

# Operation Manual



## Clean-In-Place (CIP) Tank K-A-CIP-1000

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## **TABLE OF CONTENTS**

### **Section 1 GENERAL**

1.1	Warnings and Cautions.....	1
1.2	Theory of Operation.....	2
1.3	System Illustration & Specifications .....	3
1.4	Connections .....	4
1.5	Cleaning Procedure.....	7
1.6	Disinfecting Procedure.....	13
1.7	Disconnect.....	17

### **Section 2 ROUTINE MAINTENANCE**

2.1	Routine Maintenance.....	18
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**Section 1.1****WARNINGS AND CAUTIONS****WARNINGS** 

- Read this manual in its entirety before operating the Clean in Place Tank.
- All patient treatments **MUST** be discontinued before cleaning/sanitizing of R.O.
- Misuse, improper operation, and/or improper monitoring of this system could result in serious injury, death, or other serious reactions to the end users of the equipment.

**CAUTIONS** 

- When used as a medical device, Federal law restricts this device to sale by or on the authority of a physician. Per CFR 801.109 (b)(1).
- All local, state, and federal regulations regarding the installation and operation of this system must be observed.

**Section 1.2****THEORY OF OPERATION**

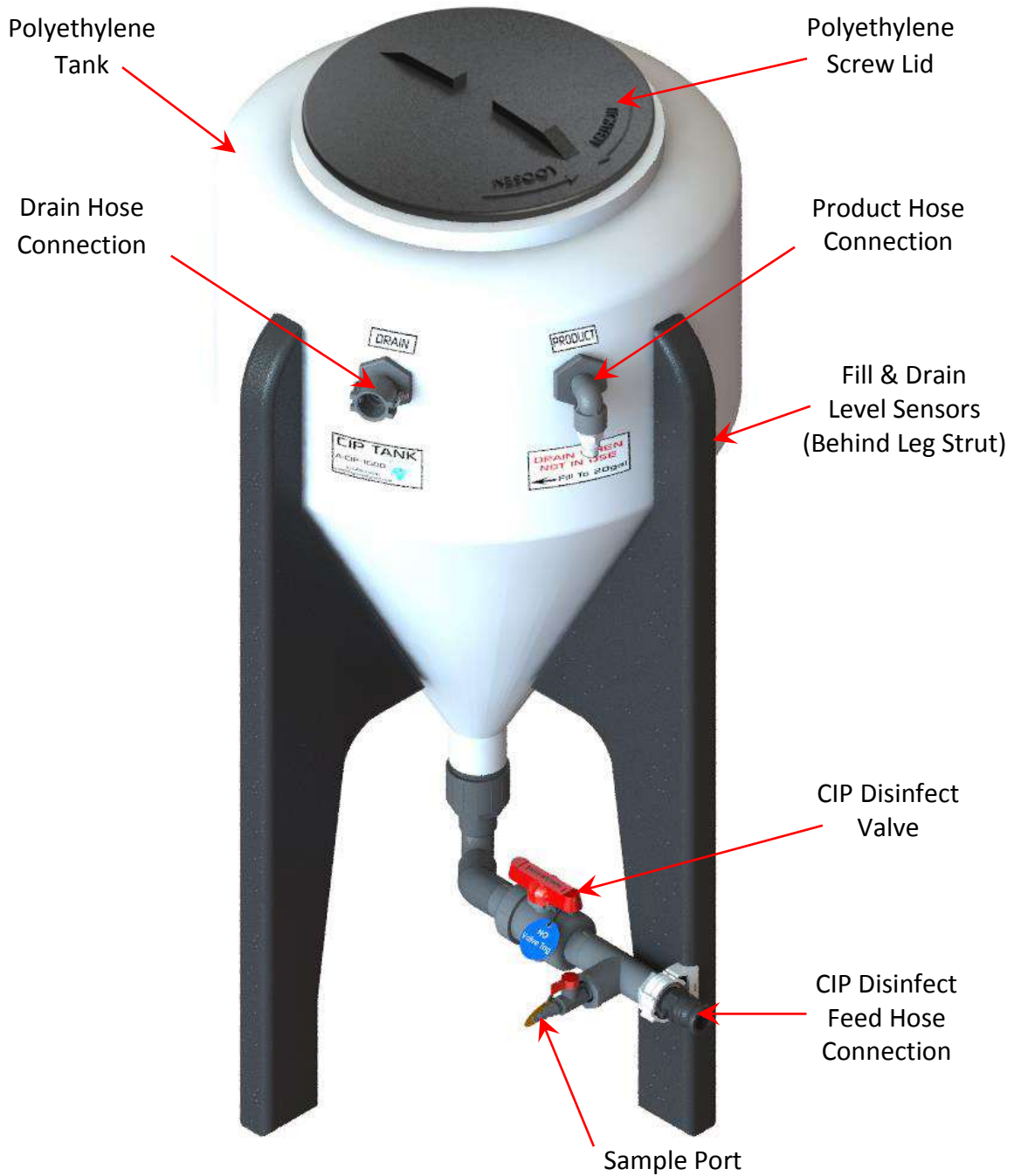
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The Specialty Water Technologies Clean in Place Tank (CIP) is designed for ease of use in a reverse osmosis cleaning / sanitizing process. The tank serves as a reservoir for chemical mixing and recirculation of chemicals during the cleaning / sanitizing process.

Line placement is made easy with the Quick Connects and labeling. It ensures all lines are disinfected.

Section 1.3

SYSTEM ILLUSTRATION



**SPECIFICATIONS:**

Dimensions: 36" W x 48" H

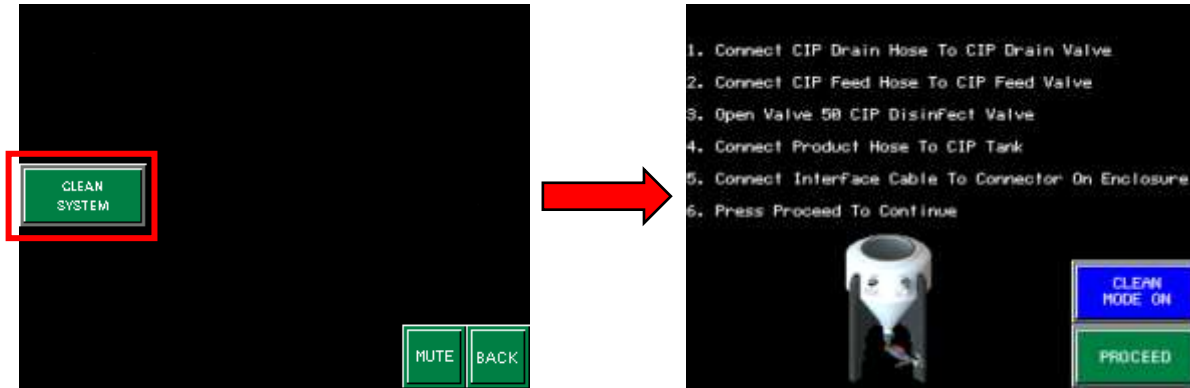
Weight: 50 lbs (dry)

Section 1.4

CONNECTIONS

**Connections:**

From the touchscreen, enter the System Maintenance screen using the technician level password and click on the button CLEAN SYSTEM.

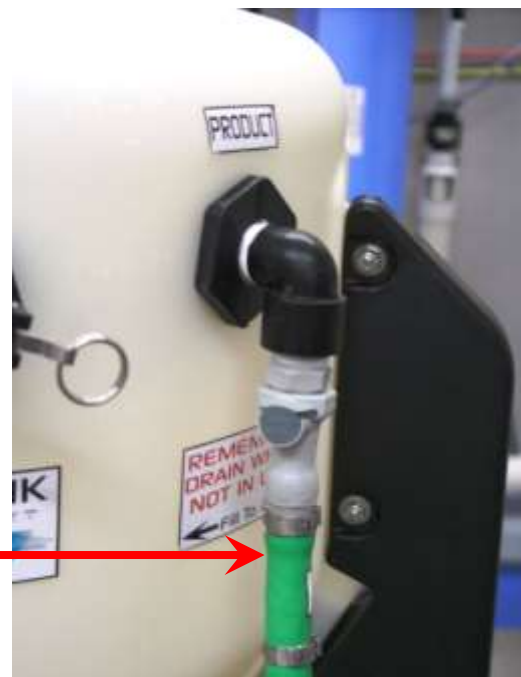


Place the Clean in Place Tank (CIP) close to the R.O.

Disconnect the R.O. Product Line from the Water Storage tank and re-connect it on the Product inlet of the CIP Tank.



Storage Tank

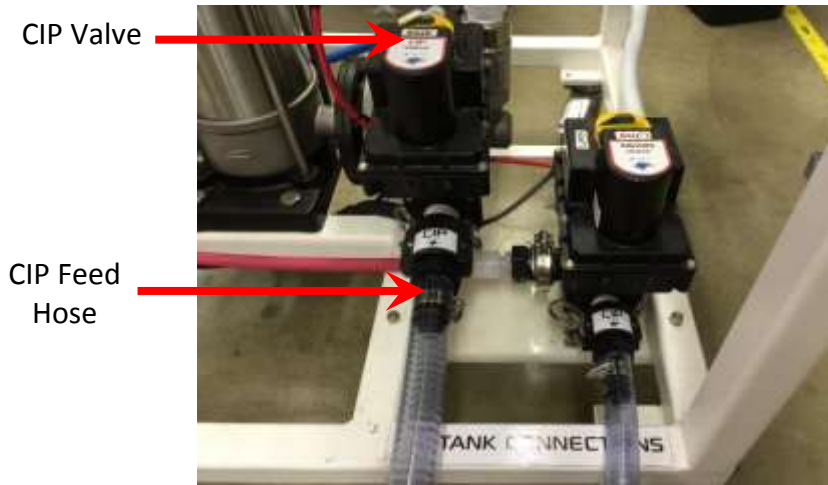


CIP Tank

**Section 1.4**

**CONNECTIONS**

Connect the CIP Feed Hose to the CIP Valve connector on the R.O.



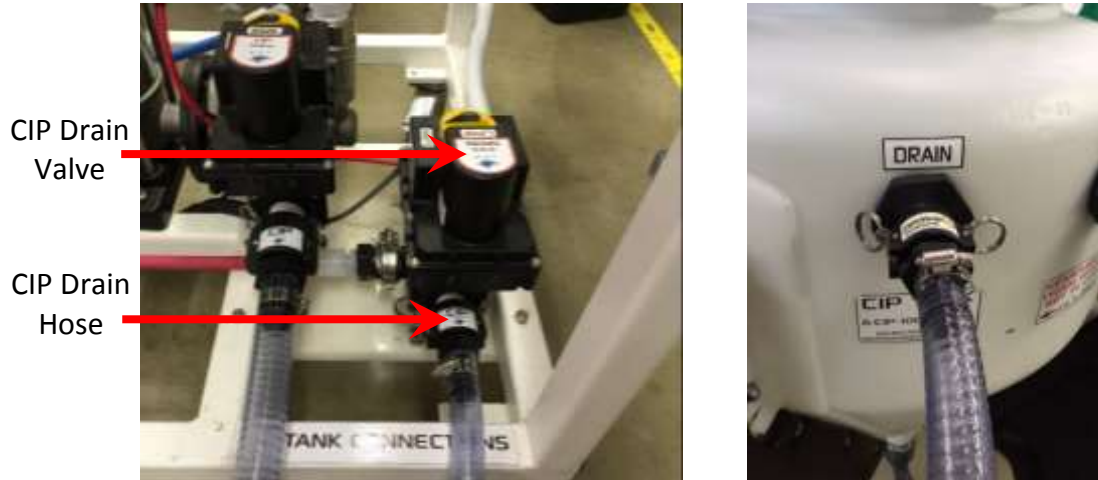
Connect the other end of the CIP Feed hose to the bottom of the CIP Tank as shown below.



Open CIP Disinfect Valve on the CIP Tank.

**Section 1.4****CONNECTIONS**

Connect the R.O. CIP Drain Line to the CIP Drain Valve and connect the other end to the DRAIN connector on the side of the CIP Tank



Connect the level sensor cable from the CIP to the CIP JACK on the side of the R.O. control box.





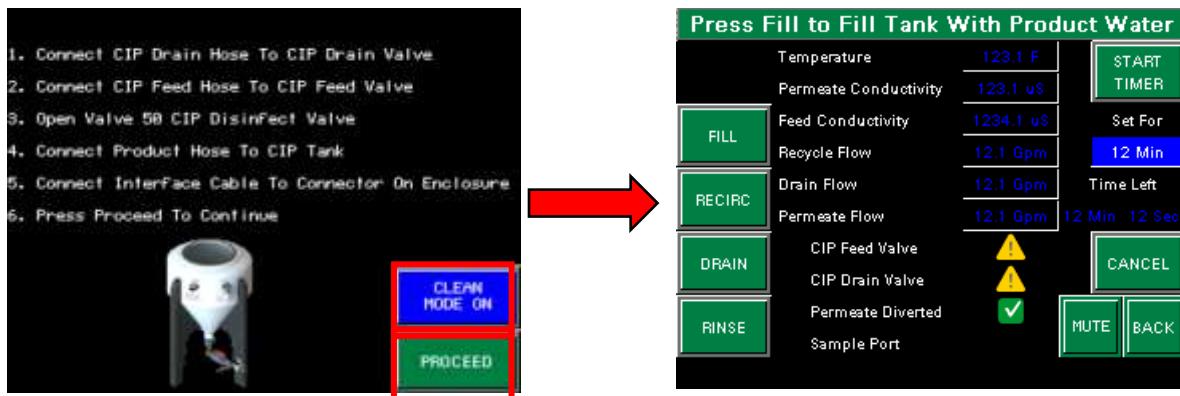
Section 1.5

CLEANING PROCEDURE

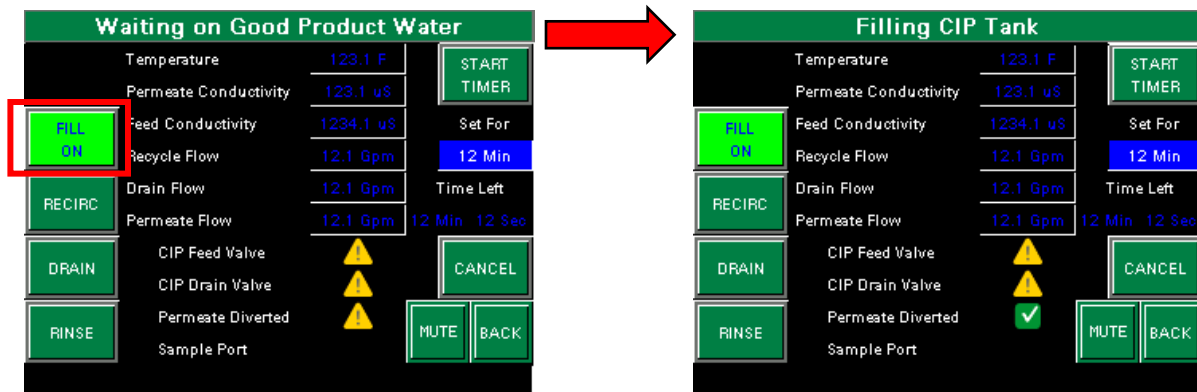
Press CLEAN MODE / DISINFECT MODE toggle button until CLEAN MODE ON is shown.

**NOTE:** The difference between the CLEAN MODE and DISINFECT MODE is that in DISINFECT mode the sediment filter is bypassed to eliminate needing to remove filter prior to disinfection of Reverse Osmosis device and reduce/eliminate rebound.

Press the Proceed button below it at the bottom of the screen



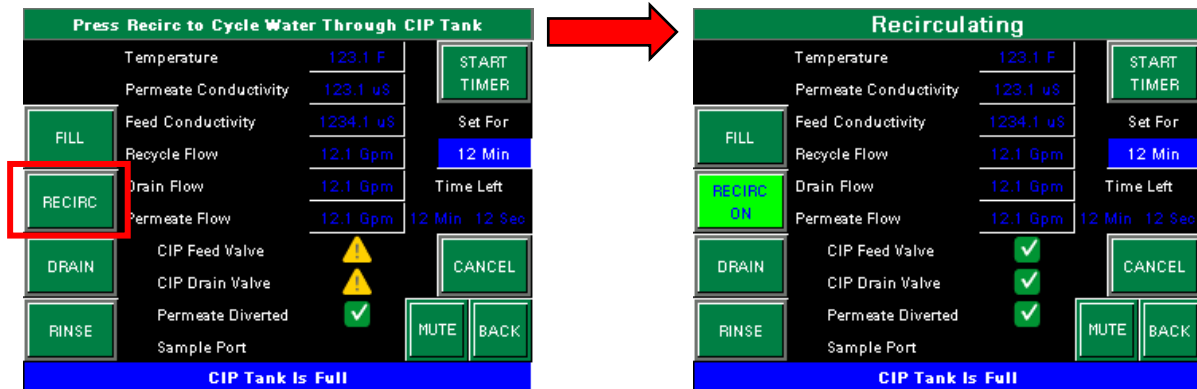
Press FILL button on screen and R.O. will start up and begin filling the CIP tank after the water conductivity falls below product divert setpoint.



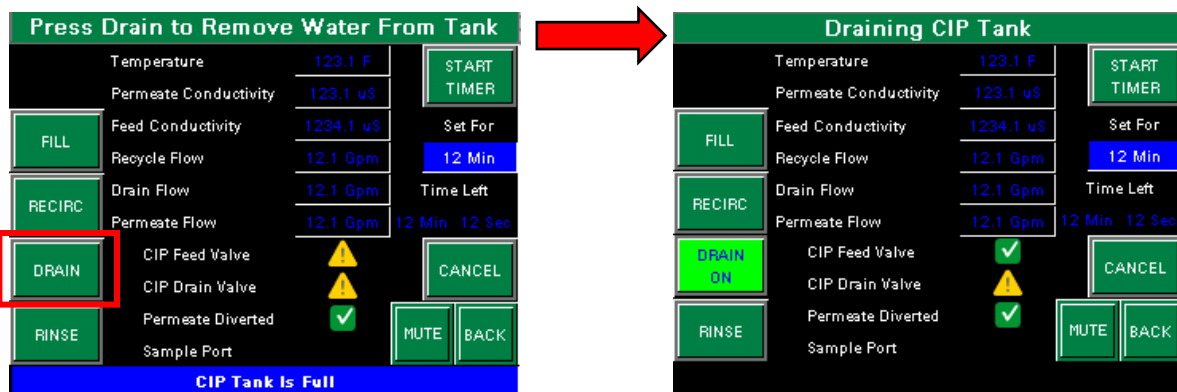
Section 1.5

CLEANING PROCEDURE

Once the tank has reached a level of 20 gallons, the level sensors will stop the filling procedure. Press the RECIRC button. The RECIRC button will change from aqua to green and display RECIRC ON. The CIP Feed Valve and the CIP Drain Valve will energize and the pump will start recirculating water through the cleaning tank.



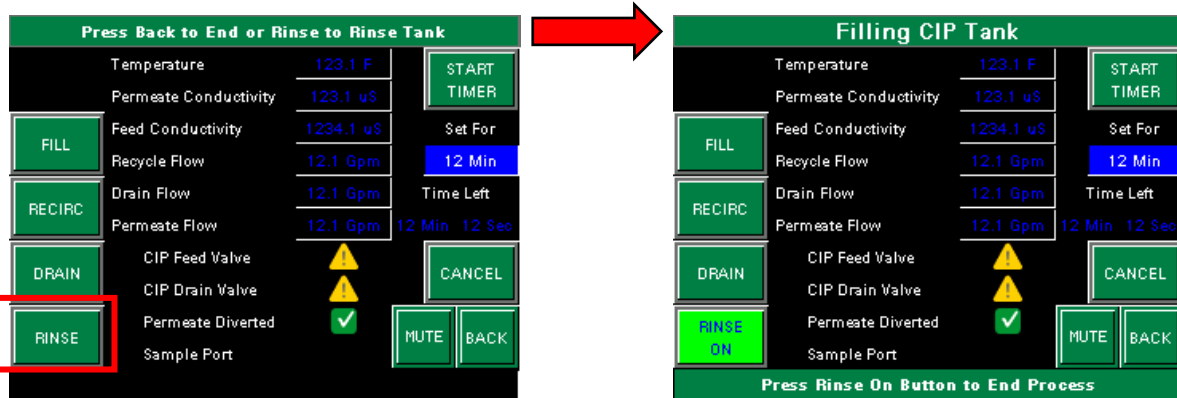
Add 2 lbs of TRICLEAN 210 LOW PH Cleaner to the disinfect tank and allow to recirculate for 30 minutes. During recirculation check the pH to verify range of 2 - 3. Add more Triclean 210 Low pH as needed to lower pH and obtain recommended range. Once the chemical has recirculated, press the RECIRC ON button to stop the recirculation process. Allow to dwell for 30 minutes. Press the DRAIN button. The DRAIN button will change from aqua to green and display DRAIN ON. The CIP Drain Valve will turn off and the pump will start draining the chemical solution from the tank.



Section 1.5

CLEANING PROCEDURE

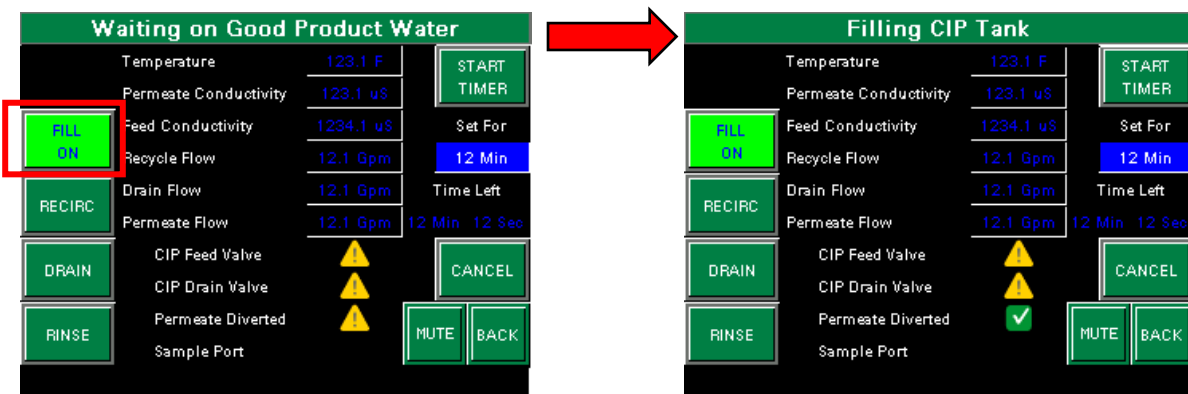
When the tank is empty, the level sensors on the tank will stop the draining process. Press the RINSE button. The RINSE button will change from aqua to green and display RINSE ON. The fill cycle will start adding water to the cleaning tank.



Once the tank is full the drain process will start automatically removing water from the tank. This Fill / Drain process will continue until the conductivity has reached an acceptable level at which time press the RINSE ON button to stop the process.

If the tank still has water present, press the DRAIN button to remove.

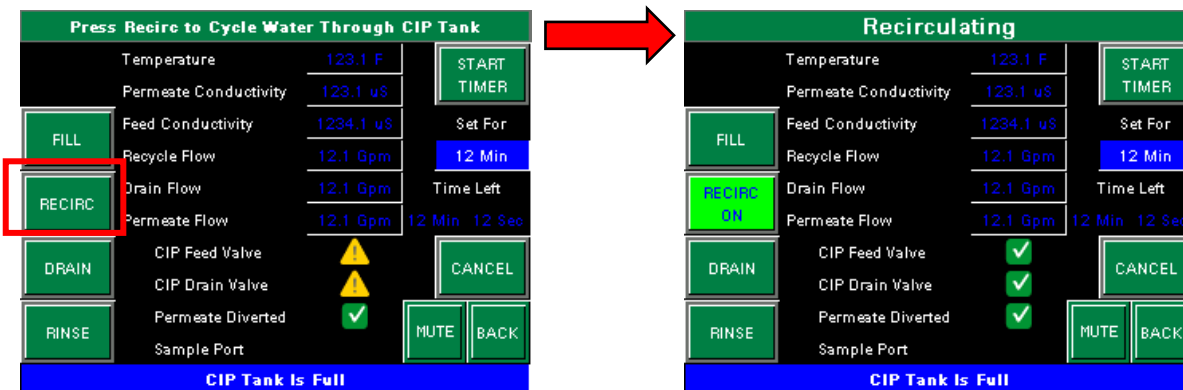
Once the tank is empty, press the FILL button to start the filling process.



Section 1.5

CLEANING PROCEDURE

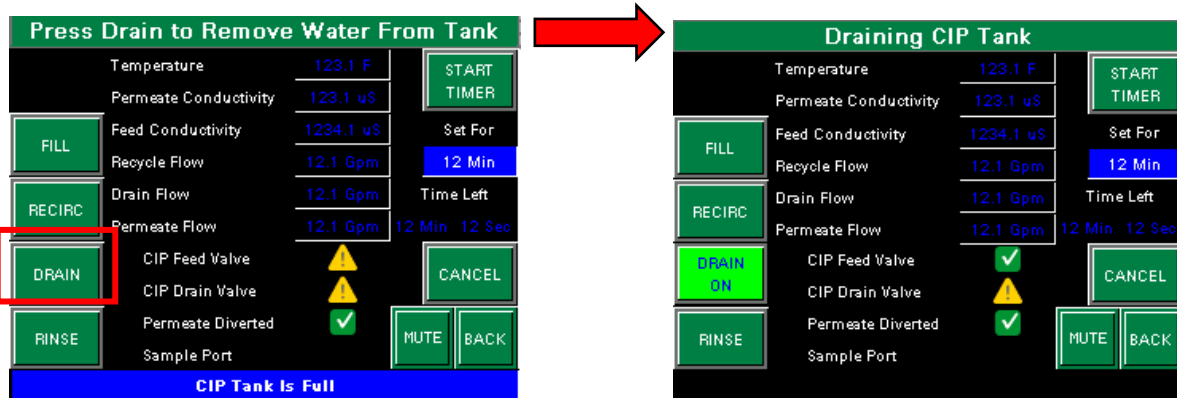
Once the tank has reached a level of 20 gallons, the level sensors will stop the filling procedure. Press the RECIRC button. The RECIRC button will change from aqua to green and display RECIRC ON. The CIP Feed Valve and the CIP Drain Valve will energize and the pump will start recirculating water through the cleaning tank.



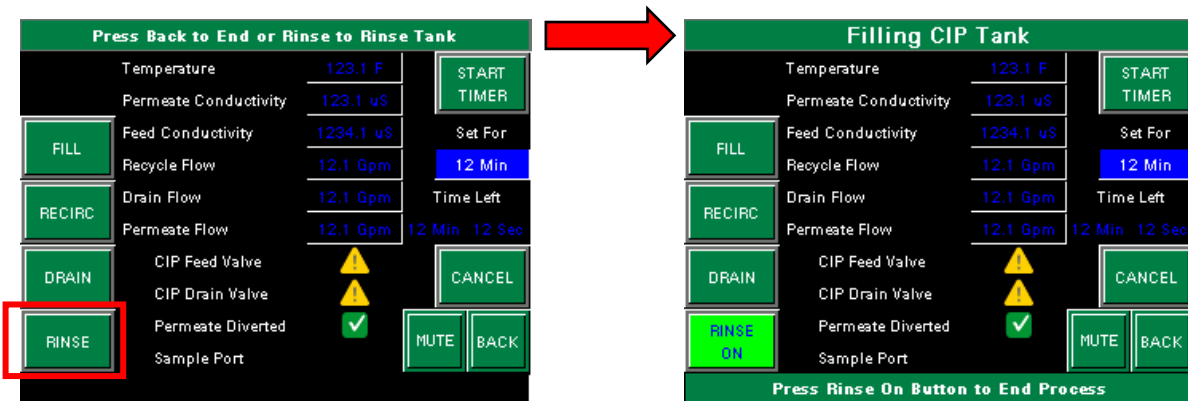
Section 1.5

CLEANING PROCEDURE

Add 2 lbs of TRICLEAN 212TF HIGH PH Cleaner to the disinfect tank and allow to recirculate for 30 minutes. During recirculation check the pH to verify range of 11 - 12. Add more Triclean 212TF High pH as needed to raise pH and obtain recommended range. CAUTION: pH above 12 may damage membranes! Once the chemical has recirculated, press the RECIRC ON button to stop the recirculation process. Dwell for 30 minutes. Press the DRAIN button. The DRAIN button will change from aqua to green and display DRAIN ON. The CIP Drain Valve will turn off and the pump will start draining the chemical solution from the tank.



When the tank is empty, the level sensors on the tank will stop the draining process. Press the RINSE button. The RINSE button will change from aqua to green and display RINSE ON. The fill cycle will start adding water to the cleaning tank.



Section 1.5

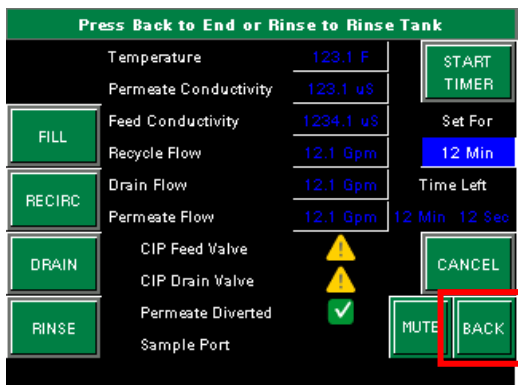
CLEANING PROCEDURE

Once the tank is full the drain process will start automatically removing water from the tank. This Fill / Drain process will continue until the conductivity has reached an acceptable level at which time press the RINSE ON button to stop the process.

If the tank still has water present, press the DRAIN button to remove.

Once the tank is empty, the level sensors will stop the drain process.

Press the BACK button to exit the clean mode.



Section 1.6

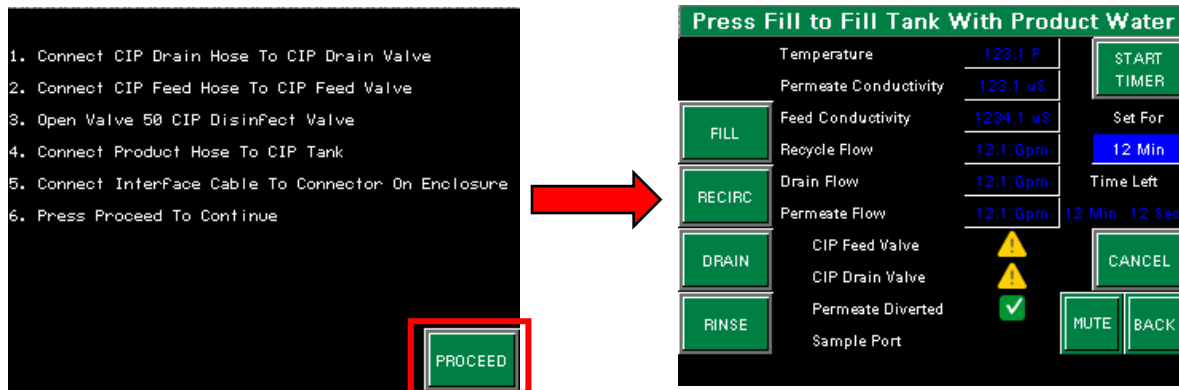
DISINFECTING PROCEDURE

Mineral deposits should be removed with a low pH cleaner (TRICLEAN 210) **PRIOR** to disinfecting of the membranes. The presence of iron or other transition metals in conjunction with the hydrogen peroxide in Micro-X could cause membrane degradation. See Cleaning Section.

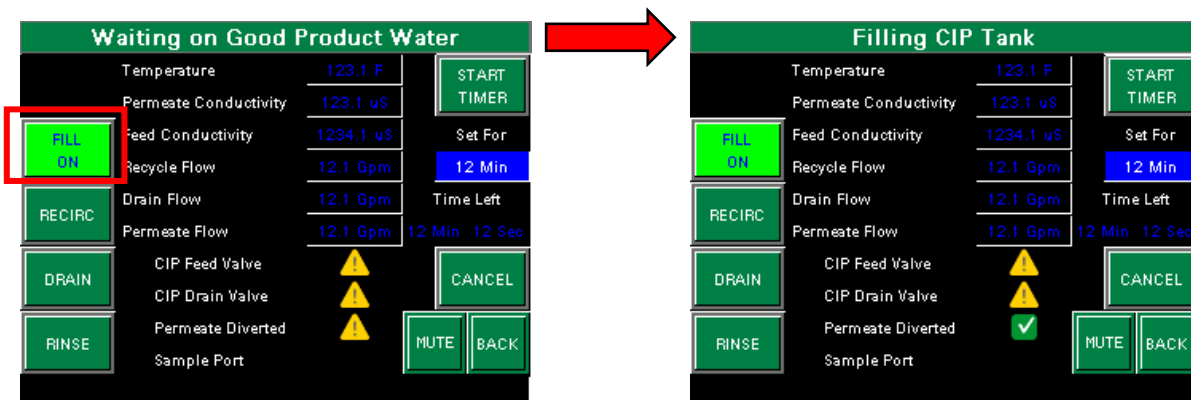
Press **CLEAN MODE / DISINFECT MODE** toggle button until **DISINFECT MODE ON** is shown.

**NOTE:** The difference between the **CLEAN MODE** and **DISINFECT MODE** is that in **DISINFECT** mode the sediment filter is bypassed to eliminate needing to remove filter prior to disinfection of Reverse Osmosis device and reduce/eliminate rebound.

Press the Proceed button on the bottom of the screen



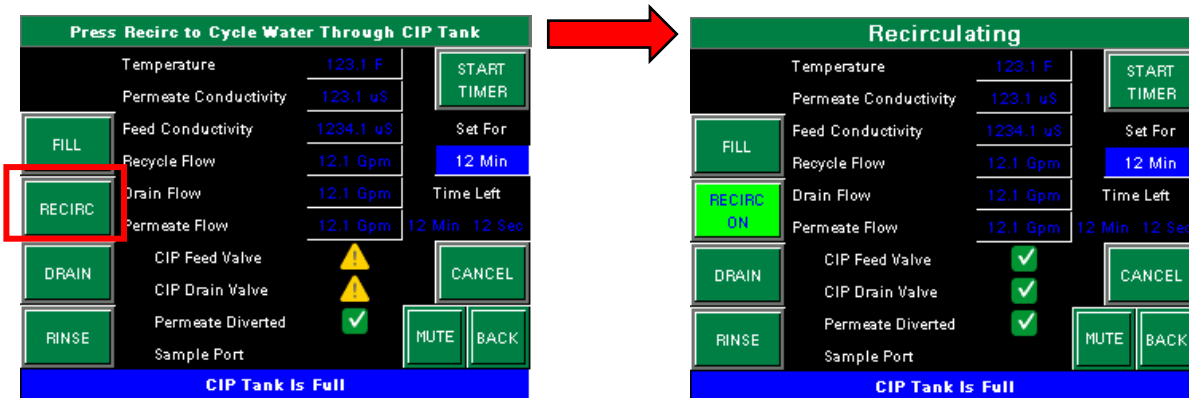
Press **FILL** button on screen and R.O. will start up and begin filling the CIP tank after the water conductivity falls below product divert setpoint.



Section 1.6

DISINFECTING PROCEDURE

Once the tank has reached a level of 20 gallons, the level sensors will stop the filling procedure. Press the RECIRC button. The RECIRC button will change from aqua to green and display RECIRC ON. The CIP Feed Valve and the CIP Drain Valve will energize and the pump will start recirculating water through the cleaning tank.



Add Micro-X Cold Sterilant, per table below, to the disinfect tank and allow to recirculate for a minimum of 36 minutes to a maximum of 12 hours. Contact time should be based on the bacterial load in the RO system.

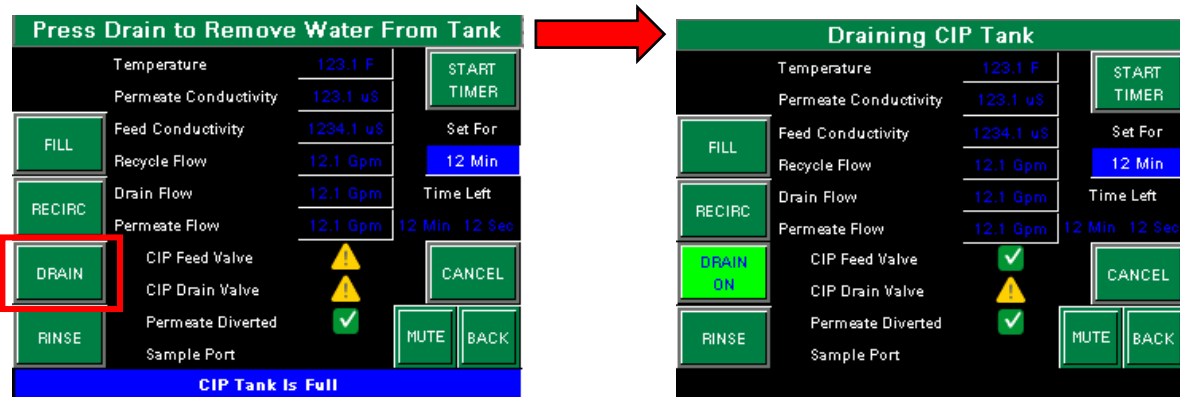
# RO Membranes	Micro-X	
	mL	oz
4	946	32.0
5	984	33.3
6	1022	34.6
7	1060	35.8
8	1098	37.1
9	1136	38.4
<b>Ratio: 100:1</b>		



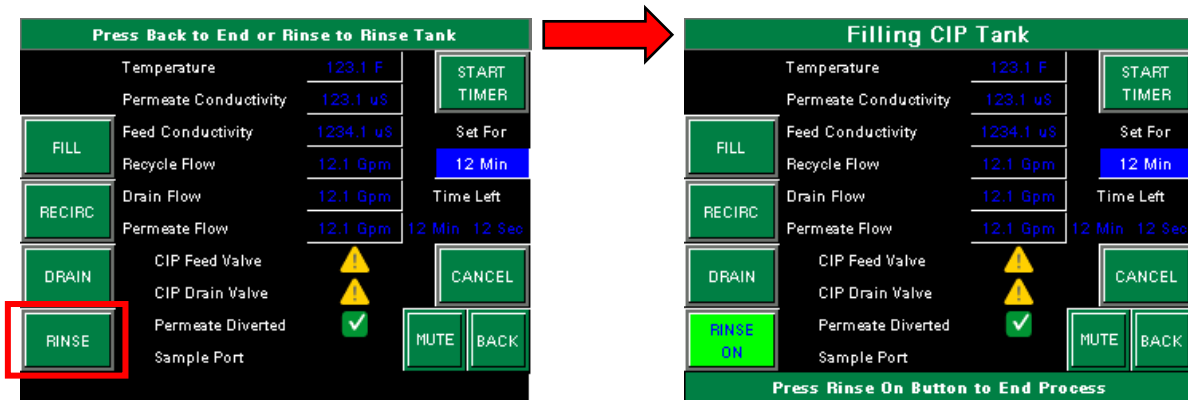
Section 1.6

DISINFECTING PROCEDURE

Once the chemical has recirculated, press the RECIRC ON button to stop the recirculation process and begin the dwell cycle. At the end of the desired dwell time press the DRAIN button. The DRAIN button will change from aqua to green and display DRAIN ON. The CIP Drain Valve will turn off and the pump will start draining the chemical solution from the tank.



When the tank is empty, the level sensors on the tank will stop the draining process. Press the RINSE button. The RINSE button will change from aqua to green and display RINSE ON. The fill cycle will start adding water to the cleaning tank.

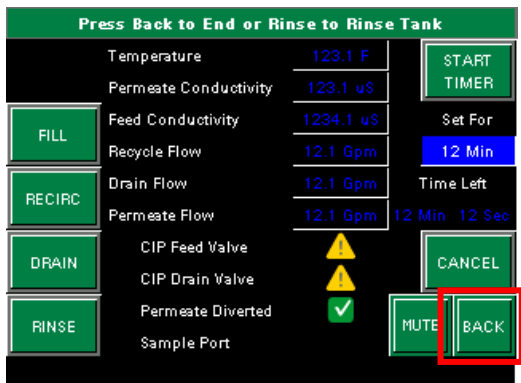


Once the tank is full the drain process will start automatically removing water from the tank. This Fill / Drain process will continue until the conductivity has reached an acceptable level at which time press the RINSE ON button to stop the process.

Section 1.6

DISINFECTING PROCEDURE

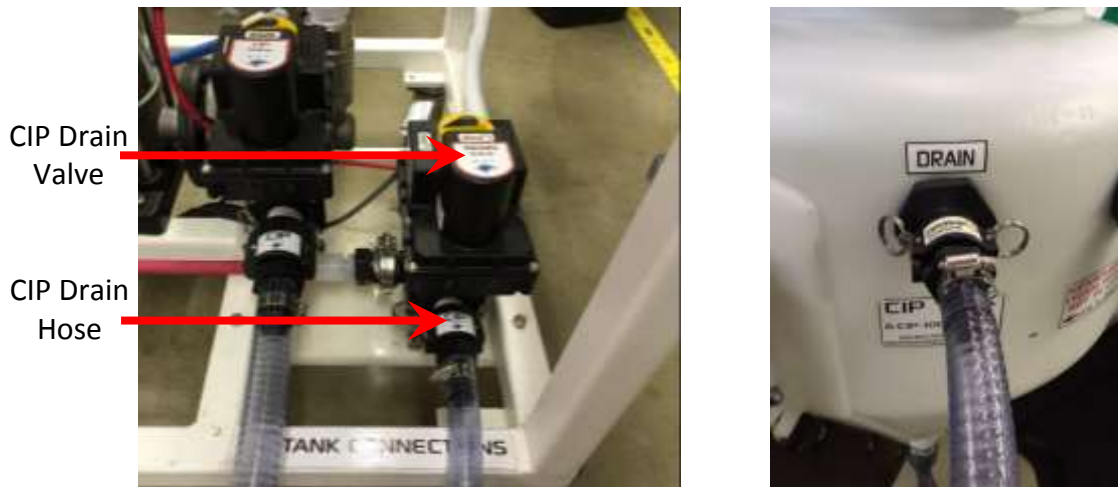
If the tank still has water present, press the DRAIN button to remove.  
 Once the tank is empty, the level sensors will stop the drain process.  
 Press the BACK button to exit the clean mode.



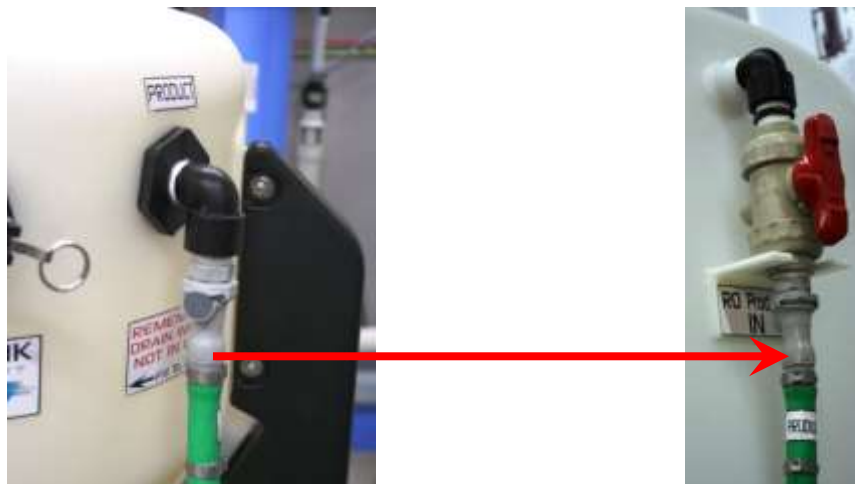
Section 1.7

DISCONNECT

Disconnect the CIP Drain Hose from the CIP Drain Valve and the CIP Tank.



Disconnect the Product Line from the CIP tank, connect back onto the Storage Tank.



Close the CIP tank disinfect valve and remove CIP Feed Hose from CIP Valve on R.O.



**Section 2.1****ROUTINE MAINTENANCE**

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Routine inspection of the system is recommended. Follow all facility procedures regarding regular inspection of equipment.

Quarterly system should be inspected as follows:

- ◆ Wipe exterior and inspect for loose and/or cracked fittings.
- ◆ Keep lid secured on tank to prevent contamination when not in use.



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