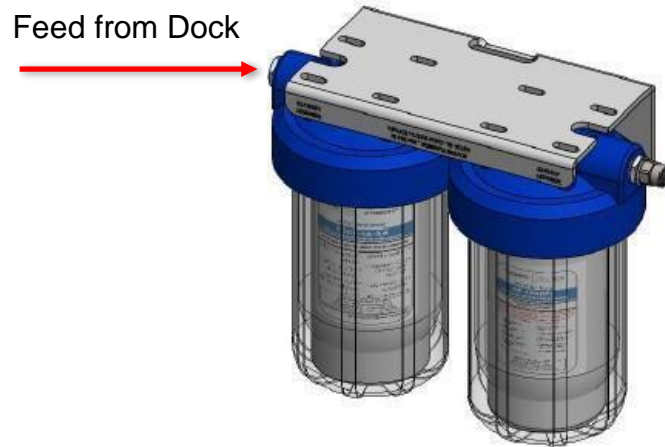
STANDARD ITEMS INCLUDED WITH UNIT

✓	PART NUMBER	DESCRIPTION	QTY
	KIT0005	ZTC Install Kit	1
	J0003	Tubing, Nylon, 3/8" OD	50 ft.
	J0004	Tubing, Nylon, 0.50 in. OD	50 ft.
	B0021	Elbow 3/8" QC	4
	B0020	Elbow 1/2" QC	4
	B0019	Adapter 1/2" QC to 1/2" MNPT	2
	B0030	Adapter 3/8" QC to 1/2" MNPT	2
	D0047	TDS-EZ HAND HELD TESTER	1
	B0059	Adapter 1/2" CTS Stem to 3/8" CTS	2
	B0024	Reducer 1/2" QC Stem to 3/8" QC	2
	B0058	Adapter 5/8" QC Stem to 3/8" QC	2
	H5089	Install Kit 5/16" Hardware Set	1
	B0013	Elbow 3/8" QC Stem to 3/8" QC	4
	B0010	Elbow 1/2" QC Stem to 1/2" QC	4
	E1018	Wrench for Big Clear 4.5" #10 & #20	1
	B5001	Locking Clip, 3/8", Install Kit 20pc	1
	B5002	Locking Clip, 1/2", Install Kit 20pc	1
	H5065	Lubricant Silicone 6 grams	1
	B0043	Ball Valve 3/8" QC	1
	MN1003	ZTC Manual	1
	AE0004	Bacteriostatic Remineralizer Assembly	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

INSTALLATION PROCEDURE

FEED WATER

1. Plumb the feed water from the dock into the pre-filter inlet pressure regulator fitting. 3/4" FNPT or 1" MNPT custom connection from customer.



2. Tube Cutting and Installation Procedure

Cut the tube square



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.

Push up to tube stop



Pull to check secure



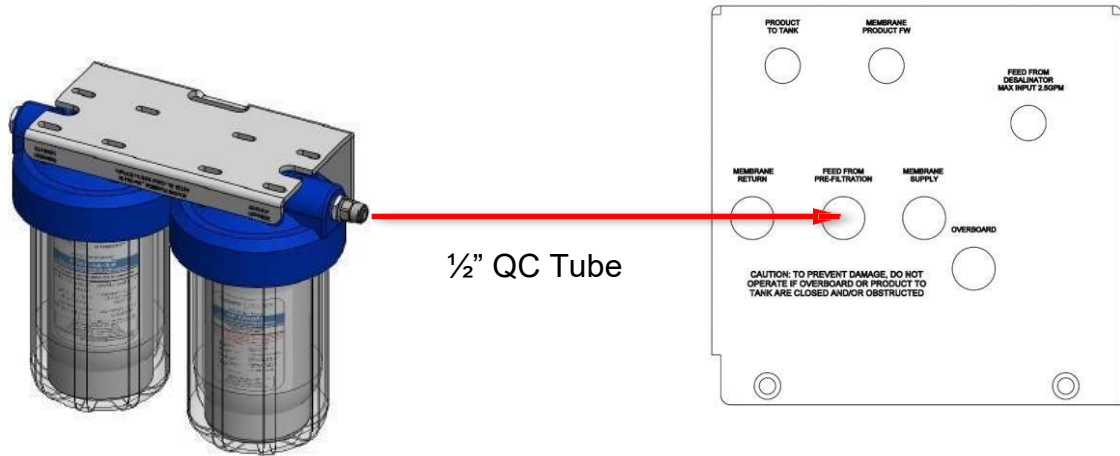
To disconnect

Push in collet and remove tube



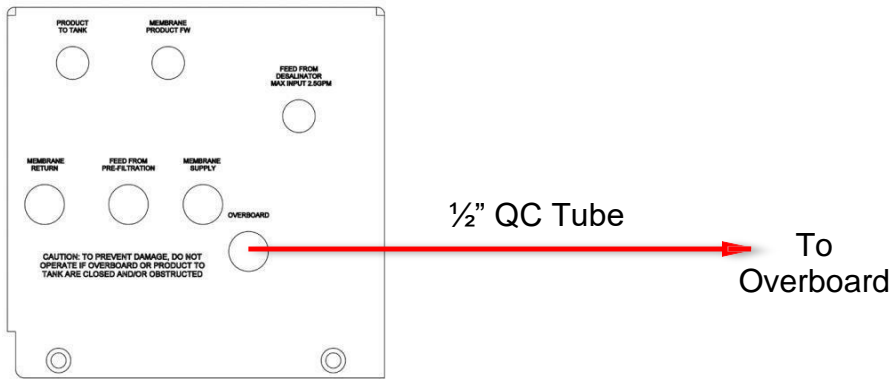
To disconnect, ensure the system is depressurized, push the collet square against the fitting. With the collet held in this position the tube can be removed.

- From the pre-filter outlet fitting, run the white nylon 1/2" Spot Zero water tubing to the feed from pre-filtration fitting.

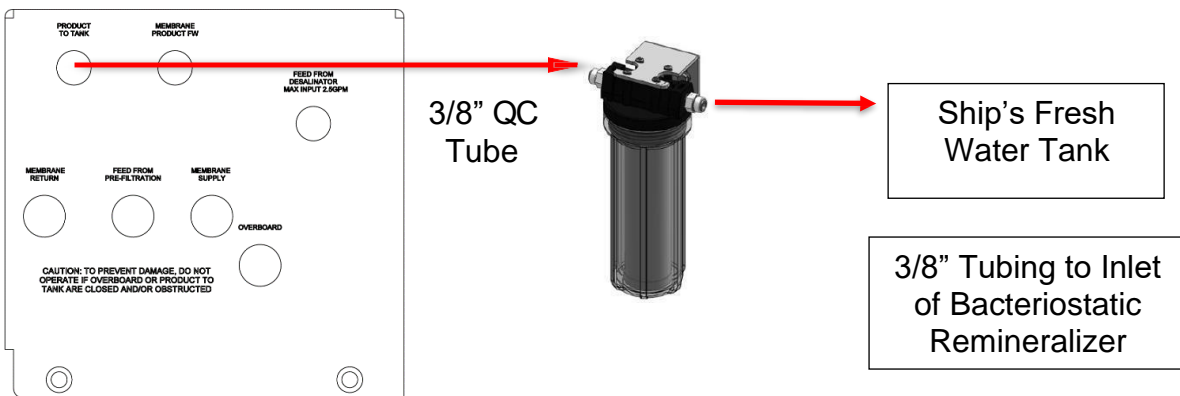


- From the "Overboard" discharge fitting, run the white nylon 1/2" Spot Zero water tubing to a dedicated overboard fitting. Water must be allowed to run freely, without any restrictions or blockage in the brine discharge line. Be sure that no back pressure exists in the "Overboard" discharge line.

Note: There is an internal check valve in the brine discharge line in the system.

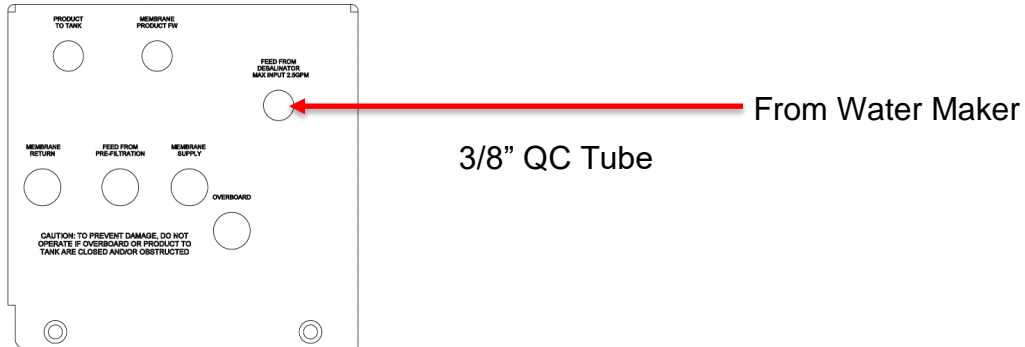


- From the product to tank fitting, run the white nylon 3/8" Spot Zero water tubing to the vessels freshwater tank.



FEED FROM WATERMAKER

1. Connect the 3/8” product line from the water maker to the “WATER MAKER IN” fitting. Always install a three-way valve in line with this, so the water can be diverted to the spot zero system, or to the vessels fresh water tank.



ELECTRICAL CONNECTIONS

1. Supply and connect specified power (115v or 230v) from the vessels panel to the ZTC panel. Connect line 1 and line 2 to the terminals and connect the ground wire to the ground terminal. Be sure to confirm systems rated voltage before applying power.

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

ZTCII 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)

STORAGE OR WINTERIZATION OF UNIT

STORAGE

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.

WINTERIZATION

Option 1: 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 2: 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.

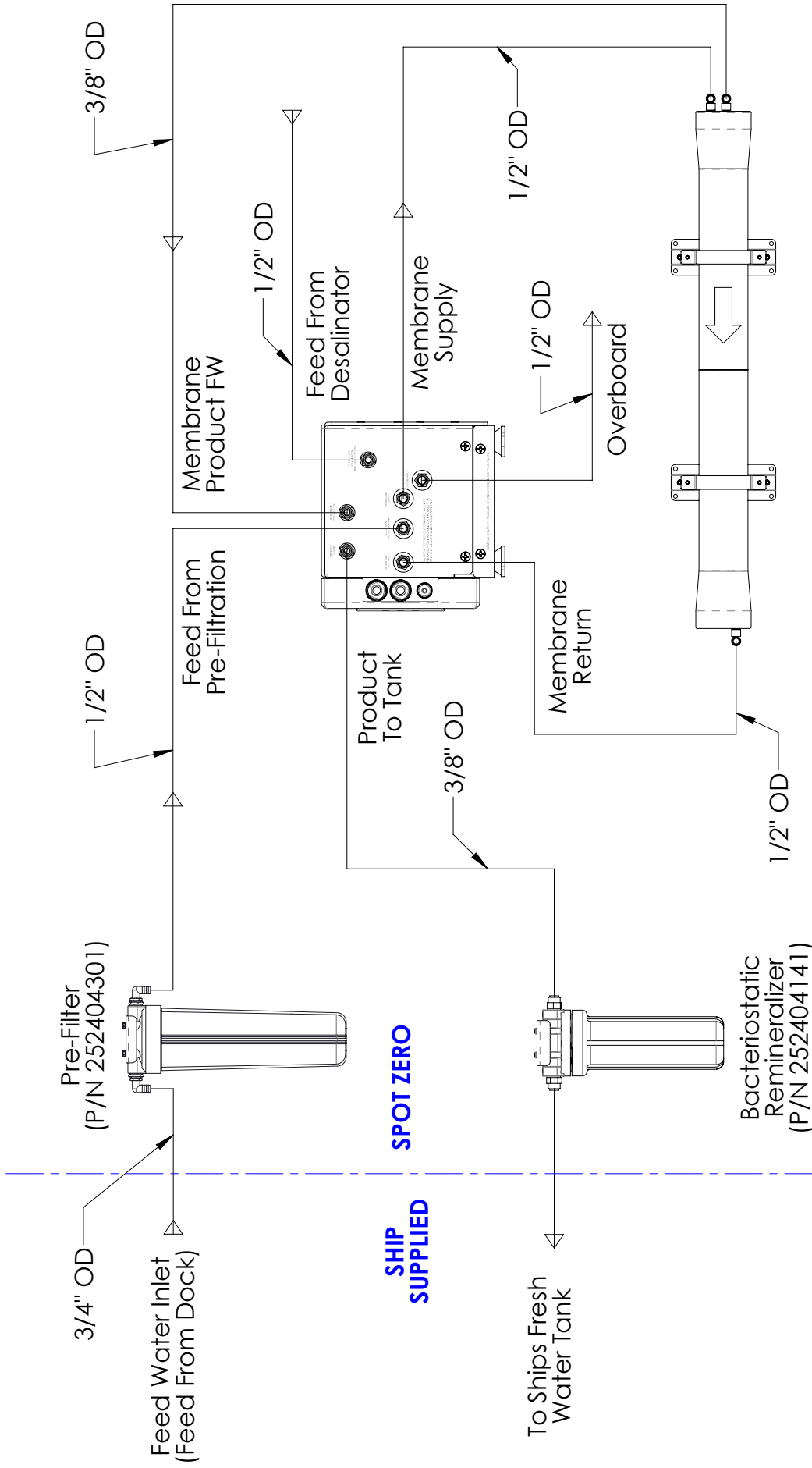
NOTE: PROPYLENE GLYCOL CAN BE PURCHASED AT MOST HARDWARE OR AUTOMOTIVE RETAILERS



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

RE-COMMISSIONING OF SYSTEM AFTER STORAGE OR WINTERIZATION

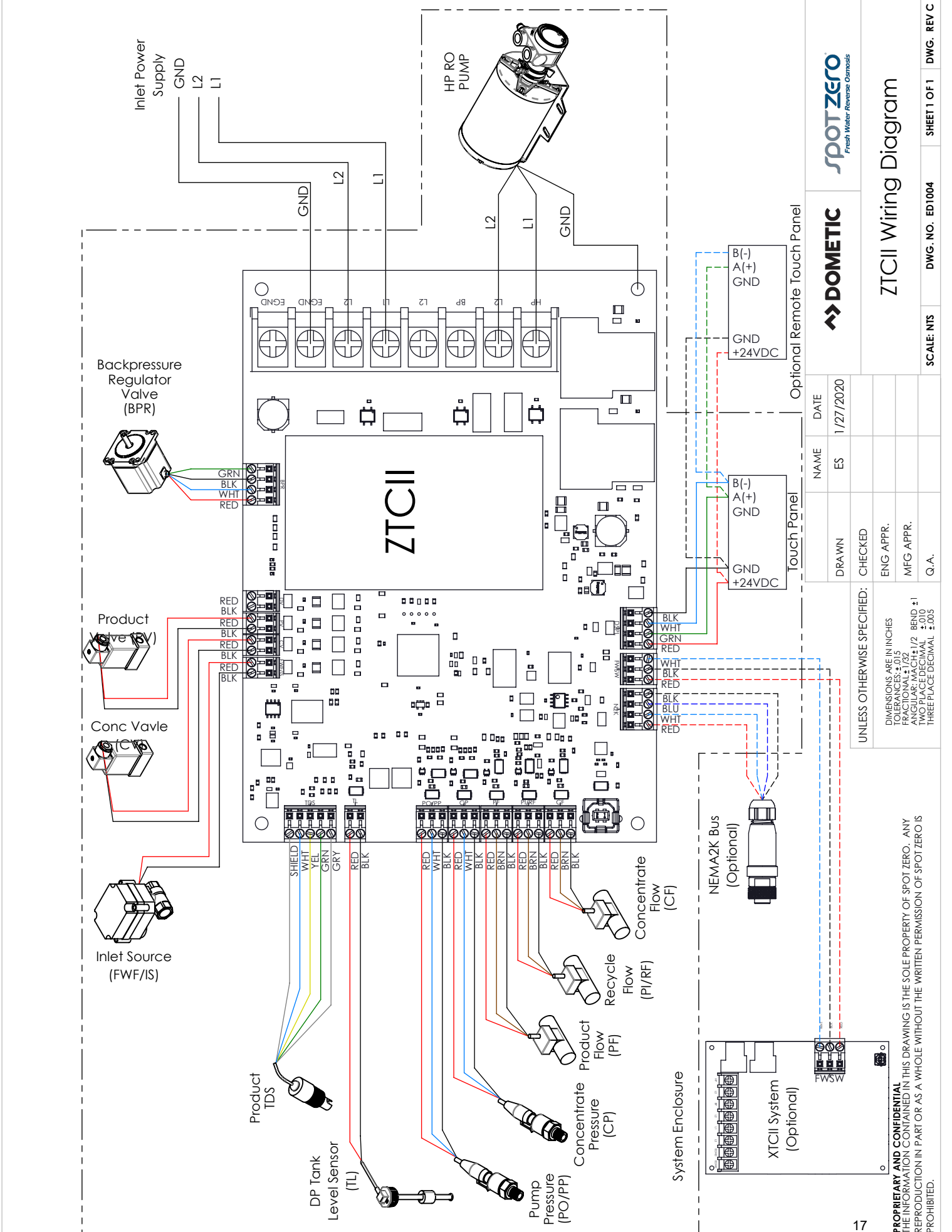
After storage or winterization, the system must be completely voided of all storage chemical and or propylene glycol. To do this, follow the new system startup guide on page 33.



Notes:

- 1) The tubing or piping used for the inlet of the feed water is 3/4" I.D.
- 2) The tubing or piping used for the discharge of the concentrate is 1/2" O.D. and should be run to an open overboard in a free and unrestricted manner.
- 3) A pressure relief valve is recommended in the "Feed from Desalinators" set at 8 psi.

		Fresh Water Reverse Osmosis	
ZTCII One Line Flow Drawing		SCALE: 1:10	
NAME	DATE	DWG. NO.	SHEET 1 OF 2
DRAWN	ES	PD0002	DWG. REV C
CHECKED	1/14/20		
ENG. APPR.			
MFG APPR.			
Q.A.			
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005			



ZTCII Wiring Diagram

NAME	DATE
ES	1/27/2020

DRAWN	CHECKED	ENG APPR.	MFG APPR.	Q.A.

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ±1/32
 ANGULAR: MACH: ±1/2 BEND ±1
 TWO PLACE DECIMAL ±0.01
 THREE PLACE DECIMAL ±0.005

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.

3. OPERATION AND MAINTENANCE

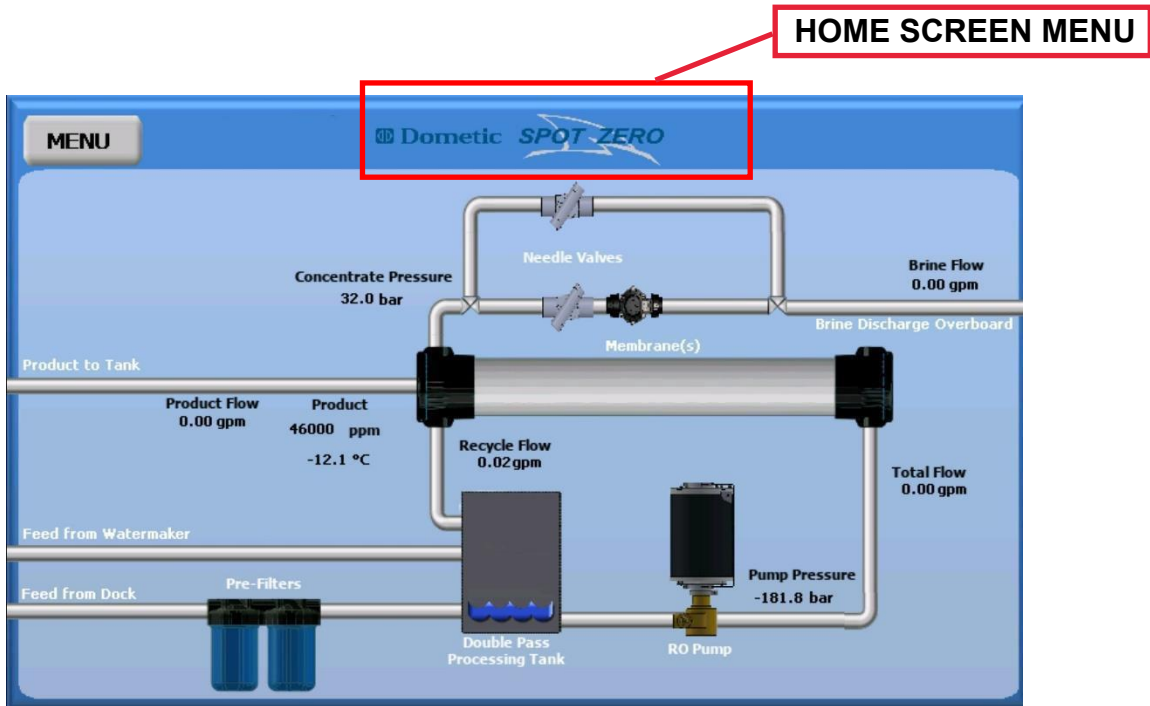
ZTCII CONSUMABLE ITEMS

ITEM NUMBER	DESCRIPTION	MAINTENANCE FREQUENCY	
252404301		Freshwater Double Stack Pre-Filter (Sediment + KDF) 4.5"x20"	Every 100 Hours
252404005		Spot Zero Sediment Pre-Filter 4.5"x10"	Every 100 Hours
252404004		Spot Zero Heavy Metal Removal (KDF) 4.5"x10"	Every 100 Hours
252404141		Bacteriostatic Remineralizer Cartridge 2.5"x10"	Every 100 Hours
252404006		Spot Zero Chemical Cleaning Cartridge 4.5"x10"	As needed when production becomes reduced
252404448		Spot Zero Freshwater Membrane Replacement for 4041 Housing	Every 1,000 Hours or 100,000 Gallons of Use

SPOT ZERO ZTCII TOUCHSCREEN NAVIGATION

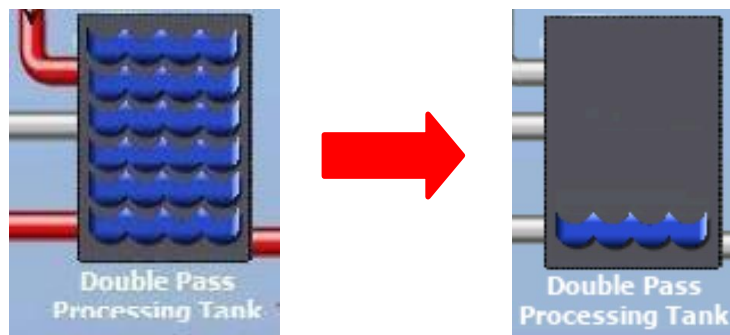
HOME SCREEN

From any screen the Spot Zero icon can be pressed to return to this home screen. There is also a lot of information on this home screen that is important to the operation of this system. Some of the images can be pressed to bring up different information and setting choices. Also, the menu button can be pressed to access more information. This manual will go through these options.



OPERATION PROCEDURES

The Spot Zero ZTCII is a fully automatic system. The capacity of the system is shown on the membrane in center of the screen. It will operate when water is present and shut down when water is no longer fed to the system. On the home screen the double pass processing tank shows the water level present in the system. When the tank is full the unit will start to operate. When the tank is emptied, the system will shut down.

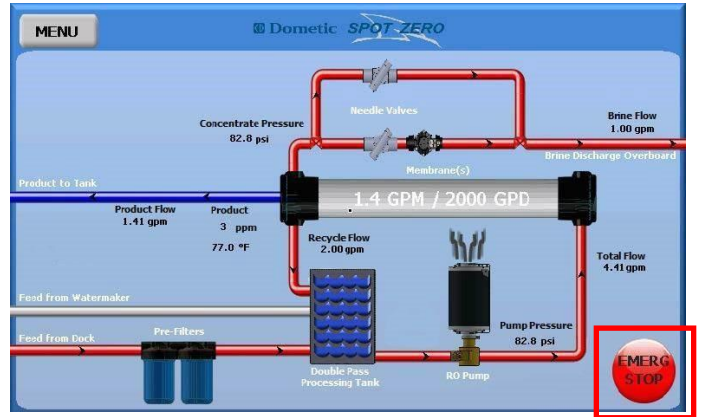


System will turn ON

System will turn OFF

EMERGENCY STOP

While the system is operating the emergency stop button will appear. Pressing the emergency stop button will shut down the system.

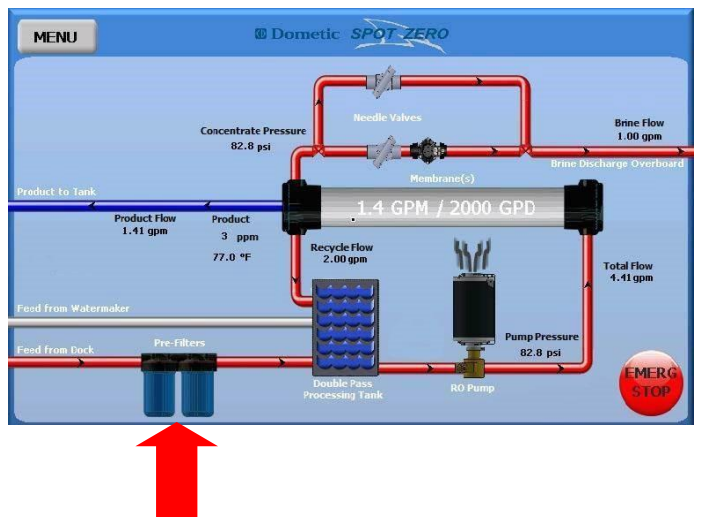


To restart the system, press the reset button



OPERATION FROM DOCK FEED

When operating from dock water, the system will show the water passing through the prefiltration then into the double pass processing tank. The brine water will discharge overboard.



The dock water must flow through the pre-filtration to remove chemicals and contaminants that will harm the system and ruin the membranes.

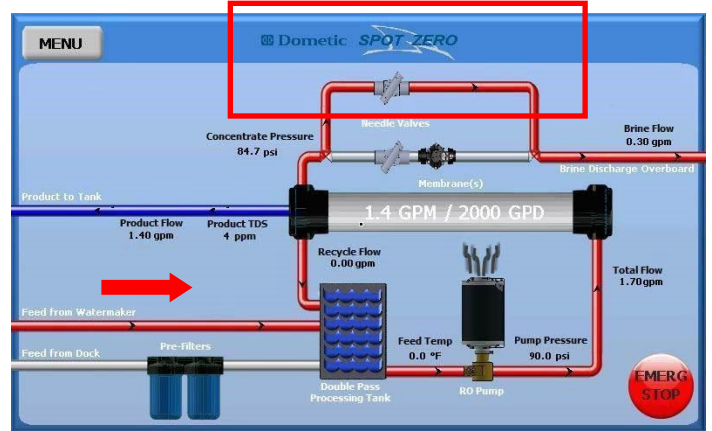
WATER MAKER SOURCE

When operating from water maker product water, the flow will be shown going directly into double pass processing tank. The brine water from the water maker supply will be directed through the high efficiency valve then discharge overboard.

The product water from the water maker has already gone through a desalination system and does not contain the chemicals and contaminants that dock water has in it. Therefore, this water flows directly to the double pass processing tank.

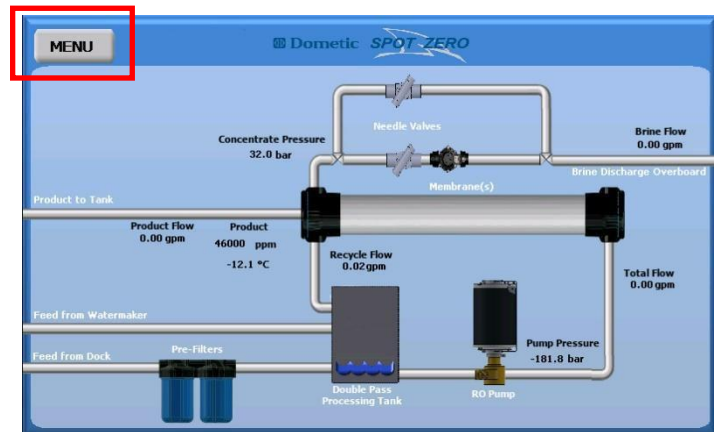
When the system is being run from a water maker the high efficiency valve will close and only allow a portion of the brine to discharge.

High Efficiency Path

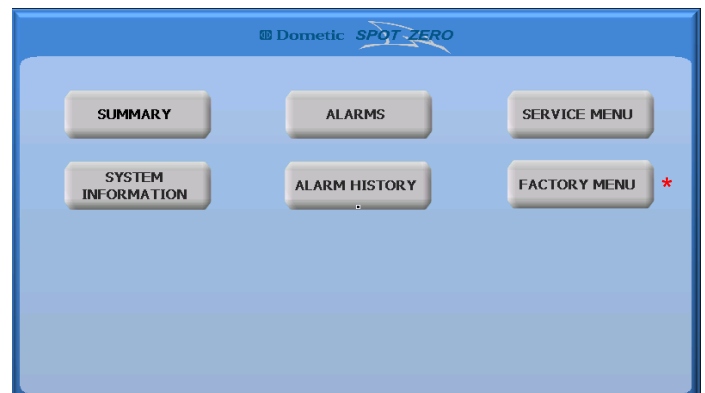


MENU OPTIONS

To access the menu, press the menu button in the upper left-hand corner of the home screen.



NOTE: The factory menu is password protected and for factory use only.**



SUMMARY

SUMMARY

The summary screen shows the current values of the system



MENU Dometic SPOT ZERO

Concentrate Pressure	32.0	bar
Product Temperature	-12.1	°C
Product Flow	0.00	gpm
Brine Flow	0.00	gpm
Recycle Flow	0.02	gpm
Total Flow	0.00	gpm
Product TDS	46000	ppm

SYSTEM INFORMATION

SYSTEM INFORMATION

The serial number of the system can be found here, also the system capacity, and the run time.



MENU Dometic SPOT ZERO

System Information

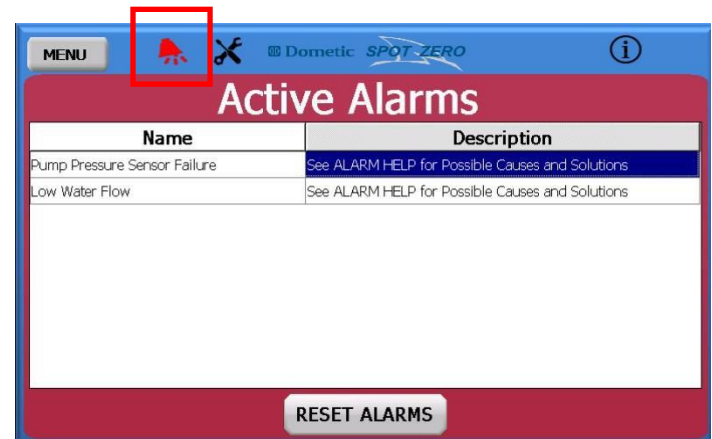
Unit Size:



Run Time: 0,000

ALARMS

ALARMS

Any active alarms will be displayed here. When the system is in alarm a red alarm image will show at the top of the home screen. Pressing the alarm image will also open this screen.



MENU   Dometic SPOT ZERO 

Active Alarms

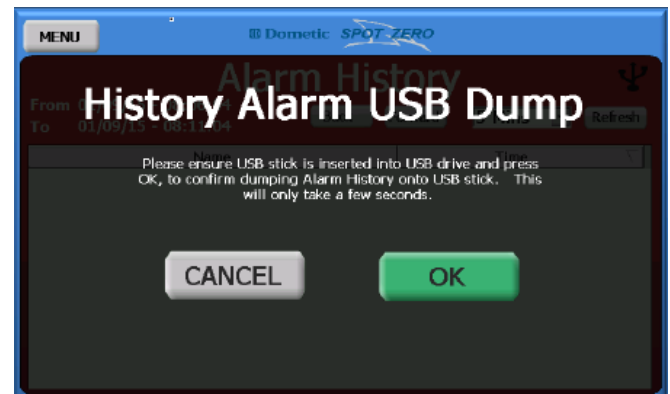
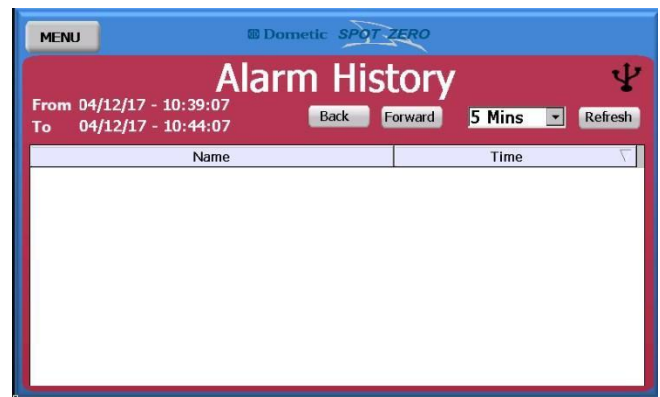
Name	Description
Pump Pressure Sensor Failure	See ALARM HELP for Possible Causes and Solutions
Low Water Flow	See ALARM HELP for Possible Causes and Solutions

RESET ALARMS

Press the reset button after the issue has been fixed to clear the system

ALARM HISTORY

The alarm history can be scrolled through using the back and forward buttons. The amount of time that has passed can also be changed in the drop-down menu. Pressing the USB icon will allow the history to be transferred to a USB.



SERVICE MENU



The "SERVICE MENU" give you access to 3 system options as indicated on the screen below.



UNITS OF MEASUREMENT



Change the systems units of measurement. Choose between imperial units or metric system. Once you have selected what units you want to use, simply press the "SERVICE" button to go back or the main logo to return to the home screen.



MAINTENANCE



When maintenance is required it will be listed here. If no maintenance is due, then it will say no maintenance needed. If maintenance is needed, then after it has been completed press reset.



REMOTE SUPPORT



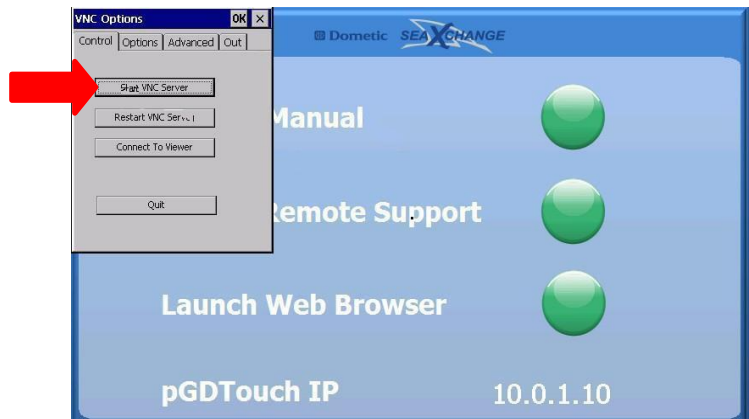
In this menu the pGD Touch IP address will be shown at the bottom of the screen if the system is wired to a router. This will be needed to connect to the VNC viewer app. This manual will be brought up if the launch manual button is pressed. The VNC viewer menu will pop up if the enable remote support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

ENABLE REMOTE SUPPORT

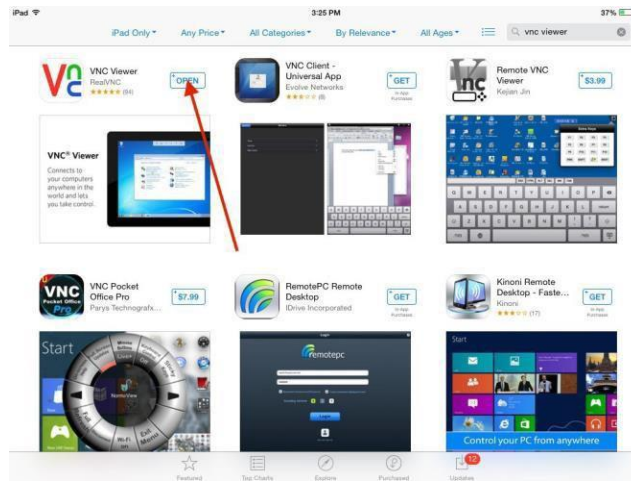
1. Press the green button next to Enable Remote Support



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



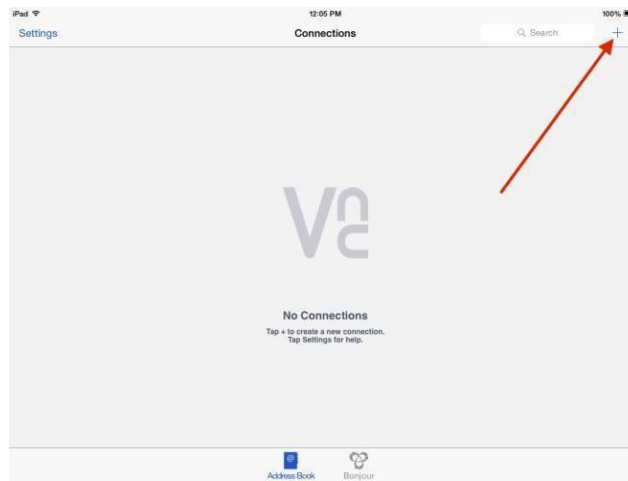
3. Download the Free VNC Viewer app from the app store.



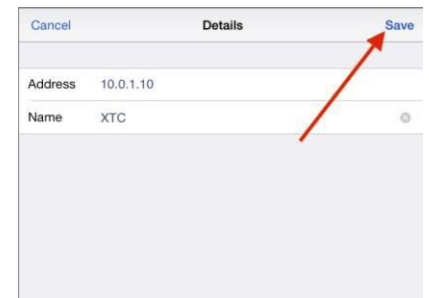
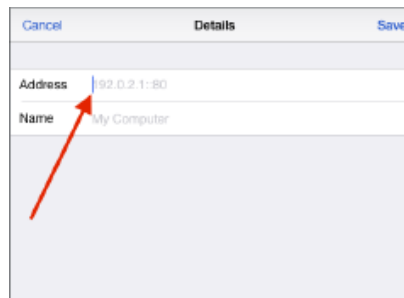
4. Search for the VNC Viewer Icon on your device and open it.



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

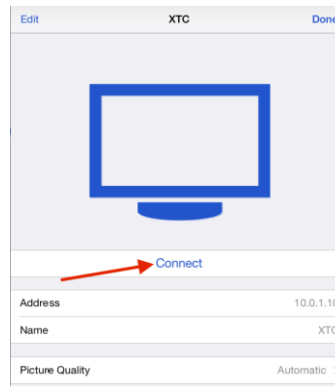


6. Type in the IP Address found in the unit's service menu, in the remote support menu at the bottom of the screen. Then give it a name.

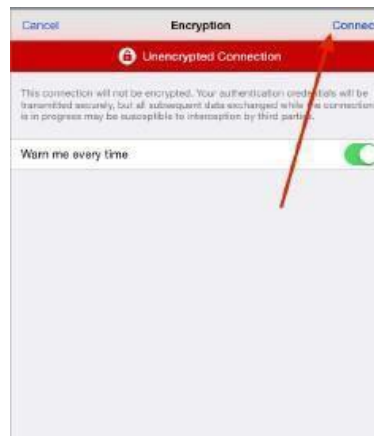


Example

7. Next, press the “Connect” button



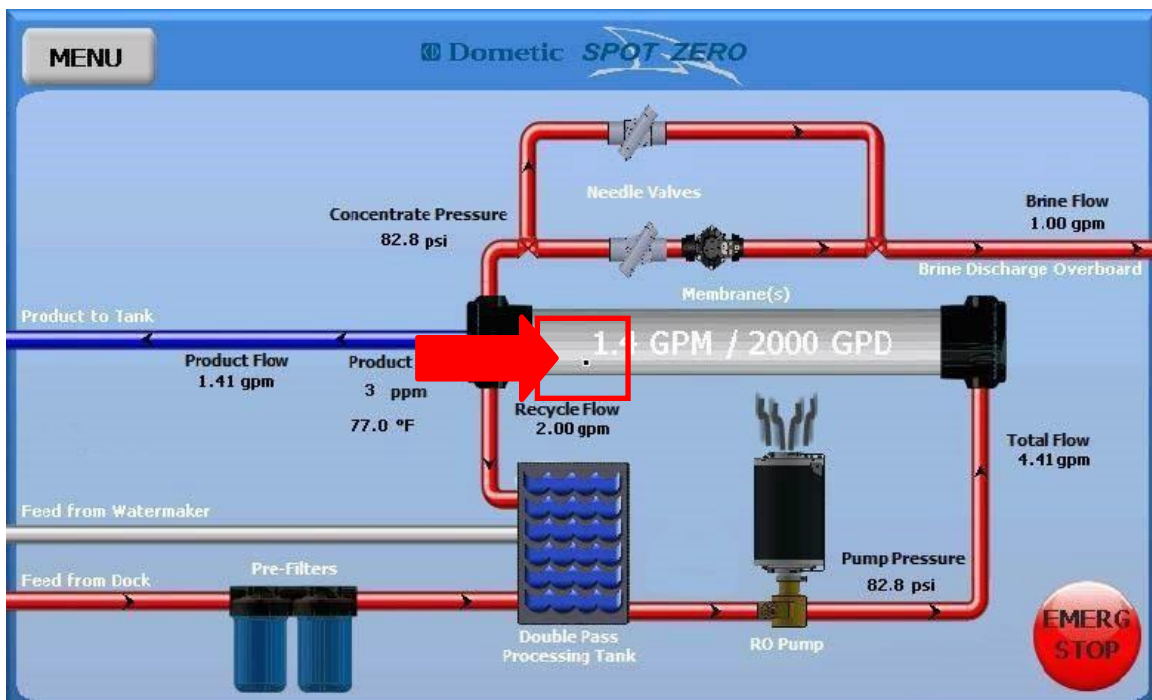
8. The following screen will pop up. Simply press the “Connect” option.



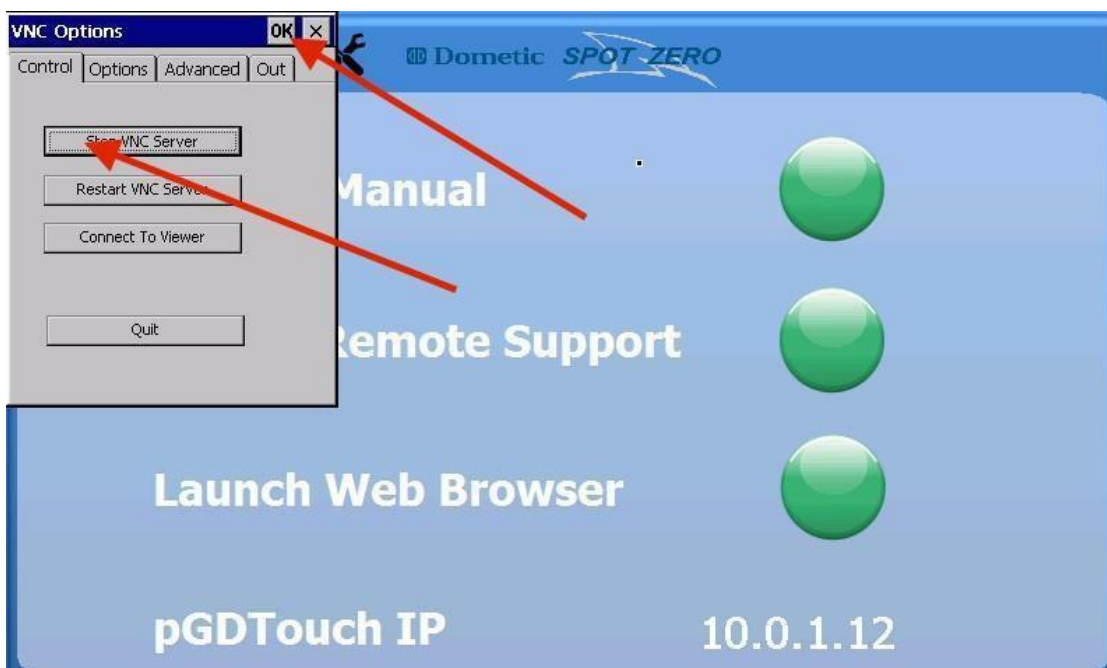
9. Finally, it will show you the connecting screen. When it is done connecting you will see the same image on your display and your device



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.

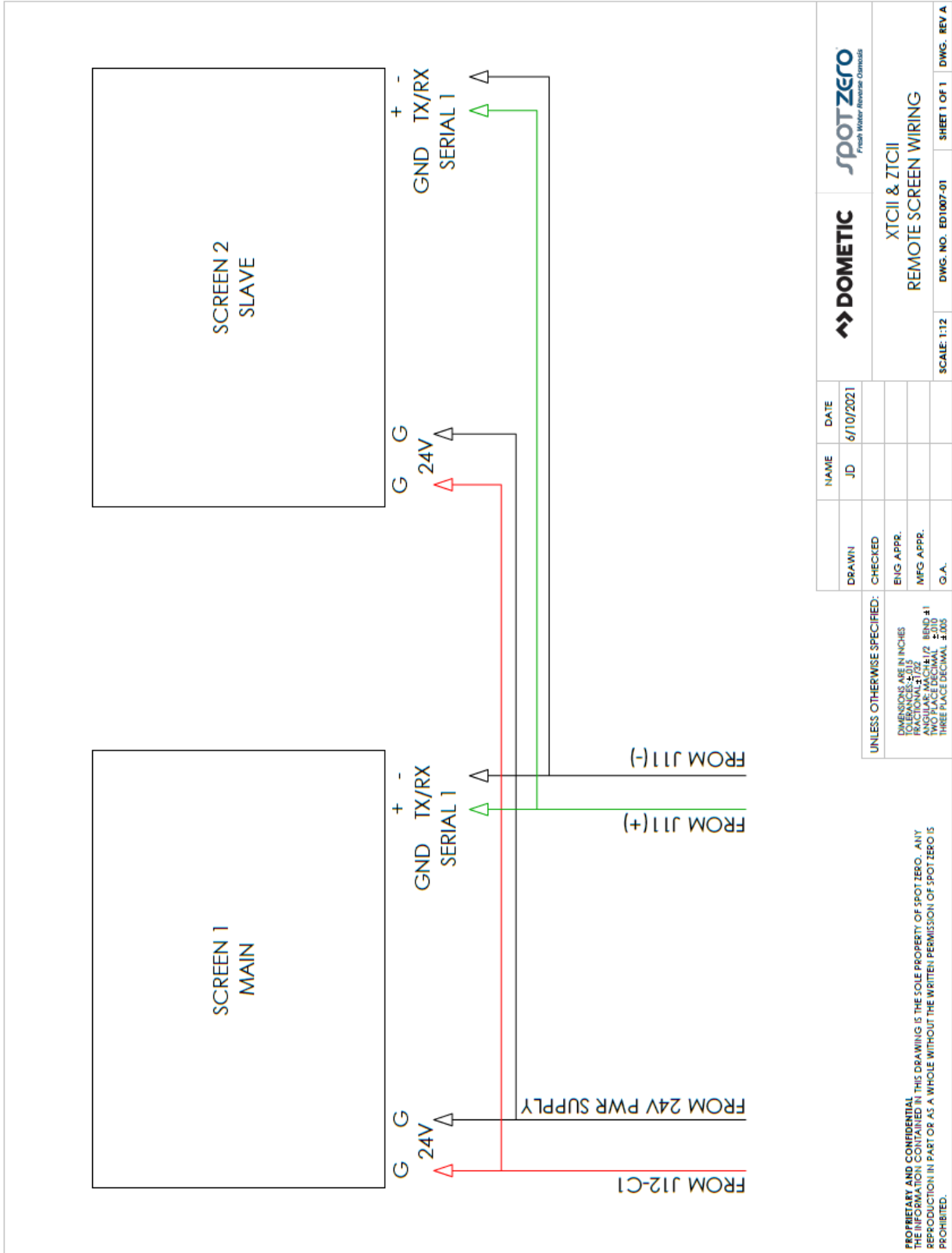


11. If there is a problem connecting, the enable remote support button can be pressed. Another menu will pop up. Select the start VNC server button and press ok. Try to connect again.



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. Be sure connection is in serial port 1.



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 REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SPOT ZERO IS
 PROHIBITED.

DRAWN		NAME		DATE	
		JD		6/10/2021	
CHECKED					
ENG APPR.					
MFG APPR.					
G.A.					

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 DECIMALS AND FRACTIONS TO 1/32
 ANGLES TO NEAREST 1/2
 HOLE MATCH 1/2
 THREE PLACE DECIMAL 1/32

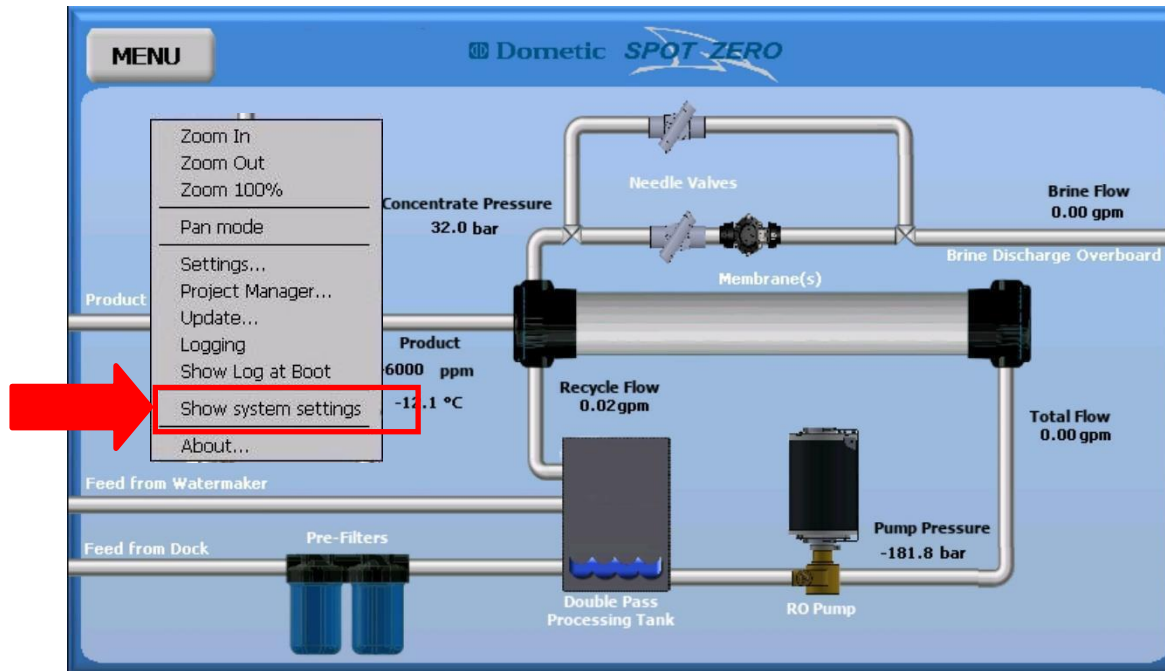
DOMETIC
 Fresh Water Reverse Osmosis

SPOT ZERO
 Fresh Water Reverse Osmosis

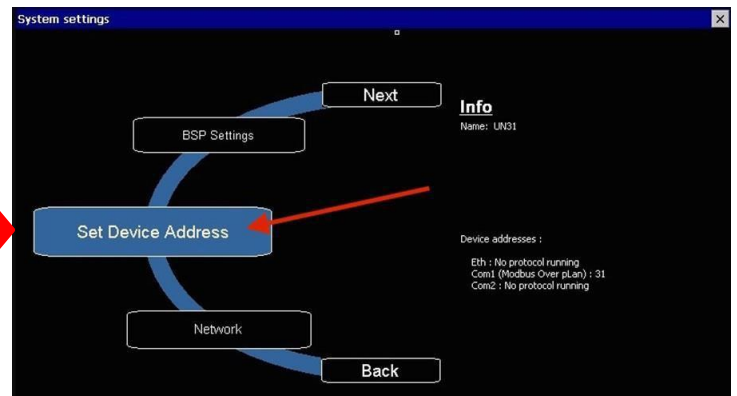
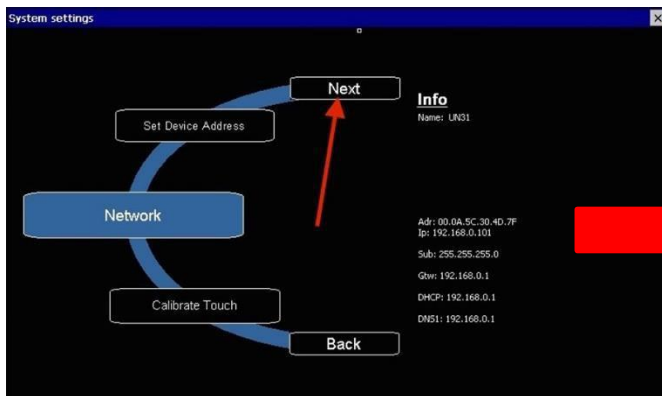
XTCII & ZTCII
 REMOTE SCREEN WIRING

SCALE: 1:12 DWG. NO. ED1007-01 SHEET 1 OF 1 DWG. REV A

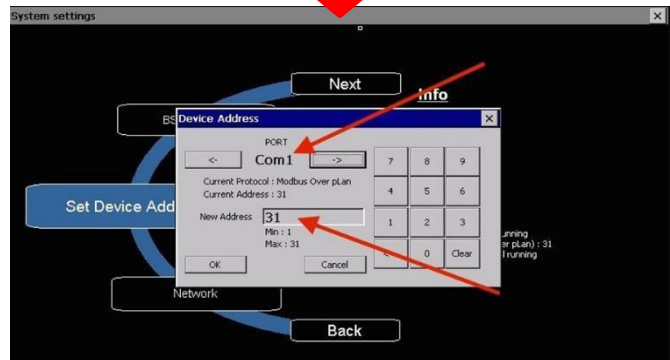
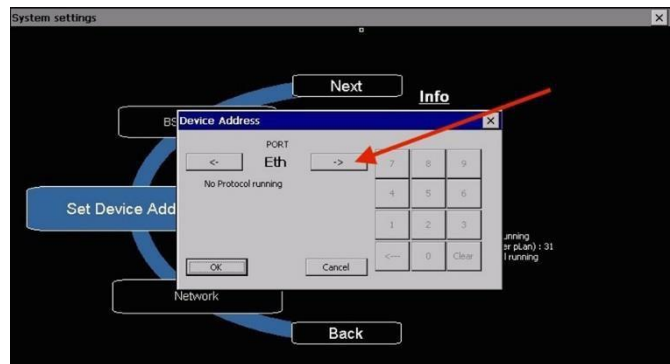
- Press and hold the screen in a spot that does not bring you to another screen. A hidden menu will pop up. Press the Show System Settings selection.



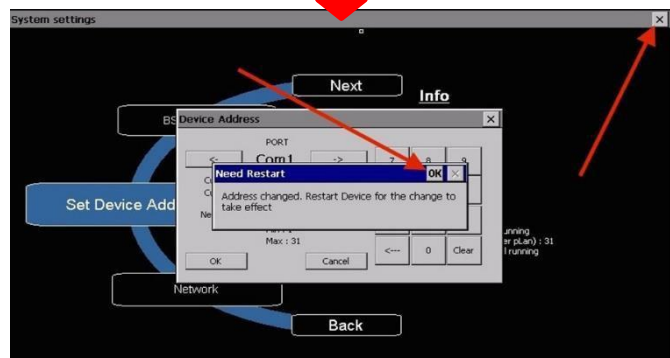
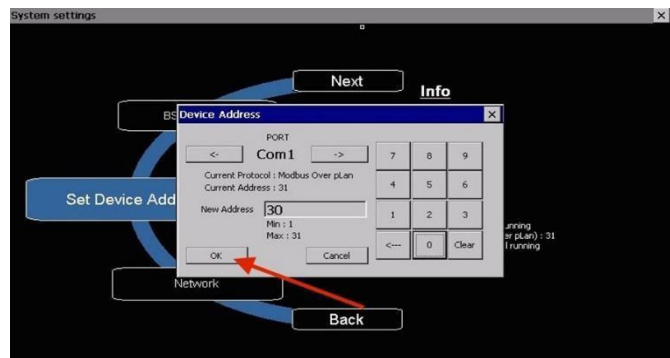
- Press the "Next" button until Set Device Address is highlighted. Then press "Set Device Address".



- 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.



- 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.



RESTORE SYSTEM SETTINGS

For Spot Zero 2000 (SZ 2000)

Set concentrate valve to produce specified flow rates of 2 GPM of recycle, 1 GPM of concentrate flow, 1.4 GPM of product @ 77 Degrees F (25 Degrees C)

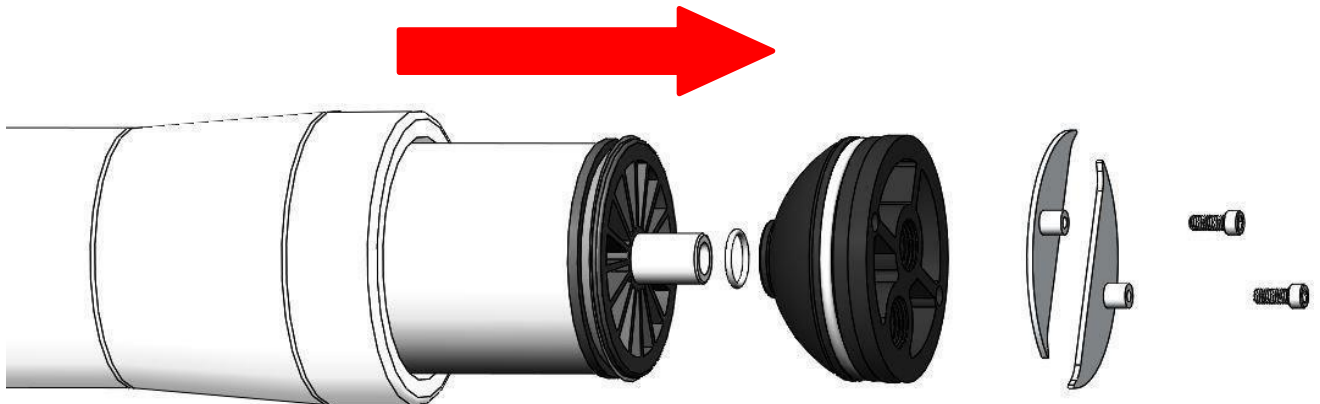
For Spot Zero 3000 (SZ 3000)

Set concentrate valve to produce specified flow rates of 2 GPM of recycle, 1 GPM of concentrate flow, 2.0 GPM of product @ 77Degrees F (25 Degrees C)

MEMBRANE CHANGE

NOTE: The system must be off.

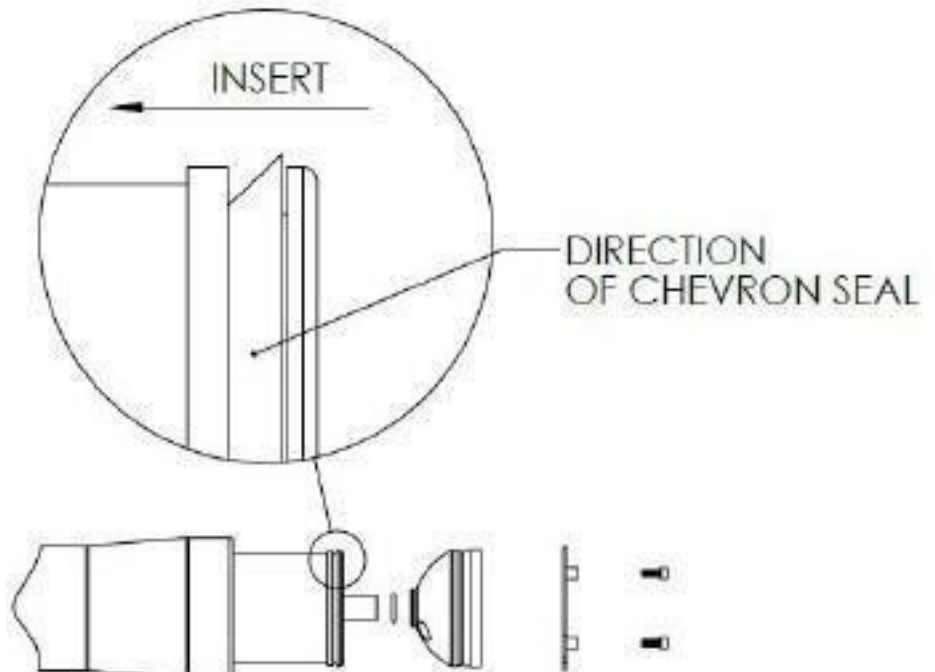
1. Locate the inlet end of the pressure vessel, that is opposite to the flow direction.
2. Remove the bolts that secure the retainer plates.
3. Remove both retainer plates.
4. Remove the end hub from the pressure vessel.



5. Slowly remove the membrane element from the pressure vessel being careful not to grasp it by the permeate tube. Needle nose pliers may be necessary to pull the old membrane element out of the pressure vessel.



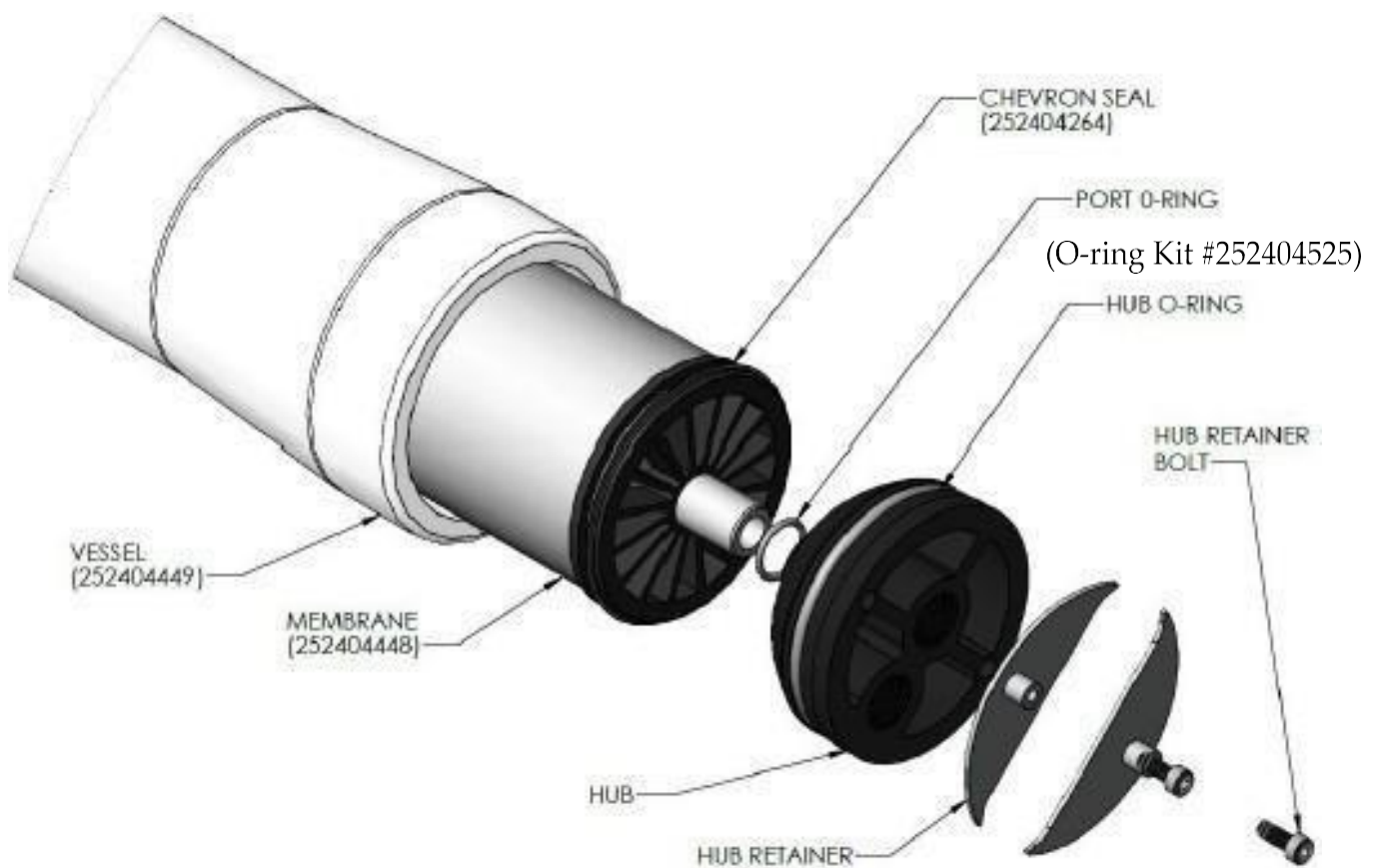
6. Remove new membrane element from container and inspect. Make sure that all parts are clean and free from dirt. Examine the brine seal and permeate tube for nicks or cuts. Replace the O-rings or brine seal if damaged.
7. Lubricate the brine seal with a food grade lubricant
8. Install the membrane element so the brine seal will be located at the supply side of the vessel.
9. At a slight angle insert mem- brane while slightly rotating element being careful not to tear or flip the brine seal. Relube the brine seal if necessary.



10. With a smooth and constant motion, push the membrane element into the housing so that the brine seal enters the housing without coming out of the brine seal groove. A slow twisting motion should be used to insert the membrane element, to ensure that the brine seal stays in place.
11. Re-install the end hubs by gently twisting the end hub while pushing it onto the housing. Ensure that you do not pinch or fatigue any O-rings while pushing the end hub on (A rubber mallet may be necessary).
12. Re-install the hub retainers and reconnect hoses and fittings.
13. These directions should be observed for installation of each element in each housing.

NOTE: As time progresses, the efficiency of the membrane will be reduced. 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 of membrane elements in the system.

NOTE: To get best results from the system change membranes every 1,000 hours.



4. TROUBLESHOOTING

TROUBLESHOOTING GUIDE

SYMPTOMS	POSSIBLE CAUSES	CORRECTIVE ACTION
LOW PERMEATE FLOW	Cold feed water	See temperature correction sheet
	Low operating pressure	Adjust throttle and concentrate valve
	Defective membrane brine seal/ Membrane installed backwards	Replace brine seal and/or reposition membranes
	Fouled or scaled membrane	Clean membranes
HIGH PERMEATE FLOW	Damaged or oxidized membrane	Replace membranes
	Exceeding maximum feed water temperature	See temperature correction sheet
	Low operating pressure	Adjust concentrate valve
POOR PERMEATE QUALITY	Damage product tube o-rings	Inspect and/or replace
	Damaged or oxidized membrane from Chlorine or Chloramine in feed water	Replace membrane and be sure that SZ-10KDF2 is changed every 100 hours
MEMBRANE FOULING	Scaling (CaSO ₄ , CaSO ₃ , BaSO ₄ , SiO ₂)	Clean with SZ-CCC Cleaning Cartridge. Check for over production, conduct weekly maintenance flush
	Trapped sediment media	Replace membrane, check filtration
	Chlorine Oxidation	Check chlorine feed equipment and dichlorination system. Be sure that SZ-10KDF2 is replace every 100 hours

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.

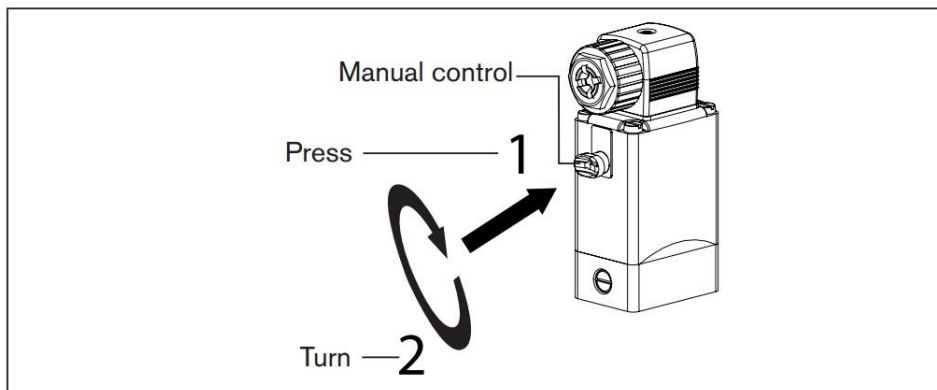
NOTE: TO DETERMINE THE TEMPERATURE CORRECTION FACTOR, LOCATE THE TEMPERATURE CORRECTION TABLE IN THIS USER'S MANUAL AND FOLLOW THE DIRECTIONS ON PG. 38.

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 51-54.

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)

$$^{\circ}\text{F} = (^{\circ}\text{C} \times 9/5) + 32 \quad \text{Corrected Flow Rate} = (\text{Measured Flow Rate}) * (\text{TCF @ Feed Water Temp.})$$

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

IS MY SYSTEM WORKING PROPERLY?

TDS REJECTION

The Spot Zero ZTCII reverse osmosis system is designed to reject 94% or more total dissolved solids (TDS). The rejection percentage is calculated by the following formula:

$$\% \text{ Rejection} = ((\text{Feed TDS} - \text{Product TDS}) / \text{Feed TDS}) * 100$$

$$\text{Example 1 : } ((117\text{ppm} - 4\text{ppm}) / 117\text{ppm}) * 100 = 96.58\%$$

$$\text{Example 2 : } ((900\text{ppm} - 45\text{ppm}) / 900\text{ppm}) * 100 = 95\%$$

Both examples represents membranes in perfectly operating condition. The quality of your product water will rely strictly on the feed quality going in.

Example 1 gives product water at 4 ppm

Example 2 gives product water at 45 ppm

In both examples both systems are operating at normal conditions.

MEMBRANE CLEANING PROCEDURE

SZ-CCC part number 252404006

When membrane performance is reduced and is not due to temperature or feed water quality, a chemical cleaning may be required to remove scaling on the membrane film.



Note: Damage to membrane film caused by chlorine or chloramine is irreversible and cannot be corrected by chemical cleaning.

1. Procure part number 252404006 Spot Zero Chemical Cleaning Cartridge.
2. Turn System off.
3. Disconnect product to tank and discard any product during cleaning process.
4. Insert SZ-CCC (252404006) in second pre-filter housing.
5. Turn feed water supply on so the unit starts, when the product ppm reading spikes press emergency stop. Then turn feed water supply off. See Video at spotzerowater.com in the support section.
6. Turn feed water supply on so the unit starts, when the product ppm reading spikes press emergency stop. Then turn feed water supply off. See Video at spotzerowater.com in the support section.
7. Allow membranes to soak for 2 hours. For heavily scaled membranes, soak for 24 hours.
8. After 2-24 hours soak time, turn feed water back on to allow system to flush for 30 minutes.
9. Discard SZ-CCC and return a SZ-45-1001 filter to housing and return system to normal operation.

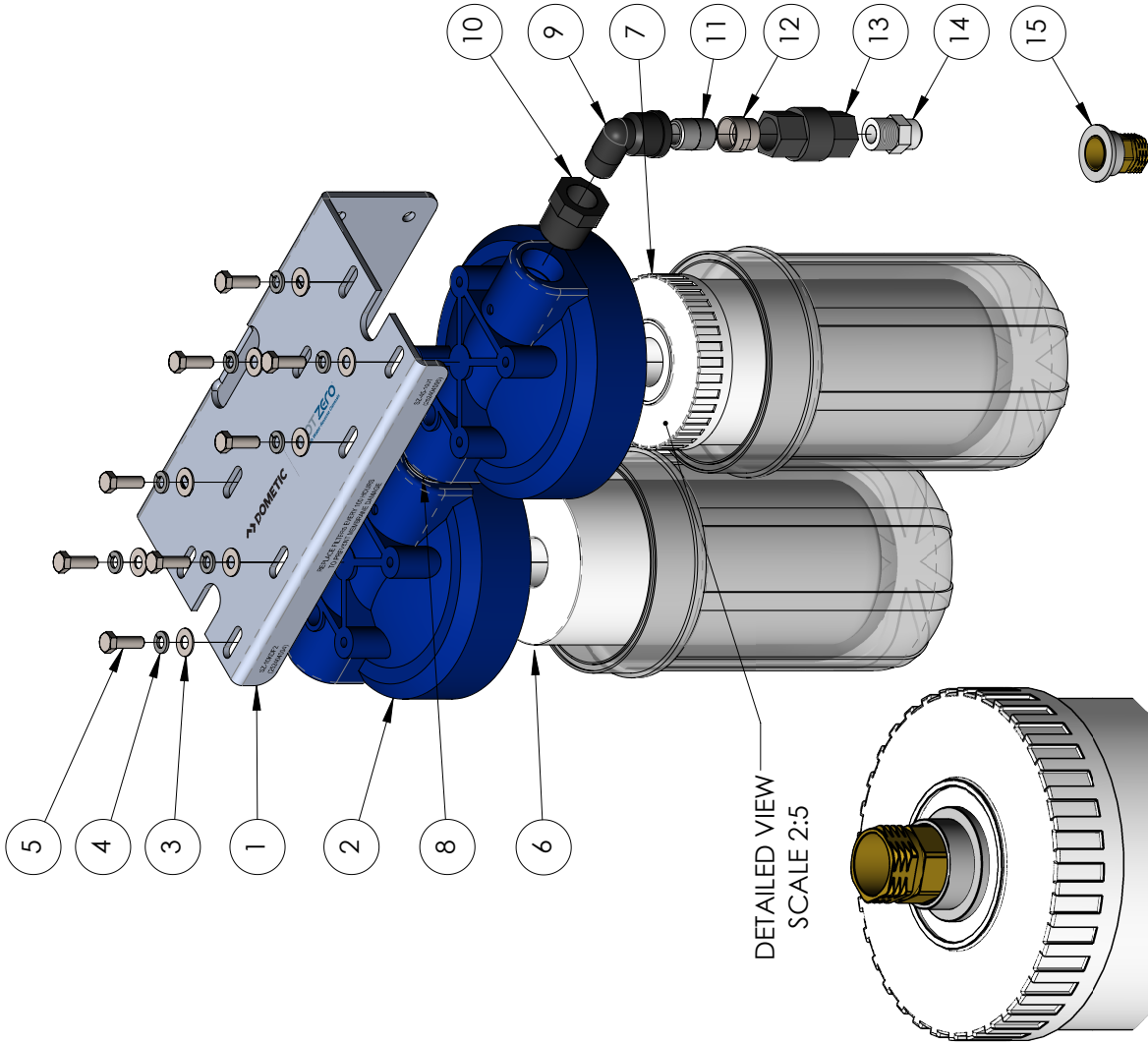


NOTE: See video at spotzerowater.com in the support section for further information on doing a chemical cleaning.

5. ZTCII SYSTEM SPECIFICATIONS & PARTS

BOM TABLE

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	252404391	BRACKET, SZ DOUBLE FILTER HOUSING	1
2	252404322	4.5 X 10 BLUE/CLEAR HOUSING W/ PR	2
3	252404806	316 SS WASHER FOR 5/16" SCREW SIZE, 0.344" ID, 0.75" OD	8
4	252404807	316SS SPLIT LOCK WASHER FOR 5/16" SCREW SIZE, 0.322" ID, 0.583" OD	8
5	H1029	316 SS HEX HEAD SCREW 5/16"-18 THREAD SIZE, 1" LONG	8
6	252404004	4.5" X 10" CHLORINE/CHROMINE/HEAVY METAL REMOVAL FILTER	1
7	252404005	NSF 1 MICRON SEDIMENT FILTER 4.5" X 10"	1
8	B1043	NIPPLE CLOSE 1.0 MNPT PVC SCH 80	1
9	B1029	ELBOW 1/2" MNPT TO 1/2" FNPT PP	1
10	B1042	BUSHING 1 MNPT TO 0.5 FNPT NYLON BLACK	1
11	252404214	NIPPLE CLOSE 1/2" MNPT PP	1
12	K0015	FLOW RESTRICTOR, 3.43 GPM	1
13	252404217	SPRING CHECK VALVE 1/2" FPT	1
14	252404093	MALE CONNECTOR 0.375 QC X 0.50 MNPT-CAT	1
15	252404485	FILTER FLUSH FITTING	1



DETAILED VIEW
SCALE 2:5

DETAILED VIEW OF FILTER
FLUSH FITTING (#15) INSERTED INTO
TOP OF FILTER CARTIDGE (#6)

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PROHIBITED.

DRAWN	NAME	DATE
CHECKED	JD	6/7/2021
ENG APPR.		
MFG APPR.		
Q.A.		

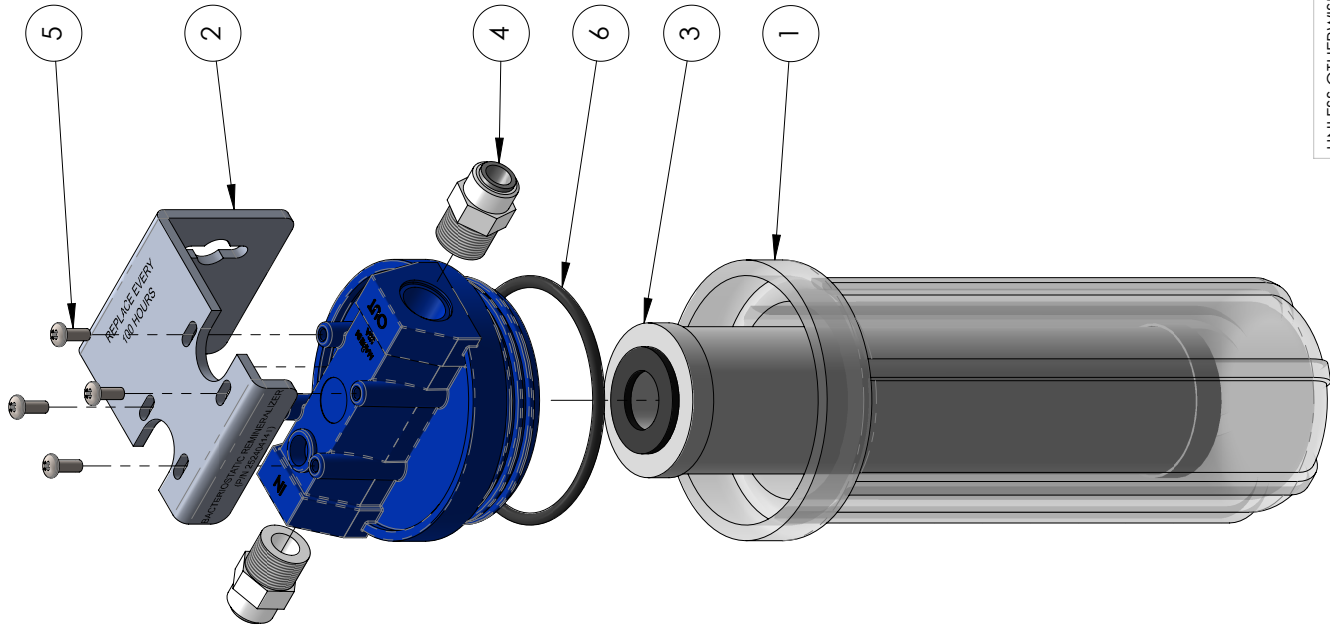
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/32
ANGULAR: MACH ±1/2 BEND ±1
TWO PLACE DECIMAL ±0.01
THREE PLACE DECIMAL ±0.005



ZTC Pre-Filter Assy. 4.5" x 10"

BOM TABLE

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	252404325	2.5X10 BLUE/CLEAR HOUSING W/O PR 1/2"	1
2	C00065	BACTERIOSTATIC REMINERALIZER BRACKET	1
3	252404295	NSF CARBON BLOCK FILTER, 2.5"X10", 5 MICRON	1
4	252404099	ADAPTER 3/8" QC TO 1/2" MNPT	2
5	252404854	BOLT PAN HEAD 10-24 X 0.5 PHILLIPS 316 SS	4
6	252404304	O RING FOR 2.5"X10" CLEAR HOUSING	1



SZ P/N: AE0004rev01
ENGINEERING P/N: GA0003-02



Bacteriostatic Remineralizer Assy

DRAWN	NAME	DATE
CHECKED	JD	6/7/2021
ENG APPR.		
MFG APPR.		
Q.A.		

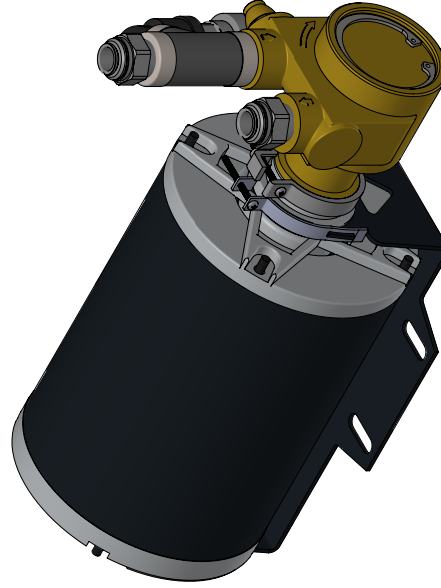
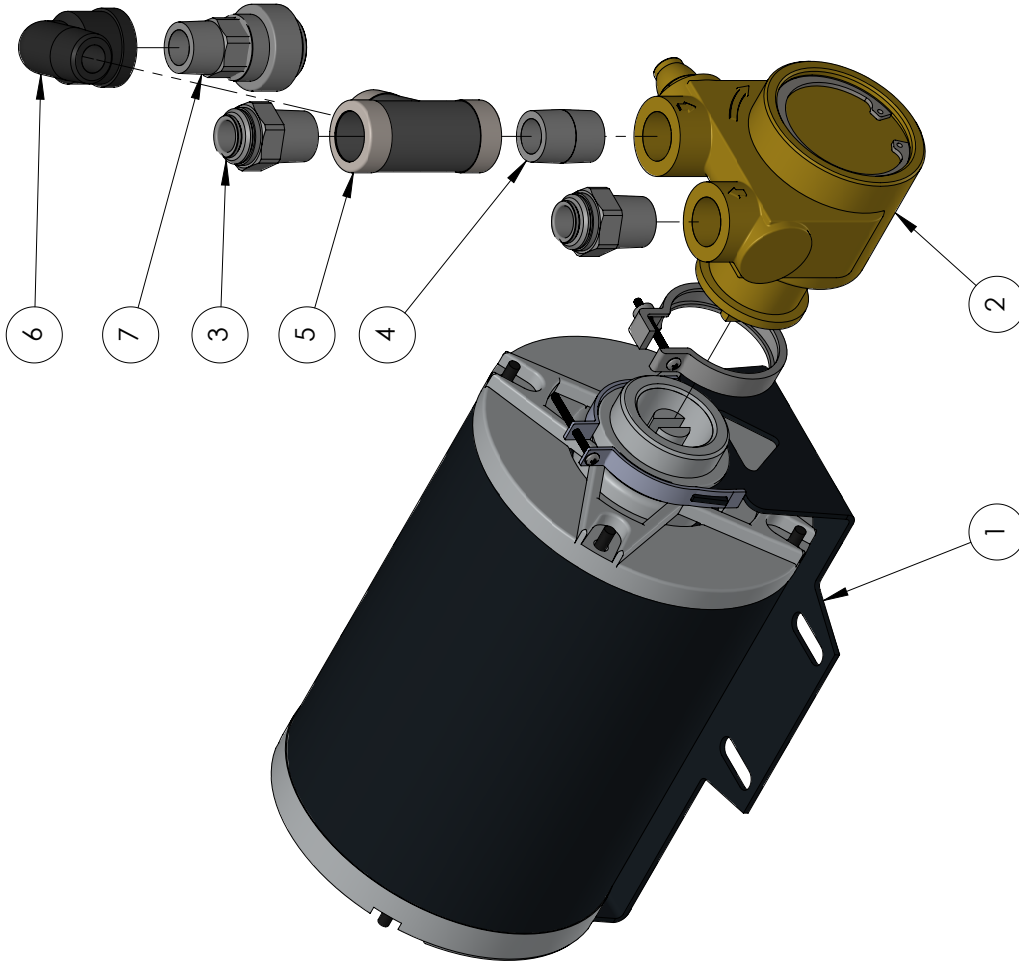
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TOLERANCES:
FRACTIONAL: ±1/32
ANGULAR: MACH ±1/2 BEND ±1
TWO PLACE DECIMAL ±.010
THREE PLACE DECIMAL ±.005

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BOM TABLE

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	252404026	3/4 HP MOTOR	1
2	252404044	VANE PUMP, BRASS, 5.3GPM 1001	1
3	252404093	ADAPTER 0.5 QC TO 0.5 MNPT ACETAL	2
4	252404214	NIPPLE CLOSE 0.5 IN SCH 80 PVC	1
5	B1000	TEE 0.5" FNPT ALL PVC REINFORCED SCH80	1
6	B1029	ELBOW 1/2" MNPT TO 1/2" FNPT PP	1
7	B0089	ADAPTER 0.5 CTS TO 0.5 MNPT	1



ENGINEERING P/N: MP0017 with Plumbing Fittings for XZII-ZTCII
 SZ P/N: MP0017revA



ZTCII/XZII FW Motor Pump Assembly

DRAWN	NAME	DATE
CHECKED	JD	6/9/2021
ENG APPR.		
MFG APPR.		
Q.A.		

UNLESS OTHERWISE SPECIFIED:

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

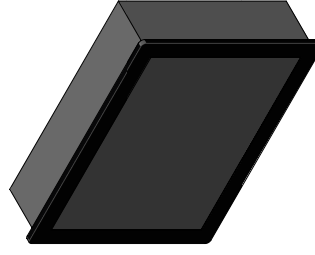
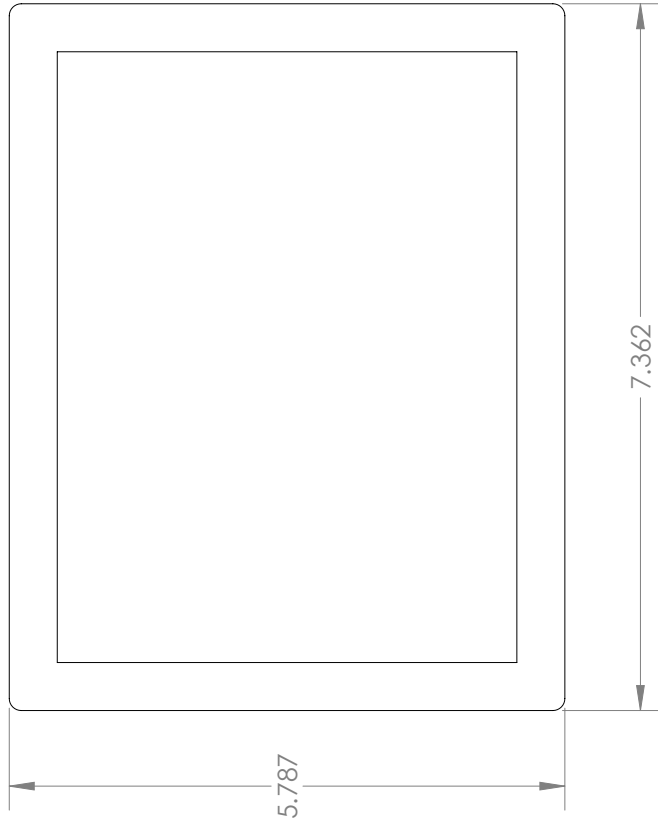
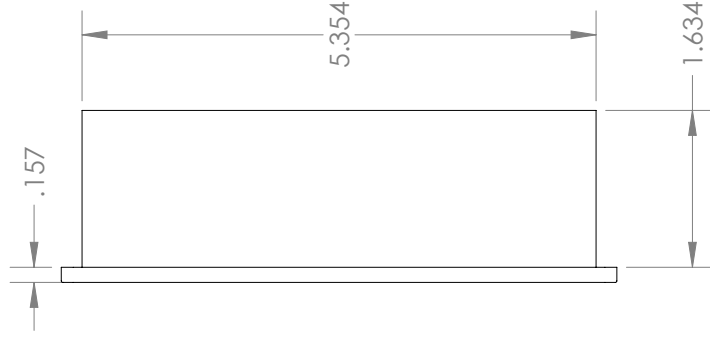
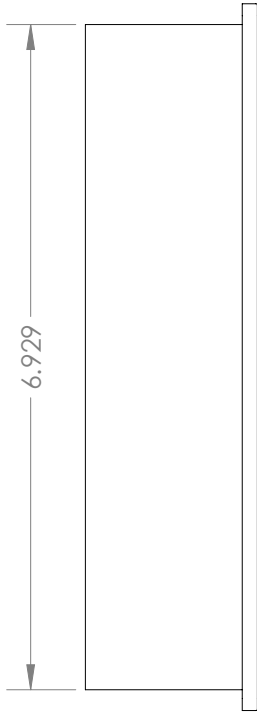
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SCALE: 1:3

DWG. NO. MP0017

SHEET 1 OF 1

DWG. REV A



SZ P/N: D0011 revA
ENGINEERING P/N: D0011



7" Touch Screen- No Logo

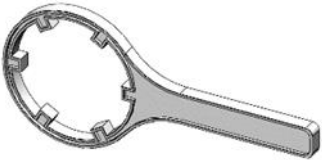
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	JD	6/8/2021
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ENG APPR.		
MFG APPR.		
Q.A.		

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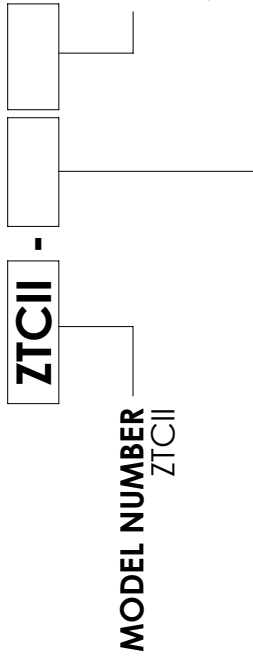
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- TOLERANCES UNLESS OTHERWISE SPECIFIED
- FRACTIONAL ±1/32
- ANGULAR: MACH ±1/2 BEND ±1
- TWO PLACE DECIMAL ±.010
- THREE PLACE DECIMAL ±.005

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INTERNAL/FILTER COMPONENTS

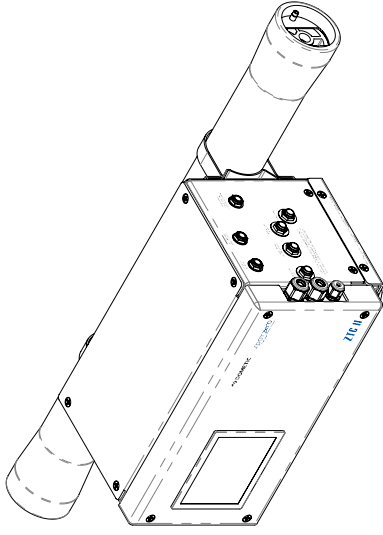
<u>INTERNAL COMPONENTS</u>		<u>FILTER COMPONENTS</u>	
<p>PRODUCT FLOW SENSOR PART#: 252404349</p>		<p>WRENCH FOR 4.5" CLEAR HOUSING PART#: 252404327</p>	
<p>LOW PRESSURE TRANSDUCER PART#: 252404347</p>		<p>4.5" X 20" 5-MICRON SEDIMENT FILTER PART#: 252404298</p>	
<p>TOUCH SCREEN PART#: 252404181</p>		<p>4.5"x10" KDF SEDIMENT FILTER PART#: 252404004</p>	
<p>DIVERSION VALVE (24V) PART#: 252404275</p>		<p>4.5"x10" 20-MICRON SEDIMENT FILTER PART#: 252404005</p>	
<p>NEEDLE VALVE ASSEMBLY PART#: AD0001</p>		<p>BACTERIOSTATIC REMINERALIZER CARTRIDGE PART#: 252404141</p>	
<p>1/4" MOTORIZED BALL VALVE PART#: D0117</p>		<p>WRENCH FOR 2.5" CLEAR HOUSING PART#: 252404326</p>	

MODEL NUMBER SELECTION WORKBOOK



VOLTAGE
Z = 230VAC (50/60Hz)
— = 115VAC (60Hz) LEAVE BOX BLANK

SYSTEM CAPACITY (SHEET 2)
2000 = 2000 GPD (7570 LPD) ONE MEMBRANE
3000 = 3000 GPD (11350 LPD) TWO MEMBRANES



MODEL SHOWN
ZTCII-2000Z

**NOTE: ZTCII IS ONLY AVAILIBLE
IN SINGLE PHASE**

*CAPACITY		
MODEL	60 Hz	50 Hz
ZTCII-2000Z	2000 GPD (7570 LPD)	1660 GPD (6284 LPD)
ZTCII-3000Z	3000 GPD (11356 LPD)	2490 GPD (9426 LPD)

ELECTRICAL LOAD		
DESCRIPTION	AMP DRAW	
	60 Hz	50 Hz
ZTCII 230VAC	5.0	4.9
ZTCII 115VAC	10.0	N/A

DRAWN	NAME	DATE
CHECKED	ES	12/10/19
ENG APPR.		
MFG APPR.		
Q.A.		

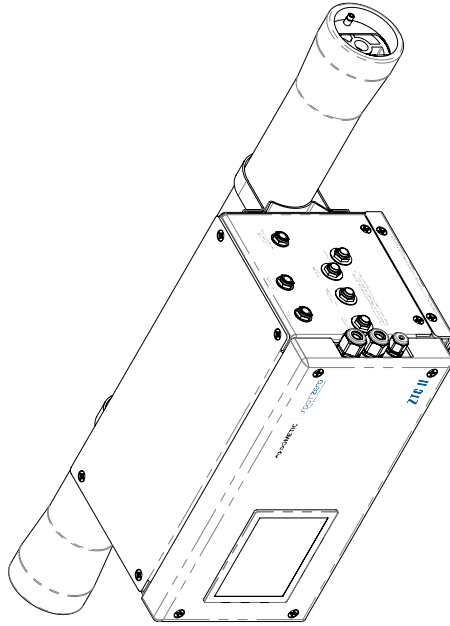


ZTCII Configuration Workbook

CHOOSE SYSTEM CAPACITY

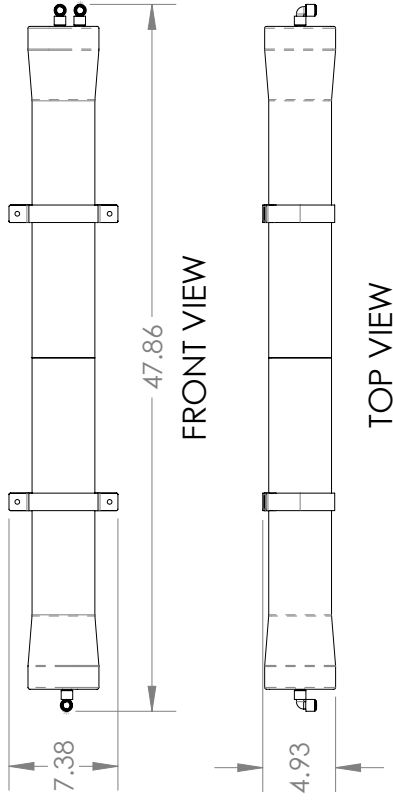
MEMBRANE VESSEL UNIT MOUNT (ADD 5.0" TO DEPTH)

P/N: ZTCII-2000#
2000 GPD (7570 LPD)

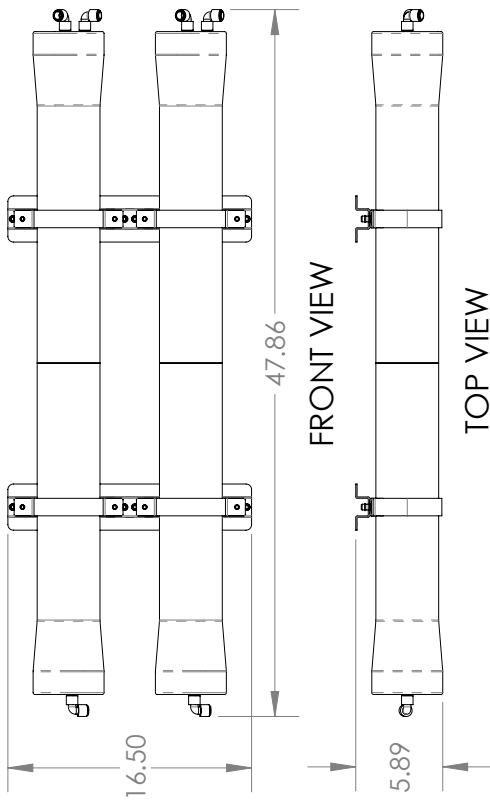


REMOTE MOUNT (MOUNTING BRACKETS INCLUDED)

P/N: ZTCII-2000#
2000 GPD (7570 LPD)



P/N: ZTCII-3000#
3000 GPD (11350 LPD)



DRAWN	NAME	DATE
CHECKED <td>ES</td> <td>12/10/19</td>	ES	12/10/19
ENG APPR.		
MFG APPR.		
Q.A.		

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

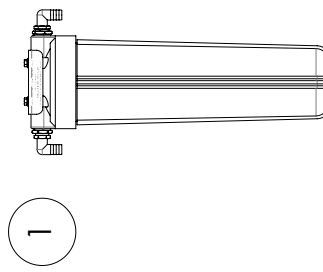
SPOT ZERO MODEL NUMBER TO PART NUMBER CROSS REFERENCE

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

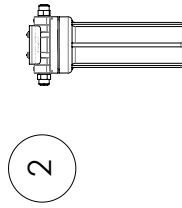
SPOT ZERO MODEL SELECTION	CROSS NUMBER	INCLUDED COMPONENTS
ZTCII-2000	9610001284	1,2,3
ZTCII-3000	9610002708	1,2,4
ZTCII-2000Z	9610001169	1,2,3
ZTCII-3000Z	9610002709	1,2,4

STANDARD PARTS INCLUDED WITH SPECIFIC UNITS, SEE NUMBERING IN TABLE ABOVE
 25-FEET OF 1/2" TUBING AND 25-FEET OF 3/8" TUBING INCLUDED WITH EACH SYSTEM

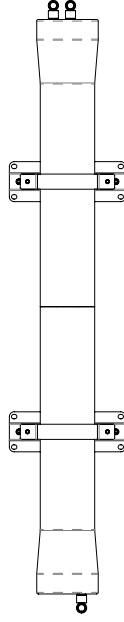
1
 COMMERCIAL
 PRE-FILTER ASSY.



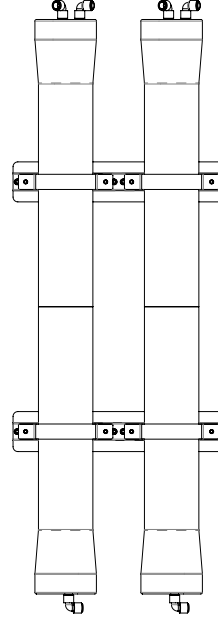
2
 BACTERIOSTATIC
 REMINERALIZER



3
 2000 GPD FW MEMBRANE



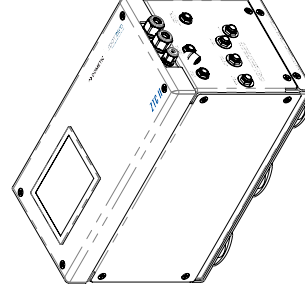
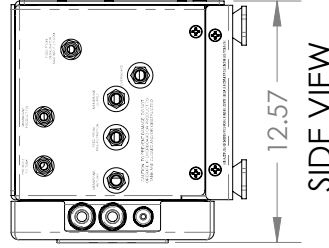
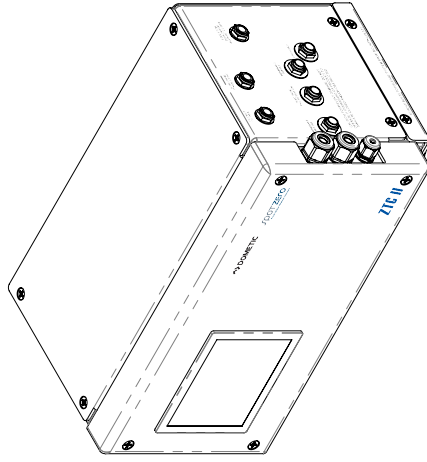
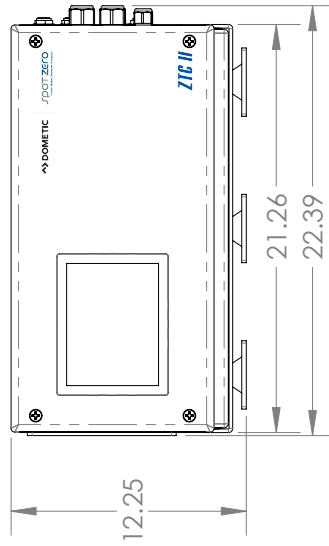
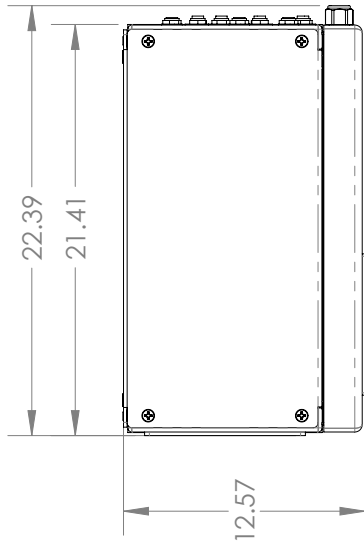
4
 3000 GPD FW MEMBRANE



DRAWN	NAME	DATE
CHECKED <td>ES <td>12/10/19</td> </td>	ES <td>12/10/19</td>	12/10/19
ENG. APPR.		
MFG APPR.		
Q.A.		



DIMENSIONAL DRAWING



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

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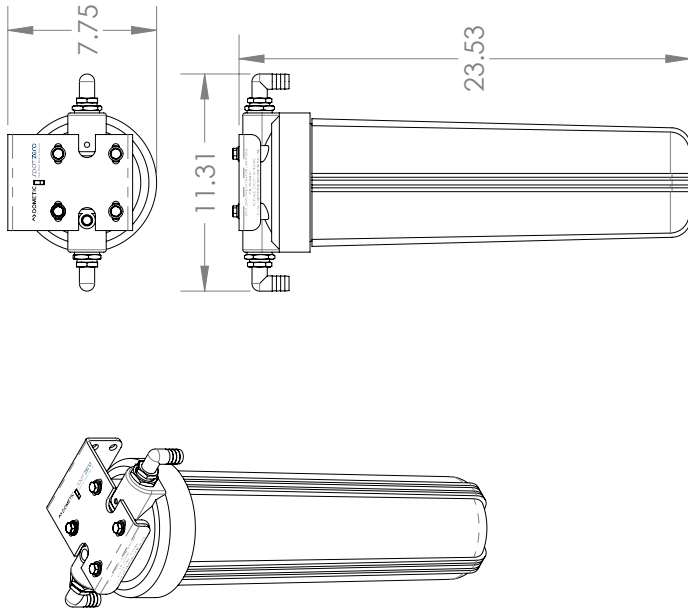
UNLESS OTHERWISE SPECIFIED:		DRAWN	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONAL: ±1/32 ANGULAR: MACH ±1/2 BEND ±1 TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005		CHECKED	ES	12/10/19
		ENG APPR.		
		MFG APPR.		
		Q.A.		



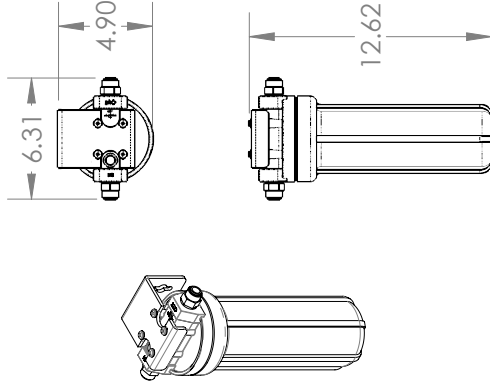
ZTC II Configuration Workbook

STANDARD EQUIPMENT

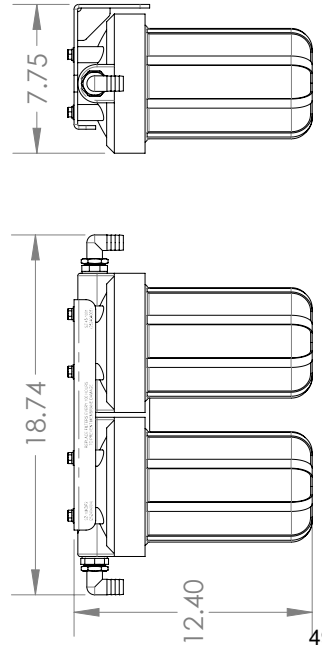
COMMERCIAL PRE-FILTER



BACTERIOSTATIC REMINERALIZER

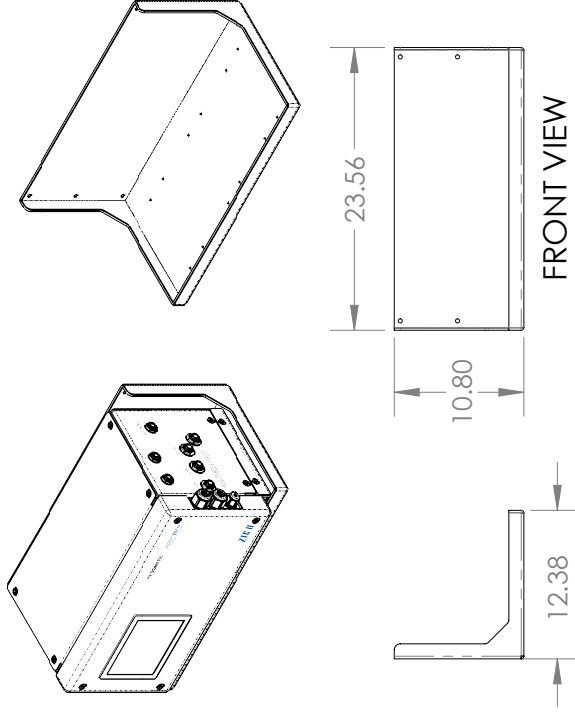


SHORT PRE-FILTER OPTION AVAILABLE UPON REQUEST P/N: AE0000

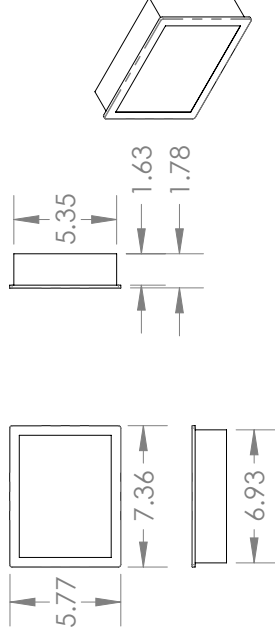


OPTIONAL EQUIPMENT

WALL BRACKET P/N: 4471004179



ADDITIONAL REMOTE MOUNTED 7-INCH TOUCHSCREEN, P/N: D0067



NAME	DATE
ES	12/10/19

DRAWN	CHECKED
ENG APPR.	
MFG APPR.	
Q.A.	

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL $\pm 1/32$
ANGULAR: MACH $\pm 1/2$ BEND ± 1
TWO PLACE DECIMAL ± 0.01
THREE PLACE DECIMAL ± 0.005

SPOT ZERO
Fresh Water Reverse Osmosis

ZTCII Configuration Workbook

SCALE: 1:10

DWG. NO. WD0002

SHEET 5 OF 6

DWG. REV D

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Table of Contents

1 The operating instructions2
 2 Authorized use.....3
 3 Basic safety instructions.....4
 4 System description.....5
 5 Technical data.....6
 6 Assembly.....8
 7 Electrical connection10
 8 Disassembly.....12
 9 Maintenance, troubleshooting.....12
 10 Transportation, storage, disposal.....13


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.

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2

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.

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3

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.

MAN 1000010161 ML Version: H Status: RL (released | freigegeben) printed: 13.06.2017

4

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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

5 TECHNICAL DATA

 The following values are indicated on the type label:

- **Voltage** (tolerance $\pm 10\%$) / **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.

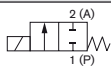
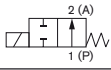
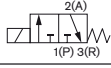
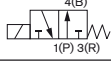
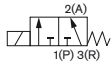
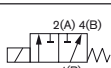

Degree of protection IP65 in accordance with DIN EN 60529 / IEC 60529 with correctly connected and installed cable plug, e.g. Bürkert Type 2508

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

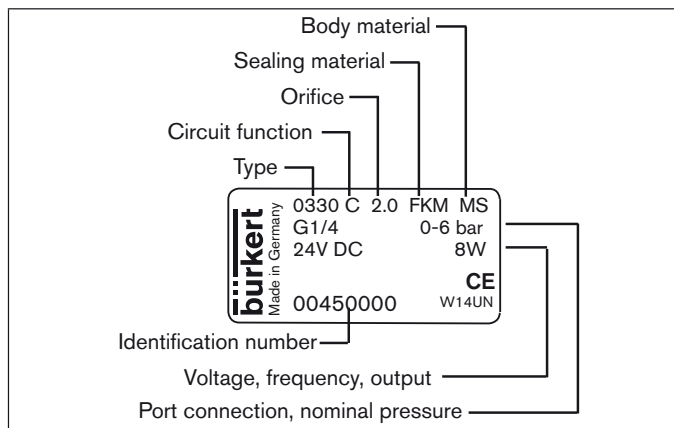


Fig. 1: Description of the type label (example)

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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 (m500 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.

6.3 Manual control

NOTE!

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

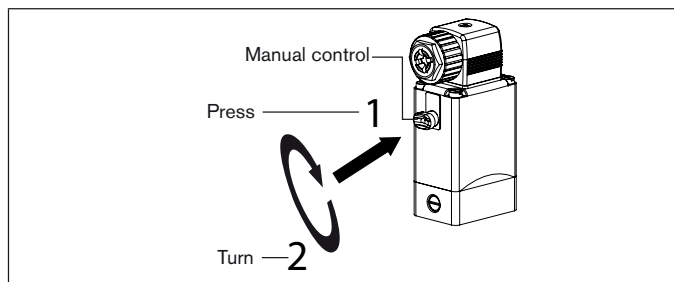


Fig. 2: Manual control

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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.

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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9

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.

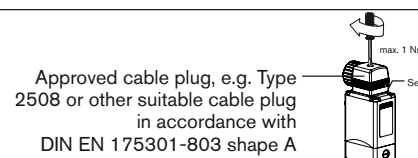


Fig. 3: Connecting the cable plug to the power supply



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

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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).

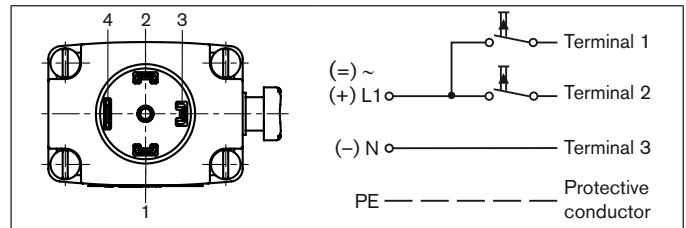


Fig. 4: Electrical connection - pulse model (CF 02)

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.

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.

Brass and stainless steel rotary vane pumps PO 500-1000 series

The high volume rotary vane pumps manufactured by Fluid-o-Tech® and sold worldwide under the trademark Rotoflow® are available in six flow ratings to meet the needs of high volume pumping.

Technical features and manufacturing characteristics

The rotary vane pump with brass or stainless steel body utilizes a stainless steel AISI 303 rotor, while the pumping chamber and the vanes are in carbon graphite. Inlet and outlet ports are 1/2" GAS or NPT threaded and the pump could be equipped with a built-in adjustable relief valve. The pump can be connected to coupling direct motor with a metallic clamp or to M71 and M80 UNELMEC frame motors with the Fluid-o-Tech® coupling and adapter set. Maximum operative temperature: 70 °C (158 F)

Available upon request:

- Viton®/EPDM seals
- Built-in relief valve
- Flange mount
- California AB 1953 compliant brass



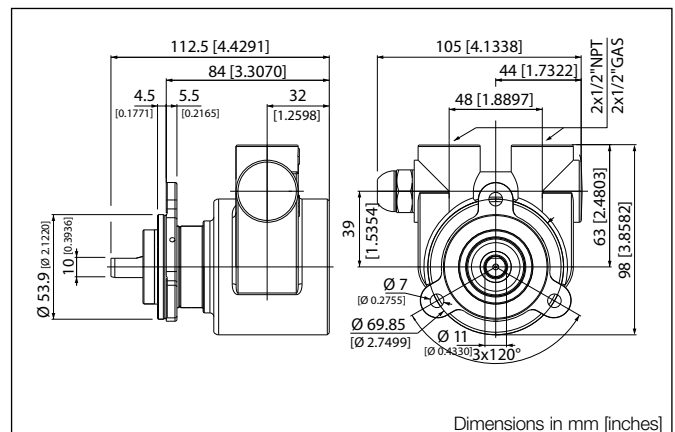
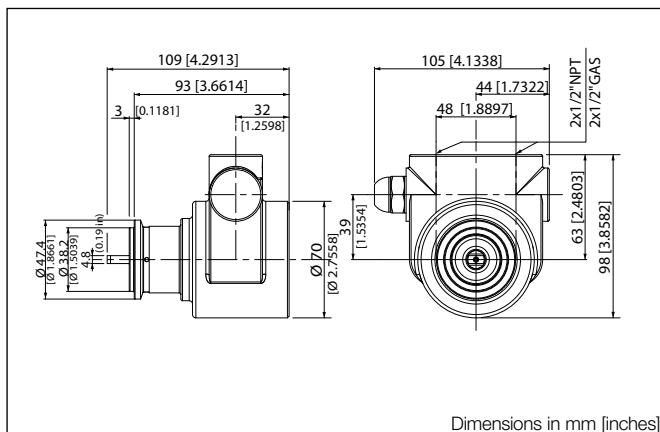
MAIN APPLICATIONS

- Post mix drink dispensers
- Water treatment
- Cooling systems
- Booster systems



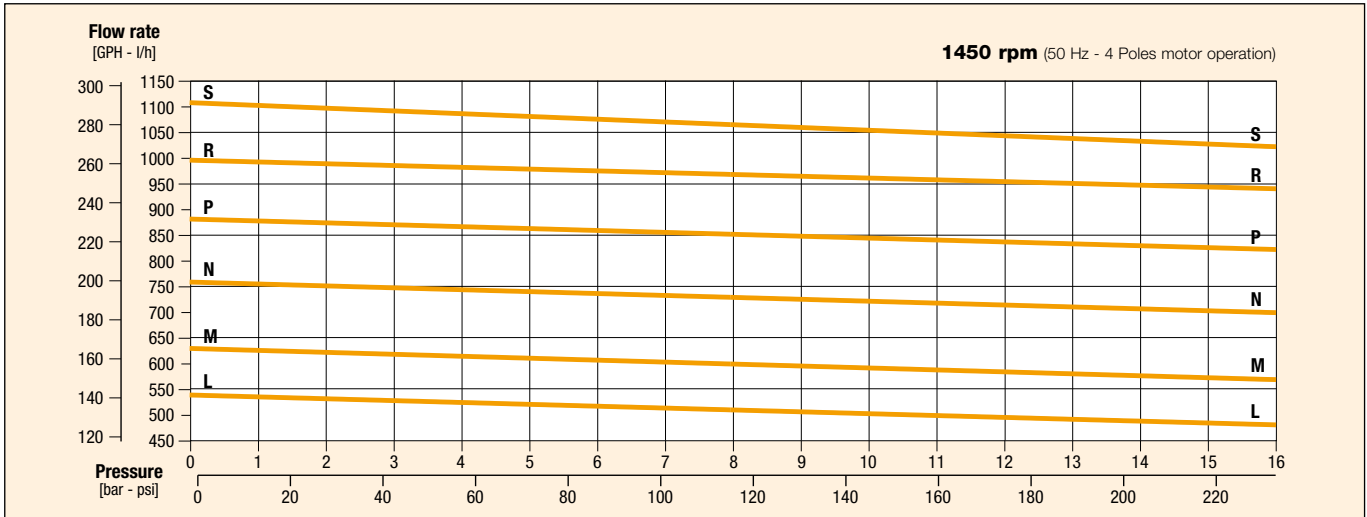
TECHNICAL INFORMATION

Pump housing material	Brass or stainless steel	Max static pressure	20 bar/290 psi
Pumping chamber	Carbon graphite	Pump weight	Clamp mount 1.9 kg (4.2 lb) Flange mount 2 Kg (4.4 lb)
Ports	1/2" GAS or NPT		
Speed limit	1725 rpm		

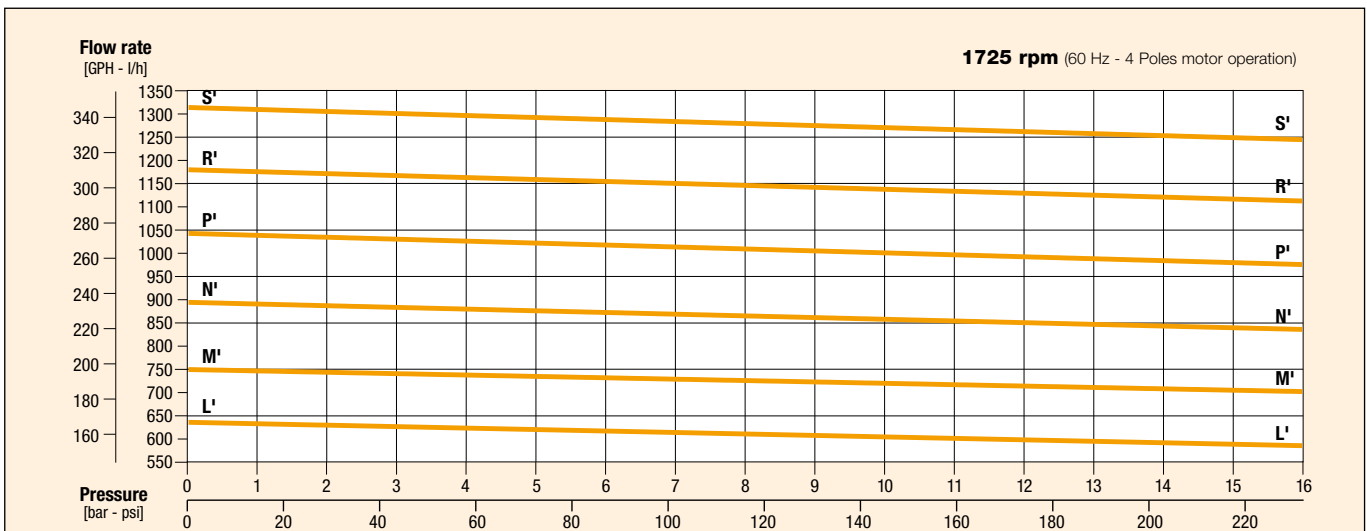


Brass and stainless steel rotary vane pumps PO 500-1000 series

Model PO/PA/PW Brass	500	501	500F	501F	600	601	600F	601F	700	701	700F	701F	800	801	800F	801F	900	901	900F	901F	1000	1001	1000F	1001F
Model PO/PA/PW Stainless Steel	510	511	510F	511F	610	611	610F	611F	710	711	710F	711F	810	811	810F	811F	910	911	910F	911F	1010	1011	1010F	1011F
Figure	L-L				M-M				N-N				P-P				R-R				S-S			
Relief valve	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Flange mount	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
Clamp mount	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO



Model PO/PA/PW Brass	500	501	500F	501F	600	601	600F	601F	700	701	700F	701F	800	801	800F	801F	900	901	900F	901F	1000	1001	1000F	1001F
Model PO/PA/PW Stainless Steel	510	511	510F	511F	610	611	610F	611F	710	711	710F	711F	810	811	810F	811F	910	911	910F	911F	1010	1011	1010F	1011F
Figure	L'-L'				M'-M'				N'-N'				P'-P'				R'-R'				S'-S'			
Relief valve	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Flange mount	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
Clamp mount	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO



Note: Characteristics at constant motor speed, with water at 20 °C (68 F) and bypass blocked - Figures of flow are averages.
For applications involving other fluids, high temperatures or unusual processing conditions, please consult the factory or an authorized Fluid-o-Tech distributor.

Fluid-o-Tech reserves the right to alter the specifications indicated in this catalogue at any time and without prior notice.

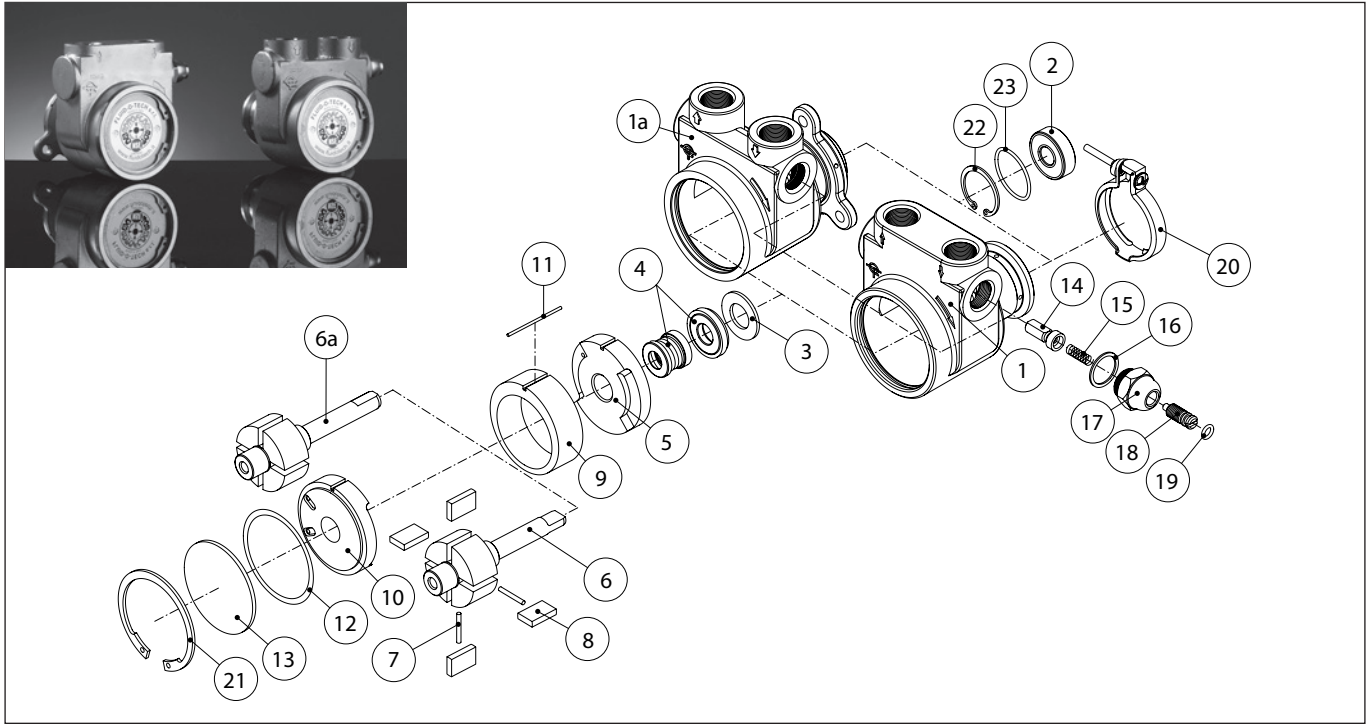
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info@fluidotech-asia.com

Brass and stainless steel rotary vane pumps PO 500-1000 series



POS	DESCRIPTION	MATERIAL	CODE	NOTES
1	HOUSING WITH BYPASS	BRASS	28-01-02	NPT PORTS
		S.S.	28-01-11	NPT PORTS
1A	HOUSING WITH BYPASS AND FLANGE	BRASS	28-01-05	NPT PORTS
		S.S.	28-01-14	NPT PORTS
2	BALL BEARING	STEEL	90-22-01	
3	WASHER	S.S.	22113	
4	MECHANICAL SEAL	CERAMIC/NBR	90-40-01	NSF/WRAS
		CERAMIC/VITON®	90-40-03	
		CERAMIC/EPDM	90-40-05	
5	REAR FLANGE	GRAPHITE	28-03-04	
6	ROTOR	S.S.	28-02-01	
6A	"D" ROTOR (FLANGE)	S.S.	28-02-02	
7	VANE PIN	S.S.	28-07-08	500 l/h
			28-07-09	600 l/h
			28-07-10	700 l/h
			28-07-11	800 l/h
			28-07-12	900 l/h
			28-07-13	1000 l/h
8	VANE	GRAPHITE	28-04-02	
			28-05-10	500 l/h
9	LINER	GRAPHITE	28-05-11	600 l/h
			28-05-12	700 l/h
			28-05-13	800 l/h
			28-05-14	900 l/h
			28-05-15	1000 l/h

Brass and stainless steel rotary vane pumps PO 500-1000 series

POS	DESCRIPTION	MATERIAL	CODE	NOTES
10	FRONT FLANGE	GRAPHITE	28-03-06	
11	ALIGNMENT PIN	S.S.	28-07-15	
12	CAP O-RING	NBR	90-23-93	NSF/WRAS
		VITON®	90-23-95	
		EPDM	90-23-94	
13	CAP	S.S.	28015	
14	SOLID BYPASS VALVE	BRASS	22-16-02	
		S.S.	22-16-03	
		PLASTIC	22-16-15	
15	SPRING	S.S.	22505	
16	WASHER	NYLON®	22-12-01	NSF/WRAS
17	BYPASS NUT	BRASS	22-20-01	
		S.S.	22-20-04	
18	BYPASS SCREW	BRASS	28071	
		S.S.	28072	
19	BYPASS SCREW O-RING	NBR	90-23-16	NSF/WRAS
		VITON®	90-23-20	
		EPDM	90-23-24	
20	ASSEMBLED CLAMP	S.S.	94-80-01	
21	FRONT SEEGER CIRCLIP	STEEL	28016	
22	REAR SEEGER CIRCLIP	STEEL	22083	
23	O-RING	NBR	90-23-26	

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6. WARRANTY INFORMATION

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 altered to 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.