COMMPRO
Commercial & Professional

XPRO-2500D

XPRO-5000D

XPRO-7500D

XPRO-10000D

XPRO-15000D

Please read this manual carefully before the installing the system.

Introduction

Please read this entire service guide prior to beginning installation.

The CommPro Series commercial reverse osmosis system has been designed for quick and simple installation and maintenance. By carefully reading this instruction manual and following the operational guidelines you will insure a successful installation and reliable operation. Routine maintenance is essential to the longevity and performance of the system.

CONDITIONS FOR OPERATION

Design Temperature	77°F	Max. Turbidity NTU ^	1
Max. Feed Temperature	85°F	Max. Free Chlorine ppm	0
Min. Feed Temperature	40°F	Max TDS ppm	2,000
Max. Ambient Temperature	120°F	Max. Hardness GPG ^^	1
Min. Ambient Temperature	40°F	Max. pH (Continuous)	11
Max. Feed Pressure PSI	85	Min. pH (Continuous)	3
Min. Feed Pressure PSI	45	Max. pH(Cleaning 30 Min.)	12
Max. Operating Pressure PSI	150	Min. pH (Cleaning 30 Min.)	2
Max. SDI Rating	<3		

Test Parameters: Static pressure test for 5 minutes.

^ Appropriate filtration must be installed in order to prevent premature membrane fouling.

^^ Scale prevention measures must be taken to prolong membrane life.

CAUTION

- Do not use this system where the water is microbiologically unsafe or of unknown quality.
- Adequate pretreatment must be installed to remove organic and inorganic contaminants that may lead to membrane fouling.
- Disconnect the electrical power and turn off feed water supply before servicing the unit
- Never allow the pump to run dry.
- Do not run the system with waste or recycle valves fully closed.

Specifications

COMMPRO MODEL#	XPRO-2500D	XPRO-5000D	XPRO-7500D	XPRO-10000D	XPRO-15000D
System Design					
Treatment Configuration	Single Pass	Single Pass	Single Pass	Single Pass	Single Pass
Feed Water Quality	TDS < 2,000	TDS < 2,000	TDS < 2,000	TDS < 2,000	TDS < 2,000
Recovery with Recycle*	35%-50%	35%-50%	50%-75%	50%-75%	50%-75%
Rejection and Flow Rates*					
Nominal Salt Reduction	98.50%	98.50%	98.50%	98.50%	98.50%
Permeate Flow Rate	1.8 gpm	3.5 gpm	5.4 gpm	7.1 gpm	10.5 gpm
Concentrate Flow Rate	2.0 gpm	3.2 gpm	4.5 gpm	6.0 gpm	8.0 gpm
Concentrate Recycle Flow Rate	Up to 2.0 gpm	Up to 2.0 gpm	Up to 5.0 gpm	Up to 5.0 gpm	Up to 5.0 gpm
Water Connections					
Feed Connection	3/4" CTS QC	3/4" CTS QC	1" CTS QC	1" CTS QC	1" CTS QC
Permeate Connection	1/2" QC	1/2" QC	3/4" QC	3/4" QC	3/4" QC
Concentrate Connection	1/2" QC	1/2" QC	3/4" QC	3/4" QC	3/4" QC
Membrane Elements					
Membrane Quantity	1	2	3	4	6
Membrane Size	4" x 40"	4" x 40"	4" x 40"	4" x 40"	4" x 40"
Booster Pumps					
Pump Type	Multi-Stage	Multi-Stage	Multi-Stage	Multi-Stage	Multi-Stage
Motor HP	1/2 HP	3/4 HP	1 HP	1.5 HP	1.5 HP
RPM @ 60 HZ	3450	3450	3450	3450	3450
Electrical Specifications					
Standard Voltage	110 1ph 60hz	110 1ph 60hz	220v 1ph 60hz	220v 1ph 60hz	220v 1ph 60hz
Safety Factor (SF) Amps	12.4	14.5	9	13	13
Weight and Dems*					
Shipping Weight	135lb	150lb	225 lbs.	240 lbs.	255 lbs.
Approx. Dimensions (L x W x H)	27" x 25" x 56"	27" x 25" x 56"	30" x 35" x 56"	30" x 35" x 56"	30" x 35" x 56"

*Based on internal testing, actual results may vary.

Operating Parameters

Design Temperature	77°F	Max. Turbidity NTU^	1
Max. Feed Temperature	85°F	Max Free Chlorine ppm	0
Min. Feed Temperature	40°F	Max. TDS ppm	2,000
Max. Ambient Temperature	120°F	Max. Hardness GPC ^^	1
Min. Ambient Temperature	40°F	Max. ph (Continuous)	11
Max. Feed Pressure psi	85	Min. ph (Continuous)	3
Min. Feed Pressure psi	45	Max. ph (Cleaning 30 Min.)	12
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Max. SDI Rating	<3		

Test Parameters: Static pressure test for 5 minutes.
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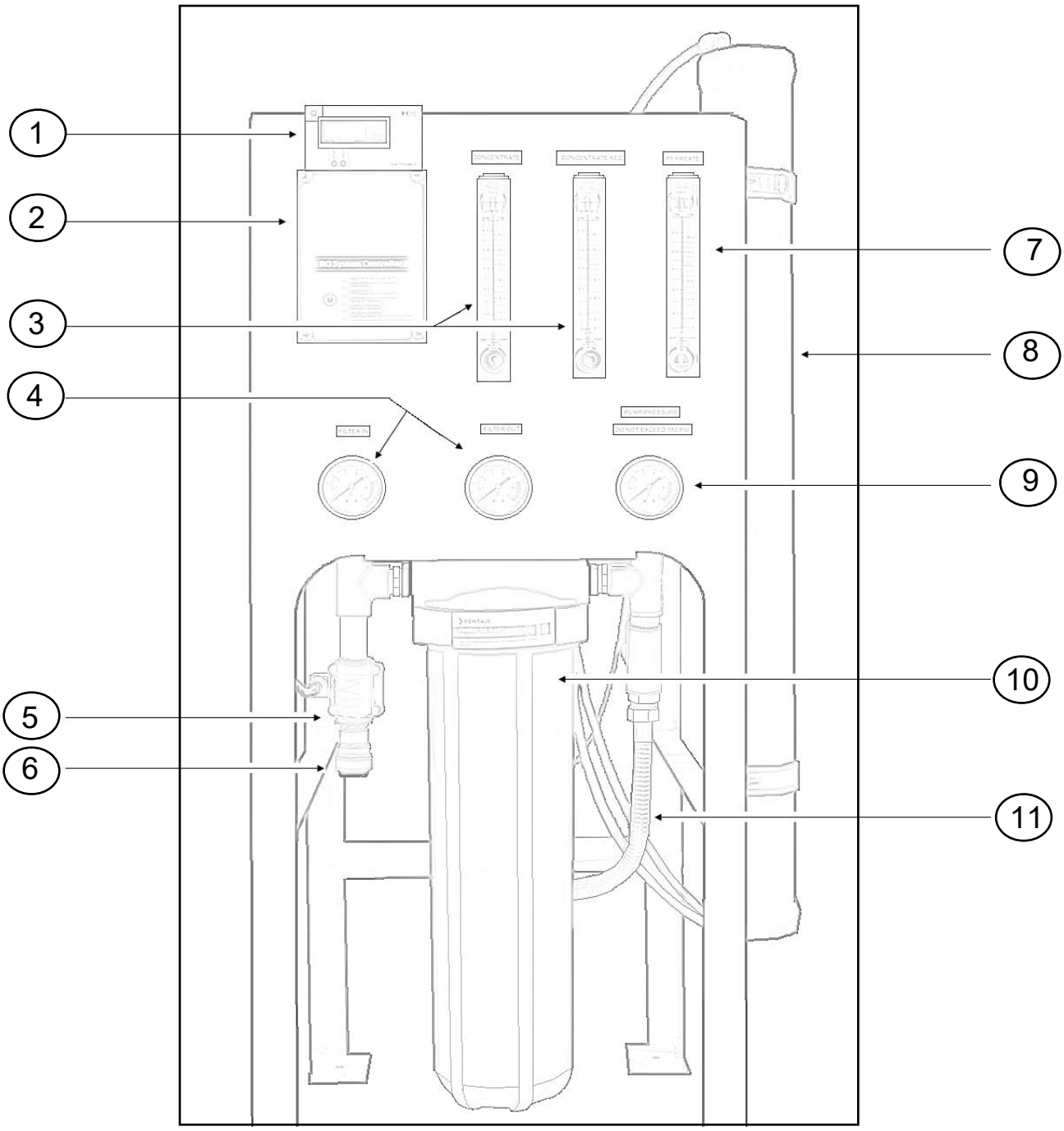
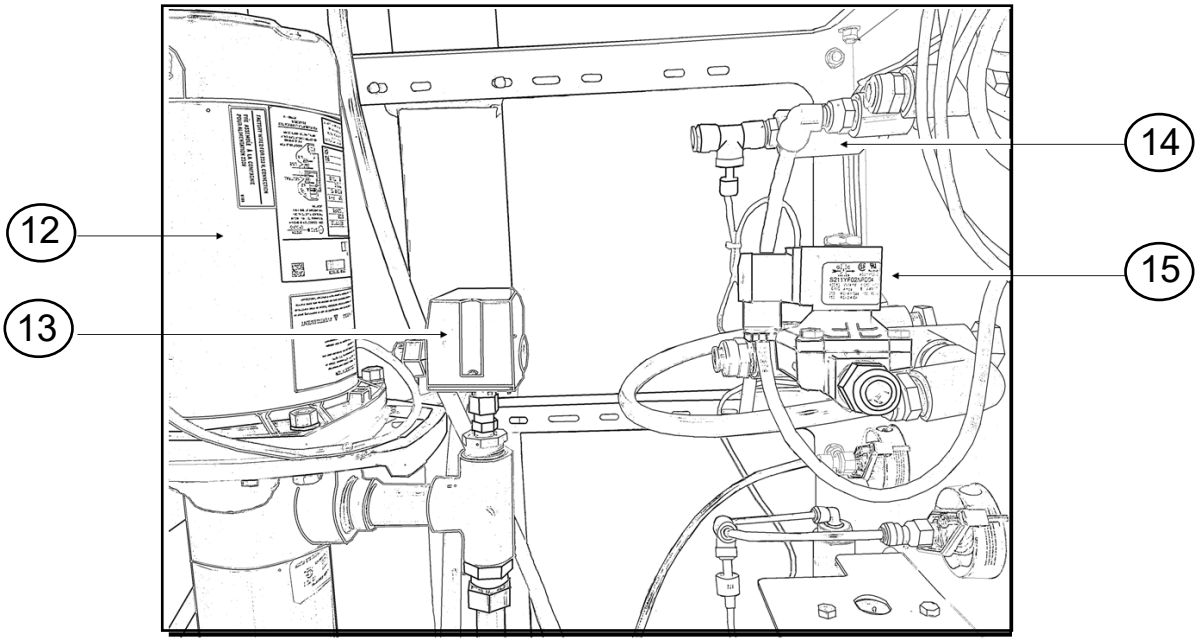
System Diagrams



1)	DM-2 *	INLINE DUAL TDS METER
2)	CHIP-V	RO CONTROLLER; VERTICAL
3)	AFM-055	PANEL FLOWMETER C/W CONTROL
4)	PG-100-PC	PANEL MOUNT GAUGE; 0-100 PSI
5)	S211YF02NPEG5	FEED SOLENOID; 3/4" N/C 120VAC
6)	PSEI012826E	JG 3/4" CTS X 3/4" NPT MALE CONNECTOR, BLACK
7)	PFM-055	PANEL FLOWMETER
8)	40L30N-1W *	4"X40" CODELINE FRP VESSEL; 300PSI; EP; WH
	MH-4040SS.C **	4X40 SS PRESSURE VESSEL
9)	PG-300-PC	PANEL MOUNT GAUGE; 0-300 PSI
10)	150233	20" BIG BLUE HOUSING BL/BK W/PR
11)	FF-36"	FALCON 3/4x3/4 FPT; SS FLEX CONN; 36"L

* Deluxe models only (2600-D & 5200-D)

** Basic models only (2600-B & 5200-B)



12)	95880505 ***	5FBT05C4 - 5GPM; 1/2 HP 120V; PUMP AND MOTOR
	95880710 ****	7FBT07C4 - 7GPM; 3/4 HP 120V; PUMP AND MOTOR
13)	WPS-4-4MF-3-7-30-15	LOW PRESSURE SWITCH; 30-15 PSI
14)	ACV15	PRODUCT CHECK VALVE; 1/2" FPT
15)	S211YF02NPDG4 *	FLUSH SOLENOID; 1/2" N/C 120V

Items Not Shown:

x)	C-4010	DIN CONNECTOR (required for all solenoid valves)
x)	1227868-V-BB	VX05-20" BB 5M SEDIMENT CARTRIDGE
x)	3056683	MEMBRANE AK-90LE; 4X40; HR;ULE; 2800GPD; 110PSI
x)	144368	SW-4; WRENCH FOR 20" BB

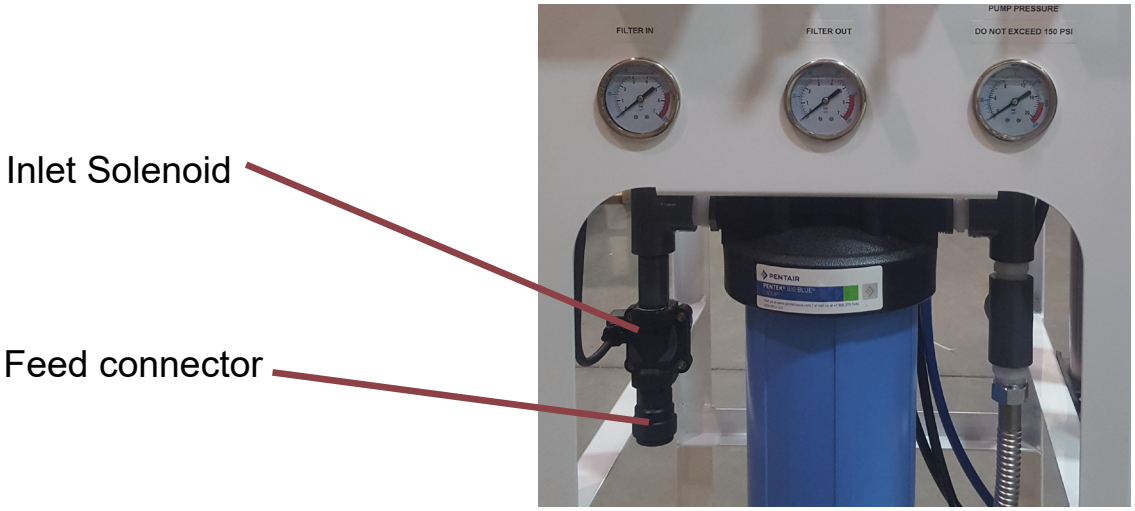
* Deluxe models only (2600-D & 5200-D)
*** Single membrane units (2600-B & 2600-D)
**** Dual membrane systems (5200-B & 5200-D)

System Installation Instructions

1. Feed Water Supply

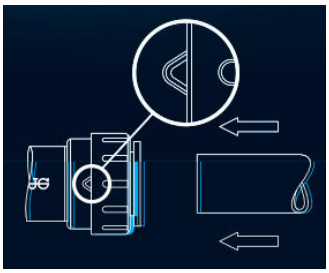
The 3/4" CTS push to connect fitting for the feed water supply is connected to the solenoid on the inlet side of the pre-filter.

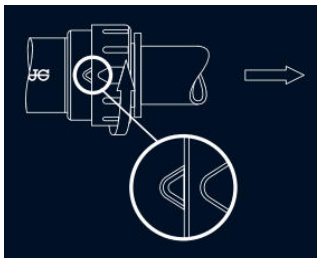
NOTE: Minimum line size for the feed line is 3/4" with a minimum pressure of 45 PSI not to exceed 85 PSI.



To Connect

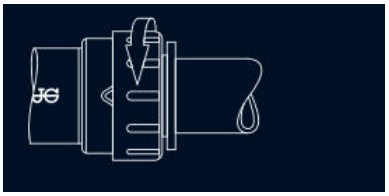
- Cut the pipe square, removing all burrs and sharp edges.
- Insert pipe fully into fitting.
- Turn locking cap quarter turn clockwise to locked position; an audible click will be heard; indicator marks will be aligned.

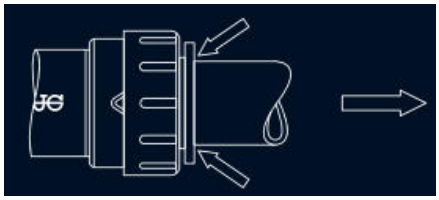


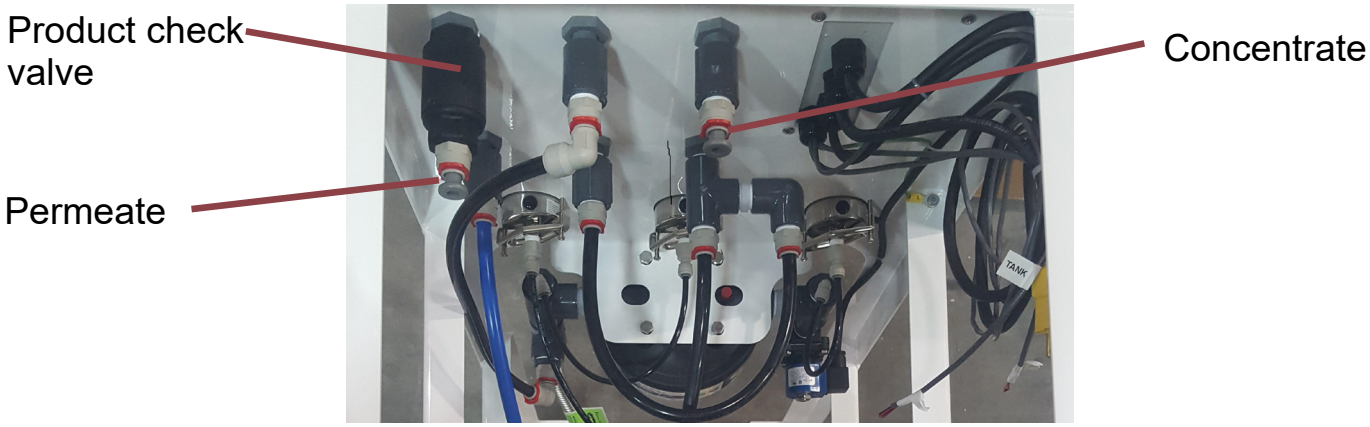


To Disconnect

- Depressurize the system.
- Turn locking cap quarter turn counter-clockwise.
- Depress collet against fitting and remove the pipe.







System rear view

2. Permeate (Product Water) Connection

Locate the 1/2" O.D. push to connect fitting connected to the check valve located on the outlet (top) side of the permeate water flow meter.

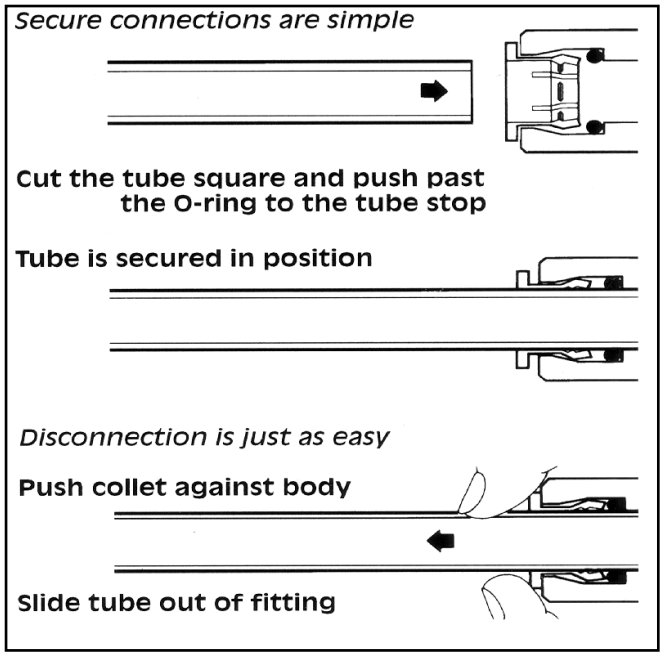
The permeate line should be connected to the storage tank by 1/2" O.D. poly tubing or other suitable material.

3. Concentrate (Waste Water) Connection

The 1/2" O.D. push to connect fitting is connected to the outlet of the flowmeter labelled "Concentrate".

Run the drain line in 1/2" O.D. tubing to an open drain, ensuring that the drain is free and unobstructed.

Drain connection to be made in accordance to local plumbing codes.



4. Auto-Flush Drain Connection (Deluxe Models Only)

The 1/2" O.D. push to connect fitting for the auto-flush is on the outlet of the 1/2" flush solenoid.

Run this drain to an open drain via a 1/2" O.D. drain line.

This drain needs to be separate from the 1/2" concentrate drain line.

5. Tank Level Control

All CommPro-Series systems are pre-wired for a tank level control (not included).

Tank level control needs to be a normally closed switch (open connection in the tank full position shut the system down).

5' of wiring is included with the system.

NOTE: Tank level control needs to only act as a dry contact.

6. Pretreatment Lockout

CommPro-Series systems are also wired for pretreatment lockout, allowing the system to be shut down while critical equipment installed ahead of it is backwashed/regenerated.

5' of system wire is attached to the system controller and can be connected to either a micro switch or relay installed on the pretreatment equipment.

The lockout wire needs to be connected to the terminals on the micro switch or relay that provide an open contact in the service position and a closed contact while in backwash.

NOTE: Pretreatment lockout does NOT need to be installed. If it is not required simply leave the two leads unconnected.

7. Electrical

CommPro-Series systems are wired for 110 VAC 60 HZ.
A suitable 15 amp dedicated circuit needs to be provided.
If required, have a licensed electrician install a suitable power outlet at the install location.

Membrane Loading Instructions

CommPro-Series systems are shipped without the membrane installed in the membrane pressure vessels. Membranes are left in their original packaging increasing the time frame the system can sit before installation.

NOTE: Membranes must be loaded correctly. The brine seal on the membrane needs to be on the same side of the membrane housing as the feed water connection. For ease of service, all membrane vessels on CommPro-Series are plumbed so that they are fed from the top allowing the membranes to also be loaded from the top.

Please refer to the loading procedure below for initial installation and future replacement of the membranes.

1. End Cap Removal

A) Basic Models with Stainless Membrane Housings (2600-B & 5200-B)

Remove the red locking clip from the push to connect fitting and remove tubing.

Remove the two bolts holding the upper band clamp together.

Gently pull up on the black plastic cap to remove it from the stainless housing.

B) Deluxe Models with Codeline Membrane Housings (2600-D & 5200-D)

Remove the red locking clip from the push to connect fitting and remove tubing.

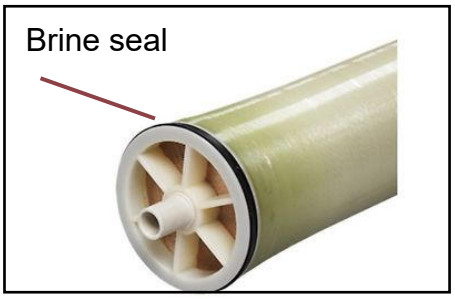
Using your fore finger in the end of the tab of the retaining ring, lift it up and out of the groove in the shell.

Remove the ring from the groove in the shell by rotating your finger behind the ring as it continues to exit the groove.

Thread a 1/2" threaded pipe nipple into the center port and carefully rock the head assembly to release the seal.

Once the seal is broken, pull straight outward to remove the head assembly from the vessel.

2. Membrane Installation



Carefully remove membrane from the packaging.

Note which end of the membrane that the brine seal is installed on as the membrane will need to be installed so that this is at the top of the vessel.

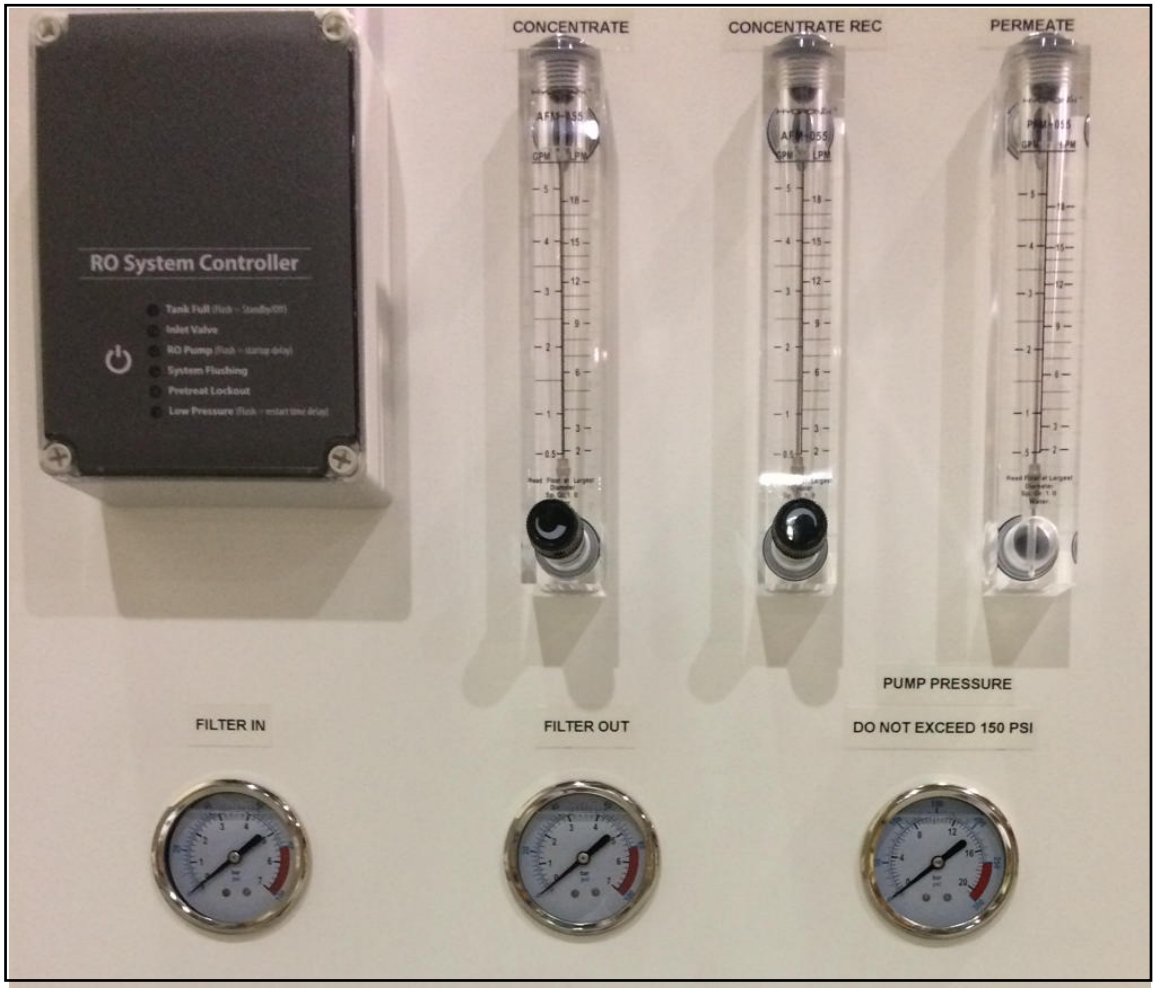
With a smooth and constant motion, push the membrane into the housing. You will feel some resistance as the membrane product tube seals into the bottom end cap.

Install the end caps back into the housing and reconnect any fittings that had been disconnected.

NOTE: Should it be necessary to lubricate any of the seals or o-rings, a food grade silicon based product can be used. Never use petroleum based lubricants.

NOTE: Membranes must be flushed for at least 30 minutes prior to be being used. During this time all permeate must be discarded.

System Startup



1. Divert permeate water to the drain temporarily.
2. Fully open the concentrate adjustment valve by turning it counter-clockwise.
3. Fully close the concentrate recycle adjustment valve by turning it clockwise.
4. Turn on the feed water supply to the system and connect the power. The TANK FULL light should be flashing green indicating that the system is power on and in STANDBY.
5. Touch a finger to the power button (this is a capacitive switch that only requires contact) to take the unit out of standby.
6. Adjust concentrate and recycle valves to the desired flows and operating pressure.
7. Allow the system to run for 30 minutes and carefully inspect all connections for leaks.
8. After 30 minutes, connect permeate to the storage tank and check the tank float by manually moving it to the high position.

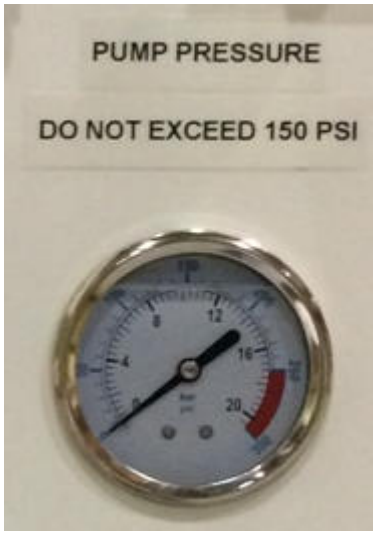
Operation and Maintenance

1. Pre-Filter Pressure Gauges 0 - 100 PSI

The pre-filter in and pre-filter out gauges show the feed water pressure before and after the pre-filter when the system is running. If a pressure differential of 10-15 PSI is present it would indicate that the pre-filter requires changing.

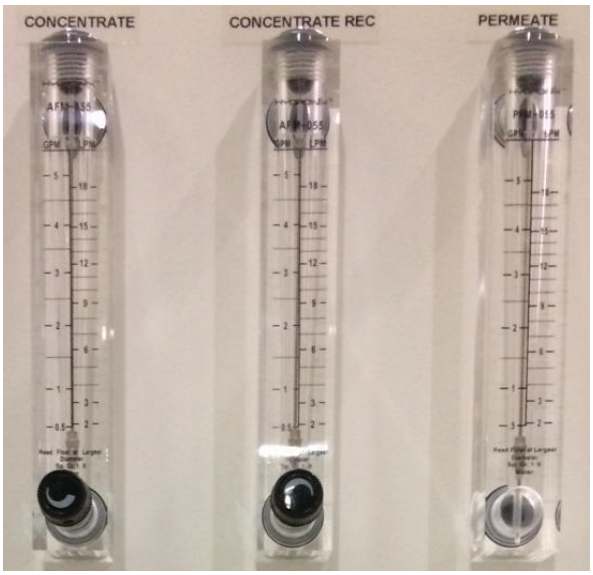
These gauges are installed after the feed water solenoid and should show zero PSI when the system is shut down or in standby.

2. Pump Pressure Gauge 0 - 300 PSI



The pump pressure gauge shows the discharge pressure of the multi stage pump. While the system is operating you can make adjustments to this by opening or closing the concentrate or recycle needle valves.
Changes in feed water pressure and membrane production may affect the pump pressure and require periodic adjustments.
NOTE: Maximum pump pressure for the CommPro-Series system is 150 PSI.

3. System Flow Meters



All ProComm-Series models are equipped with three flow meters: Concentrate (waste), Concentrate Recycle and Permeate (product).
The concentrate flow meter includes an adjustable valve allowing the operator to control the flow of water to drain.
The concentrate recycle flow meter also includes an adjustable valve. This allows for a portion of the waste water to be reintroduced in to the raw water feed at the inlet of the multi-stage pump.
The Permeate flow meter shows how much product water is being produced. It is not adjustable but controlled by operating conditions (raw water quality, temperature, and system operating pressure).

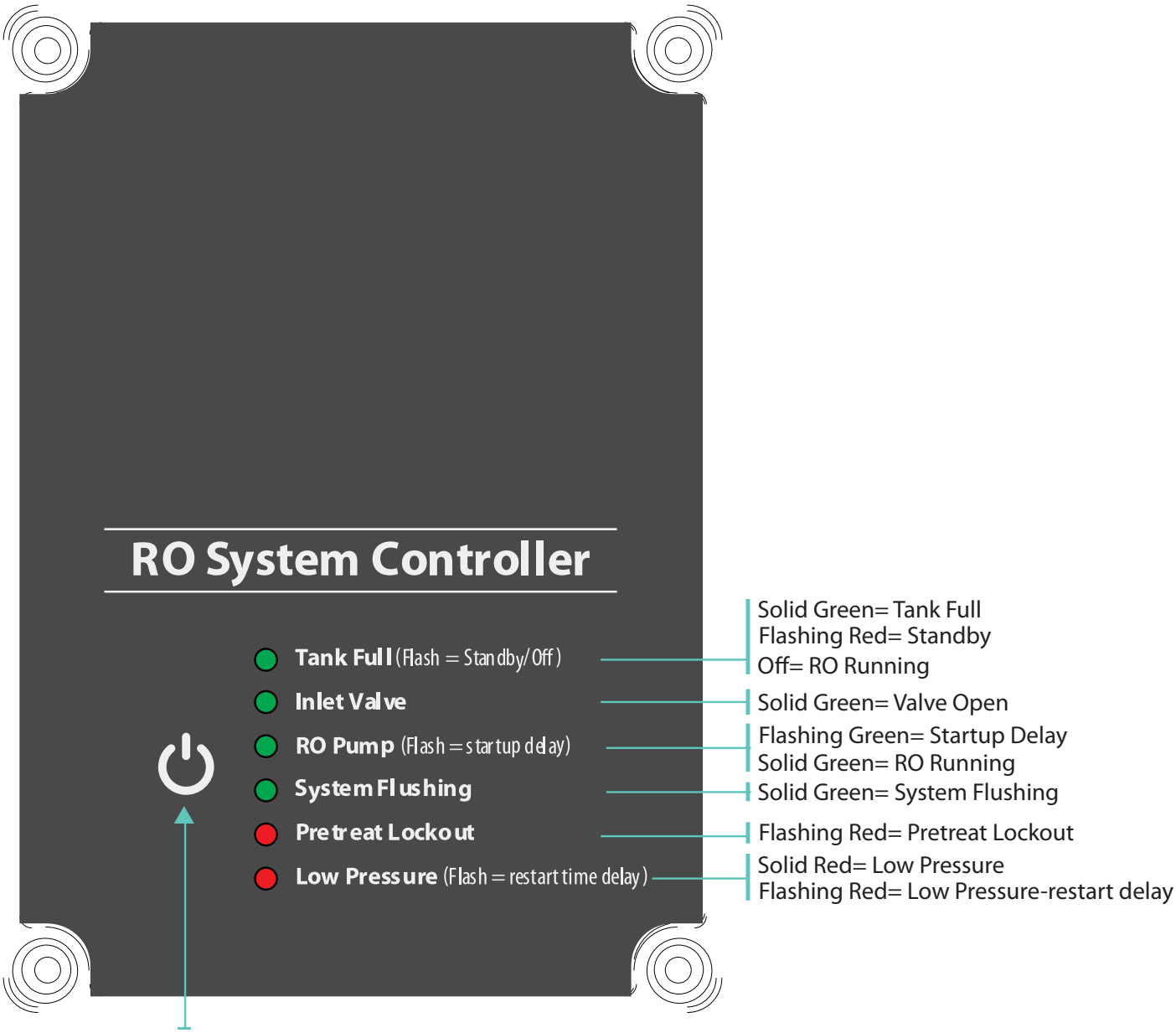
4. RO System Controller

CommPro-Series systems include the CHIP system control. This operates all electrical components on the unit including:

- Pump start delay
- Low pressure protection
- Tank level control
- Pretreatment lockout
- Auto flush (on deluxe models)

System status is displayed on the front panel by a series of LED lights.

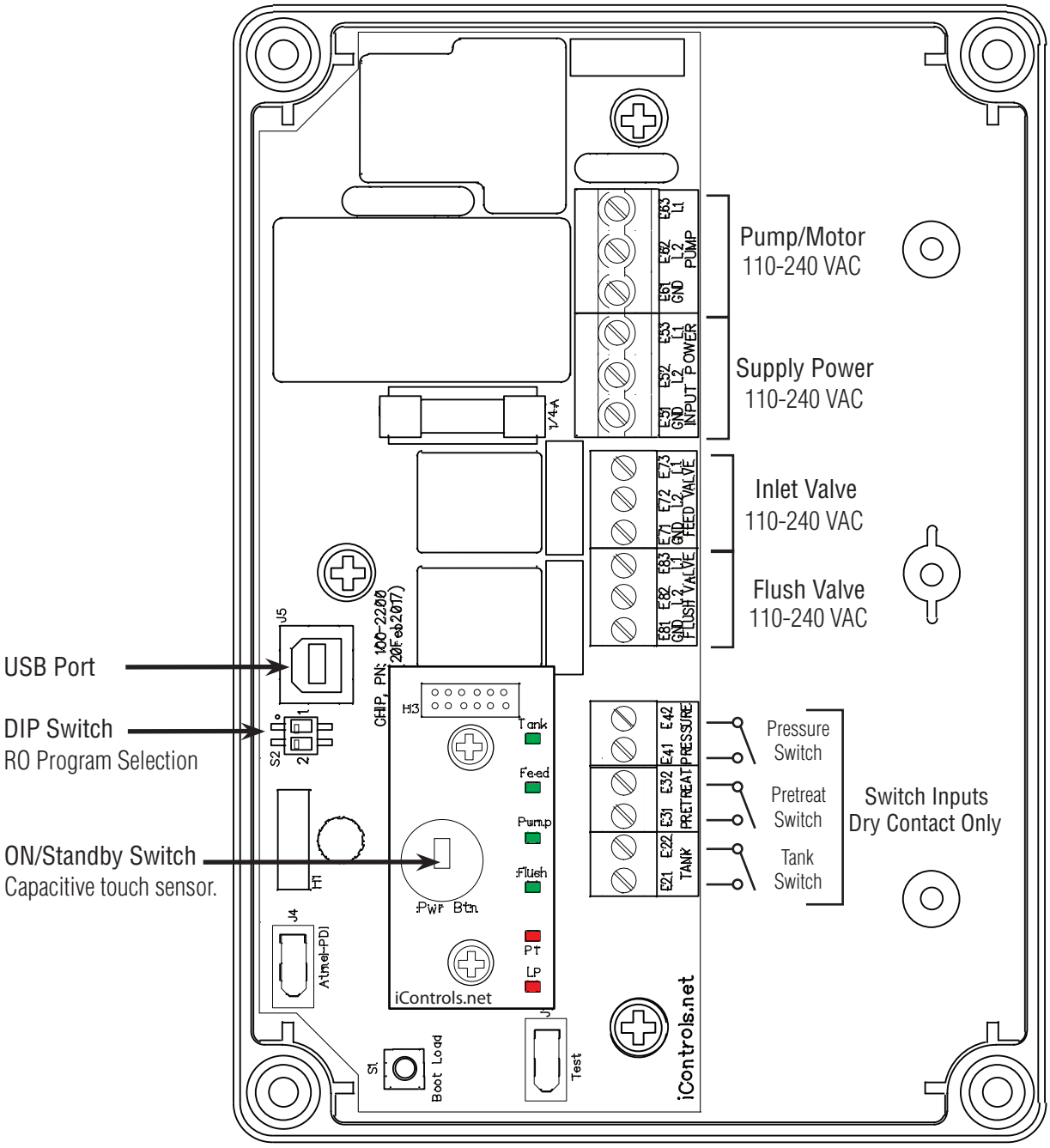
The capacitive touch button toggles the unit between service and standby mode.



Standby/ON Switch
Capacitive touch switch. Tank Full LED turns Red to confirm button contact. To turn controller OFF/Standby, hold for 1-2 seconds. Momentary contact turns controller On.

5. RO System Controller Electrical Connections

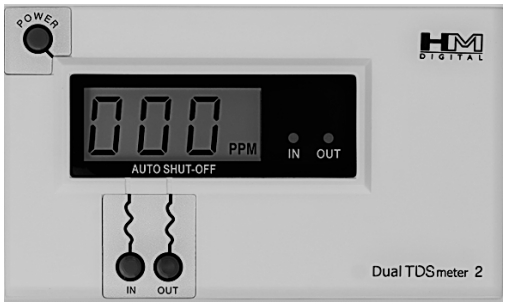
NOTE: The system must be disconnected from the 120v power before opening the control box. It may be necessary to consult a qualified electrician before attempting repair or service.



6. DM-2 Inline TDS Monitor

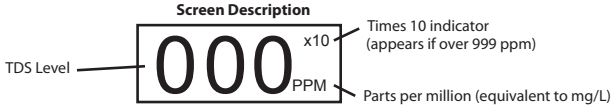
SPECIFICATIONS

TDS Range:	0-9990 ppm
Resolution:	0-999: 1 ppm 1000-9990: 10 ppm (indicated by a blinking 'x10' icon - multiply the reading by10)
Accuracy:	+/-2% (of the reading)
Conversion Factor:	NaCl (avg. of 0.5)
Factory Calibration:	342 ppm NaCl (digital calibration)
Sensor Cable Length:	46" (116.8 cm) (including sensor)
Power Source:	2 x AA batteries
Auto Shut-Off:	After 3 minutes
Battery Life:	Approximately 2 years
Base Unit Dimensions:	4.6 x 2.6 x 0.7 in (11.6 x 6.8 x 1.8 cm)
Base Unit Weight:	7.9 oz (224.3 g) (including batteries)



Usage

1. Press the "POWER" button
2. To display the TDS level of the feed (tap) water, press the IN button. To display the TDS level of the product (filtered) water, press the OUT button.
3. The displayed TDS will be most accurate after approximately 10 seconds.
4. Determining filter effectiveness depends on your particular system. For an RO system, for example, compare the IN water TDS levels with the OUT water TDS.
5. If the "x10" icon appears, then the TDS level is above 999 ppm. Therefore, multiply the reading by 10. For example, if the display shows 143 ppm with the 'x10' icon, the actual TDS level is1430 ppm. (If the 'x10' icon does not appear, the reading on the display is the actual TDS level.)
6. Turn off the unit. (It will automatically shut off after 3 minutes to conserve battery power).



Changing the Batteries

If the batteries are low, when the unit is turned on, you will see **6AE(bat)** for three seconds.

1. To replace the batteries, unscrew the four metal screws on the rear of the unit and remove the back panel.
2. Remove the batteries.
3. Replace both batteries with two fresh AA batteries. Ensure the polarity is correct.
4. Close the back panel and replace the screws. You will not need to recalibrate.

TROUBLESHOOTING

Issue	Potential Solution(s)
ERR display (error)	1. The sensor cable is unplugged. Open the back panel and connect the cable securely.
OOR display (out of range)	1. The water is out of the monitor's TDS range.
Incorrect readings	1. Re-calibrate the monitor. 2. Change the batteries.
bAt display (low batteries)	1. Change the batteries.
The "OUT" reading is higher than the "IN" reading	1. Check your connections. The sensors may be reversed.

CommPro Limited Warranty

Water Industries warrants its CommPro-Series Reverse Osmosis system to be free from defects in materials and workmanship under normal use within the operating parameters listed below. For a period of one year from the date of purchase, Water Industries will repair or replace any part of the Reverse Osmosis System except the filters, membrane, or battery.

Conditions of Warranty

The above warranty shall not apply to any part of the CommPro Reverse Osmosis System that is damaged because of neglect, misuse, alteration, accident, misapplication, physical damage, fouling, and/or scaling of the membrane by minerals, bacterial attack, sediment or damage caused by fire, freezing, hot water, or an Act of God.

CommPro assumes no warranty liability in connection with this Reverse Osmosis System other than as specified herein. Water Industries shall not be liable for consequential damages due to the use of CommPro products.

Warranty Service

Warranty service will be provided CommPro under the following conditions:

1. Contact your local Water Industries dealer, who will obtain return authorization instructions from CommPro.

2. Ship the unit or part freight prepaid to Water Industries Warehouse for warranty evaluation or service. The unit must be returned in the original carton or packaged to prevent possible damage. Systems or parts covered under warranty shall be repaired (or, at our option, replaced) and returned without charge.

Conditions for Operation of TFC - Thin Film Composite Membrane

Used in the CommPro-Series

Source Water Supply - TFC	
Community / Private	Bacteriologically Safe
System Pressure min/max	45 / 85 psi
Temperature	40º / 85º F
pH Range	3.0 to 11.0
Maximum supply TDS level	2000 mg/L
Turbidity	< 1.0 net turbidity (NTU)

Chemical Parameters - TFC	
Hardness ($CaCO_3$)	< 1 GPG
Iron (Fe)	< 0.1 mg/L
Manganese (Mn)	< 0.05 mg/L
Hydrogen Sulfide (H_2S)	0.00 mg/L
Operating Limits	
Maximum Pressure	150 PSI