

**MICROPROCESSOR CONTROLLED
COMMERCIAL/INDUSTRIAL REVERSE OSMOSIS / NANO
INSTRUCTIONS**



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PLEASE READ AND UNDERSTAND BEFORE INSTALLING YOUR SYSTEM. FAILURE TO DO THIS CAN CAUSE COSTLY PROPERTY AND SYSTEM DAMAGES. CONSULT FACTORY TECHNICAL SERVICE IF YOU NEED ASSISTANCE.

CUSTOMER: _____
LOCATION: _____
SHIP DATE: _____
MODEL: _____

Review the following BEFORE continuing. This is the time to familiarize yourself with all components and list any questions that you may have prior to contacting the supplying distributor or the factory. Do not turn any valves, connect any wires or begin plumbing connections until this step is complete:

- Basic instructions (this document)
- Drawing titled P&ID.
- Electrical drawing.

Extreme care was taken in fabrication and testing before the unit was released for packaging and shipment. Testing alone lasted hours and was detailed to insure a leak free and to-specification performing system.

1. INSTALLATION

- a. Location. Unit should be in a clean area free of dust, grime, and excessive moisture. If located outside, provide an enclosure to protect the unit from direct sunlight, rain, and freezing conditions. There must be a to-code drain within 10 feet of the unit that can handle ___ GPM (The RO will discharge at approximately ___ GPM and the additional flow during the flush cycle will be in the ___ GPM range depending on the inlet pressure to the system) and that is no more than eight (8) feet above the unit drain outlet. The surface that the unit sits on must be smooth and level and able to hold three (3) times the dry shipping weight of the unit or in this case ___ pounds. Because monitoring and occasional adjustments to the unit are required, it should be in a well lighted area with ease of access.
- b. Clearances. Because of the occasional need to remove elements for cleaning or replacement, be sure to allow at least ___ above/side of the unit. If this is not possible, use union plumbing connections or flexible tubing so that the system can be moved for service.
- c. Electrical. Install the system within 15 ft. of an electrical source. ___ volt. ___ Hz. ___ phase. System load is approximately ___ AMP. If at all possible use a dedicated circuit with a disconnect switch and fuses or breaker. **The unit does not have a disconnect switch or an internal fuse.**
- d. Initial set-up. To minimize freight damage, all unions on the system were loosened before shipment. Hand-tighten the unions.
- e. Raw (brine) water connection. Turn-off inlet valve V-1. Connect supply water to this valve at the lower right portion of the unit. Supply must be able to sustain a flow of 15 USGPM at 40 PSI for maximum performance. Best results are achieved by using a flexible hose or tube. TO AVOID FUTURE LEAKS use fittings that are designed for use with the PVC threaded fitting. A pressure regulated line is preferred with a setting of 40-70 psi. Municipal supplies with a relatively constant pressure are acceptable without a dedicated regulator. Inlet pressure should not exceed 80 psi. Chemistry of the water must be within the following parameters unless the system was custom fabricated to accept a special water chemistry:
 - (1) TDS. 2,000 ppm. Consult factory if over this level
 - (2) Temperature. 100 deg. F. max.
 - (3) pH. 3.0 - 10.0
 - (4) SDI. 4.0 max. (15 mins. Test)
 - (5) Chlorine. Less than 0.1 PPM. Utilize a carbon filter if chlorine is present in excess of this level.
 - (6) Calcium Hardness. Soften , chemical feed or use a catalytic/magnetic device if in excess of 150 PPM. Chemical feed is included with this system.
 - (7) Iron. Clear/ferrous. Less than 0.1 PPM. Consult factory if red water/ferric, organic or bacterial iron is present.

(8) Turbidity. 1.0 NTU max. after cartridge filter.

- c. Product (permeate) water connection. To the ½” FPT fitting on the lower right portion of the frame marked Product, connect a line that is made of a non-corrosive material such as polyethylene, polypropylene, PVC, stainless steel, etc. TO AVOID FUTURE LEAKS use fittings that are designed for use with the selected pipe or tubing being used. R.O. water is low in TDS and often has a low pH thus to avoid contamination of the R.O. water and to prevent failure of fittings, tanks, and piping, all materials in contact with the R.O. water must be carefully selected. Suggested materials are PVC, Polyethylene or Polypropylene. Stainless steel will work but it may impart a metallic taste if the water is being used for drinking water.
- d. Drain (concentrate) water connection. To the ½” FPT fitting on the lower right portion of the frame marked Drain, connect a line to the previously defined drain. Observe good plumbing practices and all applicable local codes such as air gaps, materials of construction, supports, etc. TO AVOID FUTURE LEAKS use fittings that are designed for use with the tubing or pipe that is selected for the drain.
- e. Chemical feed connection. Connect the opaque white hose from the right side of the unit (it is factory connected to the chemical injector behind the control panel) to the top of the chemical feed pump. Refer to the pump manual for details.
- g. Electrical connections.

- (1) Connect the black, red (or white) and green (ground) wires from the top right side of the gray control box to your above described power source. Use locally acceptable conduit and obey all local codes. LEAVE POWER TO THE UNIT IN THE OFF POSITION.
- (2) There is a two float switch assembly supplied with the unit. It goes near the top of your tank, MUST BE MOUNTED VERTICALLY and will shut the RO unit off when the top switch is open and will restart when the lower switch is closed. Connect the red, blue and yellow wires from the RO unit to the same colored wires from the grey control box.
- (3) Connect the white wires from the control box to the white wires from the switch close to the bottom of the storage tank if supplied. This switch is to interlock with a re-pressure pump contactor to prevent pump operation with a low tank water level.
- (4) You will note a 3 foot wire with a female plug coming out of the right side of the control box. After putting the chemical and water into the solution container supplied (see below) the chemical feed pump will be plugged into this outlet.

2. Information on microprocessor

The system has been pre-programmed to:

- a. Read and display permeate water quality in TDS and water temperature in Deg. F.

- b. Count and display the hours of on time of the high pressure pump
 - c. Have a 60 second flush to drain with the high pressure pump on after the tank level switch indicates that the tank is full.
 - d. To turn the unit on and off 2 seconds after the stop or re-start switch contact is made
 - e. Display a failure to start due a low inlet pressure. The low pressure switch will shut of the unit when the pressure after the solenoid valve is 5 PSI and re-start when the pressure is 10 PSI.
 - f. Delay the low pressure message to turn the unit off for 3 seconds to prevent unnecessary interruption due to a momentary pressure drop
 - g. Start high pressure pump 10 seconds after inlet solenoid valve opens upon signal from the tank switch
 - h. Attempt a pump re-start 10 seconds after the low pressure fault indication
 - i. Stop pump re-start attempts after 5 tries in a 10 minute period. After 60 minutes, the unit will again try to re-start and again try 5 times in a 10 minute period.
 - J. There is no need to operate the up or down buttons.
- k. Manual run, Manual Flush. Push the button once and the unit will go into the service mode and operate for 5 minutes of operating parameters are met. Useful for diagnostic work on the system. Push the button again any time during the 5 minute period and the unit will go into the flush (service with a high drain flow) for 5 minutes.

3. START-UP. At this time, complete the installation of the filter if you have one and **backwash the filter multiple times until the rapid rinse water runs clear to drain.** **Failure to do this will cause needless premature plugging of the pre-filter cartridge on the inlet of the RO unit.**

- a. Leave the power off to the unit.
- b. Slowly open inlet valve V-1.
- c. Locate the inlet grey solenoid valve which is in the rear of the unit just behind the inlet filters. Turn the coil counterclockwise about 1/16 turn until water flows into the unit and all air is purged from the system----- bubbles cease to flow through the panel mounted flow meters.
- d. After all apparent air has been expelled, re-tighten the solenoid coil (turn CW) **HAND TIGHT** only
- e. Open re-circulation valve and drain flow valve each about ½ of the way. **NOTE:** If the system includes a test report giving flows, then the unit is shipped with valves in the as-tested position and the unit will start **without this setting being necessary.**
- f. Turn-on the electrical power to the unit at the disconnect switch.
- g. Push the system on/off button on the front panel.
- h. The unit will initialize after 10 SECONDS. The unit was left in the operating position after testing and should begin to operate after this delay.

- i. Typical problems at this point will be a screen message indicating low inlet water pressure. Check water source and correct. Also check to see that the drain valve is not open all of the way.
- j. As water flows to drain, observe: Product Flow Meter, Drain Flow Meter and Operating Pressure Gauge.
- k. After a few moments observe the two flow meters. Adjust the drain valve until the flow to drain is approximately ___ GPM. Product flow should be approximately ___ GPM.
- l. Simultaneous to the drain adjustment, also adjust the re-circulation valve so that the operating pressure is _____ to _____ PSI.
- m. Re-adjust the drain valve until the drain flow is 50% of product flow or slightly higher.
- n. Continue steps l. and m. until flow meters and pressure are stable and that the drain flow is ___ GPM
- o. During this period, you may inadvertently close the drain valve or the re-circulation valve too much and the pressure will rise. As the pressure approaches 250 PSI, the built in pressure relief valve will open and route pressurized water to the pump inlet. Re-adjust to lower the pressure to the above listed PSI range.
- p. Turn the system off with the on/off button.
- q. Plug in the chemical feed pump
- r. Add ___ gallon of the anti scale chemical and ___ gallons of water to the solution container.
- s. Re-start the system.
- t. With the unit running, the chemical feed pump will also begin to run. Refer to the pump manual. Loosen the locking lever on the rear of the pump and turn the black knob so that the pointer indicates ___% (___ GPD pump rate). Tighten the locking lever. Open the pump by-pass to prime the pump and close when chemical fills the prime line.
- u. Check the entire system for leaks. Correct as required.
- v. **Record** the following information. This is vitally important for future reference:
 - (1) Product Flow _____GPM
 - (2) Drain Flow _____GPM
 - (3) Operating Pressure _____PSI
 - (4) Inlet Pressure_____PSI
 - (5) Post Filter Pressure _____PSI
 - (7) Pressure Across Filters (4) minus (5) _____PSI
 - (8) Temperature of Inlet Water _____Deg. F.
 - (9) TDS Meter Reading _____PPM

4. MAINTENANCE

- a. Replace pre-filter when pressure drop G-1 less G-2 is 7 psi MORE than the pressure drop recorded in (7) above. _____psi + 7 psi = _____psi.

- b. Check the drain flow daily if at all possible. Adjust as needed. **NEVER ALLOW THIS FLOW TO DROP BELOW THE ABOVE SPECIFIED LEVEL. DAMAGE TO ELEMENTS WILL RESULT!!!!**
- c. Adjust flows as often as possible to maintain the pressure on G3.
- d. Frequently check the level of liquid in the anti-scale solution tank and replenish as needed. **RUNNING THE SYSTEM IN THE ABSENCE OF CHEMICAL WILL CAUSE PERMANENT ELEMENT DAMAGE.**
- e. Observe permeate flow and TDS as often as possible. A change of over 10% in either direction without a corresponding change in inlet water TDS or temperature could indicate a potential problem that should be evaluated.
- e. Maintain pre-treatment equipment per the instructions for this equipment.

5. PERFORMANCE EXPECTATIONS.

When properly maintained and in the absence of changes in the inlet water, it is reasonable to expect the TDS to rise approx. 7% per year and the production to decrease 10% per year.

6. WARRANTY.

REVERSE OSMOSIS WARRANTY

PLEASE READ AND UNDERSTAND THIS WARRANTY BEFORE PROCEEDING WITH THE INSTALLATION OF THE SYSTEM.

All components except the element(s) are warranted to be free of defects in materials or workmanship for a period of one year from the date of installation.

Repair or replacement at option of DIME WATER, INC and based upon inspection by DIME WATER, INC . Defective items are to be returned to DIME WATER, INC. at owner's expense. DIME WATER, INC. will then pay for the transportation on the repaired or new replacement parts.

Elements have a one year pro-rata warranty. If it is established that the element problem is related to material and or workmanship then the elements will be replaced at no charge in the first month after the date of installation. A cost of 8 1/3% per month will be charged for each month after the first month. Improper system operation, excessive water temperature (above 100 Deg. F.), failure to prevent chlorine passage into the system, scaling due to softener or chemical feed operational negligence and general system neglect voids the element warranty.

All warranty is for materials only. Any labor charges must be paid by the system owner. DIME WATER, INC. is not responsible for contingent liability caused by Reverse Osmosis equipment failure. We do not warrant any system or part of a system that has been damaged by neglect, improper use, act of nature, fire or vandalism.

