



ACCU-TAB AQUATICS MANUAL

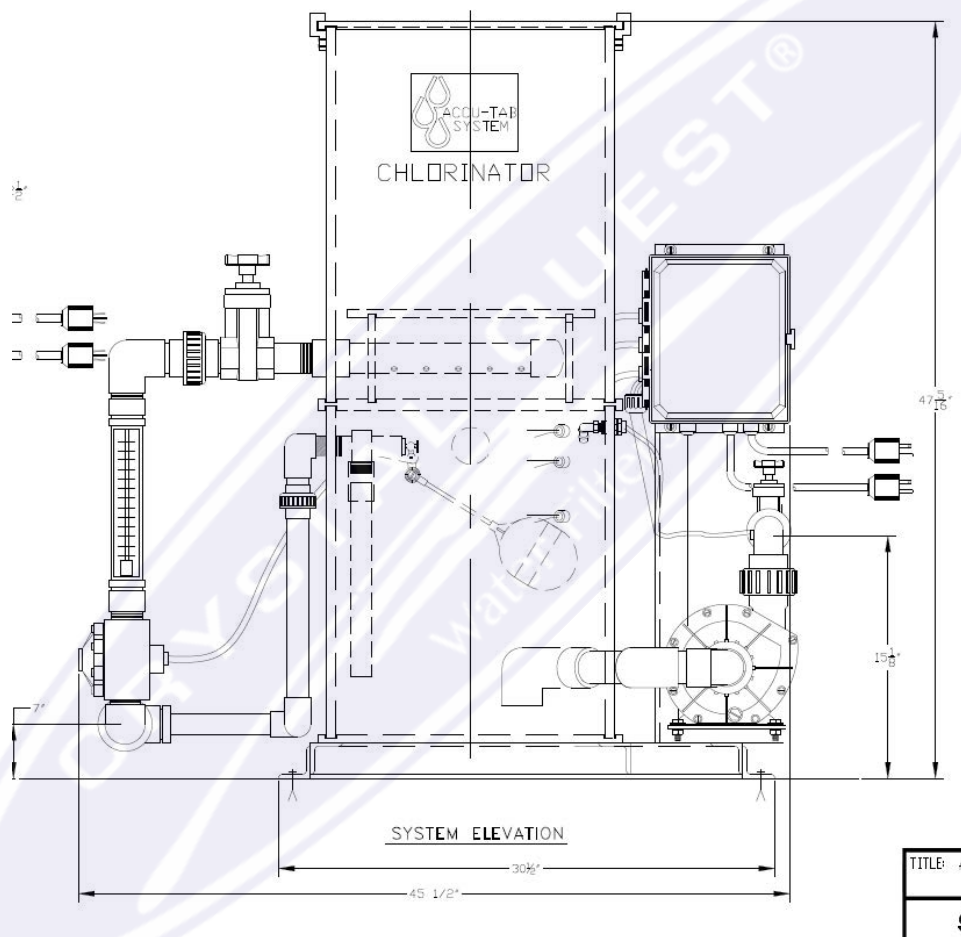




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APPLICATIONS

The Accu-Tab system is the total solution for all your chlorination needs. From the smallest commercial pool installation to large-scale water parks, we manufacture high-quality tablet chlorination systems that stand up to tough water conditions and rigorous industry and government standards safely, simply, accurately, and with minimal maintenance.

The complete, Accu-Tab® system combines specially-engineered chlorine feeders with quality-controlled three-inch calcium hypochlorite (cal hypo) tablets. Accu-Tab chlorinators are solidly built. Each durable, corrosion-resistant chlorinator is handcrafted in the U.S. using high-quality PVC and is backed by a limited warranty. Accu-Tab chlorinators have few moving parts and no small openings that can clog. Additionally, most replacement parts on our units can be readily obtained, making it easy and efficient to maintain the system

Aquatics: Pools, Water Parks, Spas, and Fountain water.

Avoids the corrosion of equipment and pool surfaces; eliminates fluctuations in chlorination levels; reduces cleaning and maintenance of the chlorinator to typically once a year.

Food Safety: Fresh Cut Meat, Food Packaging, Beverage Plants, Irrigation

Clean process water is an essential ingredient in safeguarding much of what we eat and drink every day. With recent outbreaks bringing increased scrutiny to food and beverage safety, effective process water solutions have become even more important.

Municipal/Potable Water: Drinking Water & Waste Water

Today's potable water and wastewater treatment facilities face a multitude of complications in the goal to provide clean, safe water to communities. Slashed municipal budgets, government regulations, and the need for complex risk management plans challenge facilities every day. As facilities reassess their water treatment systems, many find the solution in the Accu-Tab® tablet chlorination system.

Industrial Water: Cooling Towers, Plant Water, Energy, Frac, and Flowback Water

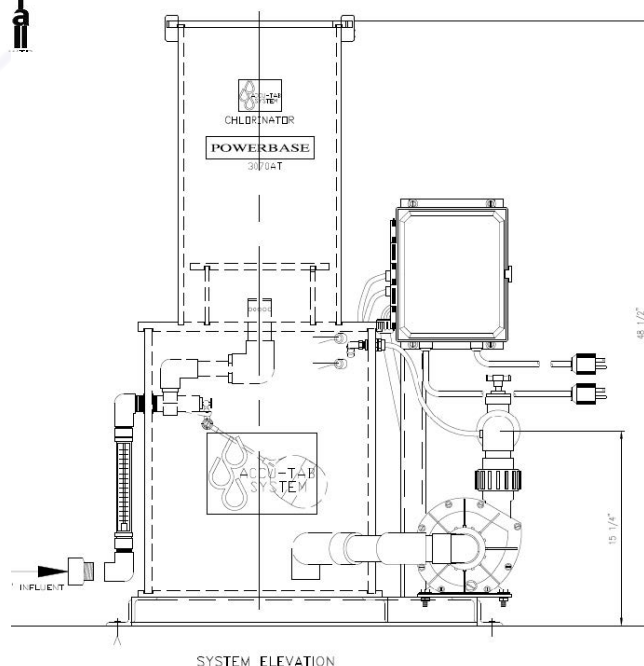
Many industrial facilities use a local water supply to rinse, spray, coat, wash or cool during processing. End products can be affected by unwanted minerals and contaminants, and bacteria can cause illness



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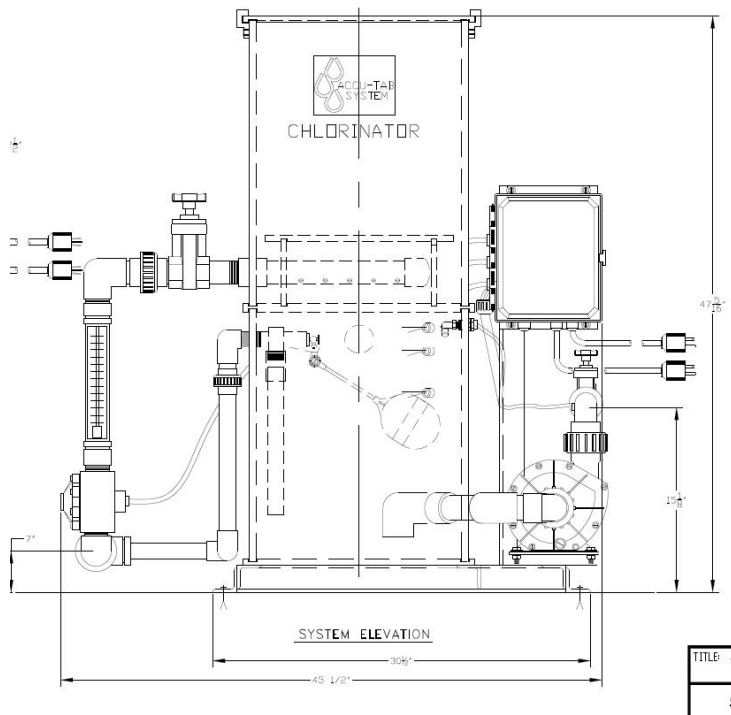
- 70-pound tablet storage capacity
- Indoor pools up to 1.12 MM gallons
- Outdoor stabilized pools up to 400,000 gallons
- Outdoor un-stabilized pools up to 200,000 gallons
- Dimensions: 23" x 33" x 52" (h)
- 1 ½ " inlet and outlet pipe
- 1.5 HP pump

- 67 lb/day (2.8 lb/hr) chlorine feed rate
- 30-pound tablet storage capacity
- Indoor pools up to 360,000 gallons
- Outdoor stabilized pools up to 140,000 gallons
- Outdoor un-stabilized pools up to 60,000 gallons
- Dimensions: 20" x 27" x 36" (h)
- 1" inlet and outlet pipe
- 1.0 HP pump





ACCU-TAB CHLORINATION SYSTEM OPTIONS



POWERBASE MODEL 3140AT

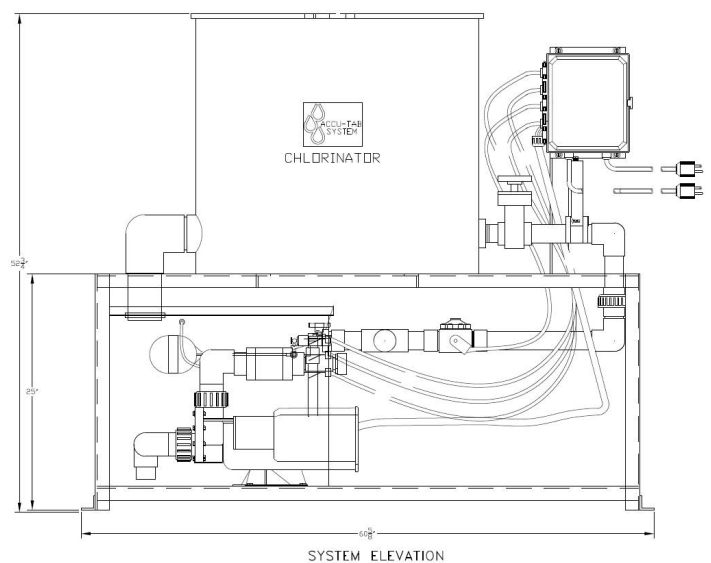
For large water features:

- 528lb/day (22 lb/hr) chlorine feed rate]
- 140-pound tablet storage capacity
- Indoor pools up to 2MM gallons
- Outdoor stabilized pools up to 700,000 gallons
- Outdoor un-stabilized pools up to 400,000 gallons
- Dimensions: 23" x 43" x 51" (h)
- 2" inlet and outlet pipe
- 1.5 HP pump

POWERBASE MODEL 3500

For really big water features:

- 874 lb/day (36.4 lb/hr) chlorine feed rate
- 500-pound tablet storage capacity
- Indoor pools up to 4.8MM gallons
- Outdoor stabilized pools up to 1.4MM gallons
- Outdoor un-stabilized pools up to 800,000 gallons
- Dimensions: 31" x 63" x 53" (h)
- 2" inlet and outlet pipe
- 1.5 HP pump





ACCU-TAB MODELS—OVERVIEW

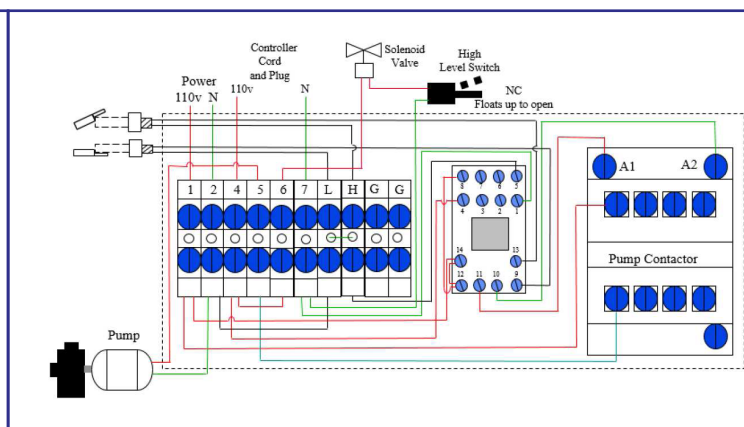
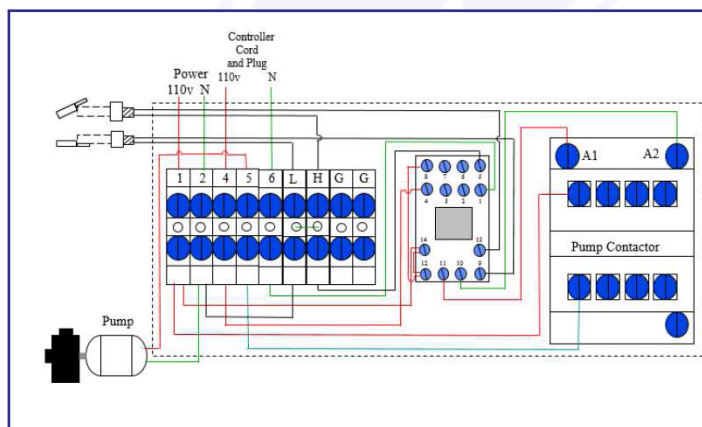
Below is a list of the available Chlorinator / PowerBase model options. These units are discussed in more detail on the following pages.

Model	Max Size (gallons)		Max Delivery	Tablet Capacity	Inlet / Outlet
PowerBase Models					
AT100	Indoor	80,000	0.8 lbs/hr	30-lbs	½" x ½"
	Outdoor CYA	60,000			
	Outdoor no CYA	30,000			
PowerBase 1030	Indoor	360,000	2.8 lbs/hr	30-lbs	1" x 1"
	Outdoor CYA	140,000			
	Outdoor no CYA	60,000			
PowerBase 3075/3070AT	Indoor	1,120,000	10.2 lbs/hr	75-lbs	1 ½" x 1 ½"
	Outdoor CYA	400,000			
	Outdoor no CYA	220,000			
PowerBase 3150/3140AT	Indoor	2,000,000	22 lbs/hr	150-lbs	2" x 2"
	Outdoor CYA	700,000			
	Outdoor no CYA	400,000			
PowerBase 3500	Indoor	4,800,000	36.4 lbs/hr	500-lbs	2" x 2"
	Outdoor CYA	1,400,000			
	Outdoor no CYA	800,000			

WIRING DIAGRAMS

POWERBASE MODELS 1030 / 3070AT

POWERBASE MODELS 3140AT / 3500





INSTALLATION INSTRUCTIONS (POWERBASE SYSTEMS EXCLUDING

1. Uncrate, remove from pallet, check for damage that may have occurred during shipping.

2. Position PowerBase system in adequately ventilated area and on level ground. If the proposed spotting area is in area subject to standing water, then system should be raised above standing water. Adjust Leveling Bolts as necessary.

3. All systems are tested in full operation at the factory; however fittings may loosen during shipping; hand-tighten all fittings and pipe unions as necessary.

4. Use the proper piping on the chlorinator inlet and outlet piping to ensure ample supply of water.

5. Install isolation valves at main system connections. Quarter-turn ball valves are suggested. (not included)

6. The provided Discharge Check Valve & Discharge Control Valve MUST be installed on the discharge line from the chlorinator.

7. Connect cords to proper power source and controller source. Plugs are labeled "Controller" and "120 Volt"

8. Once the power and water input and output connections are in place, open isolation valves and check for leaks. Supply water will begin filling the tank through the float valve. This will automatically prime the pump. (Any air initially in the pump will vent into the solution tank through the blue prime line.)

9. Turn system on using the chemical controller

10. Open the pump discharge valve slightly to start water flow through system.

11. Open inlet valve and set to desired flow rate.

12. Slowly, and in small increments, continue to open the discharge valve, and adjust inlet valve as necessary to get desired inlet flow.

13. Make incremental changes to the discharge valve until the tank water level drops and stabilizes at approximately $\frac{3}{4}$ tank level. The level is shown on the sight tube in most models

2D DRAWING

INLET

OUTLET

2D DRAWING

2D DRAWING



INSTALLATION INSTRUCTIONS (POWERBASE SYSTEMS EXCLUDING

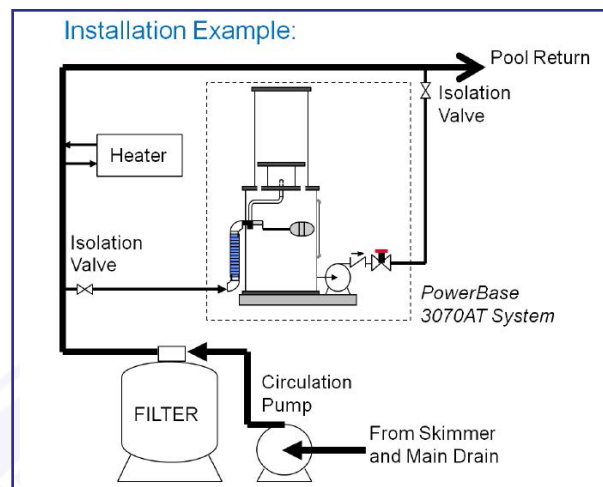
14. Turn the system OFF and ON several times, allowing it to operate for several minutes each time. Check all connections for leaks; make sure the delivery pump suction always remains covered with water.

15. To begin chlorinating, remove the chlorinator lid and fill the Chlorinator with ACCU-TAB® Blue SI Tablets.

16. Check the system daily for leaks and proper operation of all components.

17. Adjust the flow rate through the chlorinator by adjusting the chlorinator adjustment valve.
(Depending on the model this valve may be located on the inlet or discharge of the PowerBase system)

18. Using the delivery rate charts shown in the Appendix of this document set the GPM flowrate on the PowerBase system flow meter to meet the lbs /hr chlorine delivery rate required. See Sizing section for more detail.



START UP INSTRUCTIONS (POWERBASE SYSTEMS)

1. Close the discharge control gate valve.
2. Open the feed and discharge isolation valves. Water will begin to fill the solution tank.
3. When water stops flowing, switch the system "ON" using the chemical controller. The pump will circulate water through the blue tubing.
4. Begin opening the discharge gate valve to start flow in and out of the system.
5. Determine the maximum inlet flow rate by continuing to open the discharge gate valve in small increments. Remember to allow a few minutes each time to allow the flow meter to stabilize. If pump loses prime, maximum inlet flow has been exceeded. Shut down system for a few minutes (which will prime the pump), close back on the discharge gate valve and restart the system. Continue this process until the maximum inlet flow is determined.
6. Adjust flow through feeder using the discharge gate valve. The chlorine delivery is determined by the flow rate through the chlorinator. Use the graph above to determine proper flow rate.
NOTE: After adjusting the discharge valve, the flow meter will take a few moments to stabilize.
7. Check all piping for leaks.



OPERATION INSTRUCTIONS (POWERBASE SYSTEMS)

1. Remove lid from chlorinator and fill with the appropriate amount of Accu-Tab Blue SI tablets. Add no more than the amount of tablets that will be used within one week.
2. Check pool water for desired chlorine level and adjust flow through chlorinator as needed.
3. Tablets may be added while the system is running. Take care to protect eyes, skin, clothing and other equipment from splashing. Do not inhale fumes.
4. Replace lid.

SYSTEM CLEANING

Over time the chlorination system may develop a build-up of scale. This should be cleaned on a periodic basis, up to twice per year. If scale formation is severe, more frequent cleanings may be necessary. Cleaning may be accomplished by soaking the chlorinator with a dilute acid solution according to the instructions below. Ensure that the Check Valve and Float Valve are cleaned every 4-6 months in order to maximize system performance over time.

NOTE: Addition of muriatic acid may lower the pH of the pool water

PREPARATION FOR CLEANING

1. Prepare 2 gallons of weak acid solution by adding 1 quart of muriatic acid to 2 gallons of water. ALWAYS ADD ACID TO WATER, NOT WATER TO ACID!
2. Always use appropriate safety equipment while servicing the unit or handling chemicals.
3. Clean the feeder in a well-ventilated area. Chlorine gas may be released during the cleaning process!

CLEANING PROCEDURE

1. Turn system off.
2. Open lid, remove all tablets. Use proper protective equipment when handling chemicals.
3. Switch system on to begin flushing the system.
4. Wash out the feeder with a hose to remove remnants of tablets and loosen scale.
5. Operate system until normal solution tank level is achieved. Switch system off.
6. Close inlet and outlet isolation valves.
7. Very carefully, pour the acid into the upper chlorinator to dissolve scale. It may be necessary to pour directly on the inside walls to remove any scale above the water level. Always add acid to water, never add water to acid.
8. Let soak for 30 minutes. As acid dissolves scale, carbon dioxide will be released, and foaming will occur. If any tablets were left in the feeder, chlorine gas may also be released.
9. Turn system on to start acid circulation through the blue tubing. Circulate for 10 minutes.
10. Open all valves to begin purging acid from system.
11. Wash the walls and sieve plate of the feeder with a hose to remove all acid residue. Chlorine gas may be released if any acid remains in the system.
12. Allow feeder to flush water for 30 minutes. Turn system off. System is ready for operation.



SYSTEM CLEANING

WINTERIZING

1. Clean chlorination system following instructions above.
2. Close inlet isolation valve and operate pump until no more water can be pumped out.
3. Shut system down and close the outlet isolation valve.
4. Siphon any remaining water from the solution tank.
5. Remove any debris from the chlorinator or solution tank.
6. Open the bottom drain on the pump, drain water from feed and discharge lines.
7. Make sure no water remains in the pump, chlorinator, pipe line, or solution tank to prevent

TROUBLESHOOTING GUIDE

SOLUTION TANK FILLS AND CONTINUOUSLY OVERFLOWS WHEN SYSTEM SHUTS DOWN.

1. Solenoid Valve has failed in the open position (PowerBase Models 3140 and 3500 only)

- a. Close inlet isolation valve to verify that the Solenoid Valve is still open (i.e. leaking).
- b. Carefully disassemble the Solenoid Valve to check for debris.
- c. Pay special attention to the very small equalization orifices. If they get plugged, the solenoid can stay open even after the magnet has disengaged.
- d. Reassemble the Solenoid Valve, and open isolation valve.
- e. If overflowing continues, replace solenoid valve or rebuild using rebuild kit option.

2. Discharge Check Valve has failed in the open position

- a. Close Discharge isolation valve to verify that it is the Discharge Check Valve leaking.
- b. Disassemble the Discharge Check Valve to inspect for debris or scale.
- c. If scale is present, clean with a dilute acid solution.
- d. Reassemble the Discharge Check Valve making sure it is in the proper orientation and open the isolation valve.
- e. If overflowing continues, replace Discharge Check Valve.

3. Float Valve has failed in the open position

- a. Remove Chlorinator Lid from the Solution Tank and verify that the Float Valve moves freely (up and down).
- b. If the Float Valve does not move freely, take it apart and clean all rubber parts or replace plunger.
- c. Replace Float Valve if rubber parts are damaged.

SOLUTION TANK OVERFLOWS WHEN SYSTEM IS RUNNING

1. The system is not balanced. Refer to "Operating and Maintenance Instructions" section for Solution Tank leveling instruction

2. High Level Switch may have failed

- a. Make sure the High Level Switch can toggle freely: you should hear the Solenoid Valve "snap" as you toggle the switch. Or using a multimeter check the switch for continuity open and close circuit.
- b. Make sure the High Level Switch is positioned "up and down". If it is positioned incorrectly, a high water level will not toggle the switch
- c. Clean or replace High Level Switch.



TROUBLESHOOTING GUIDE

SOLUTION TANK CONTINUALLY RUNS LOW LEVEL/EMPTY, CAUSING SOLUTION DELIVERY PUMP TO LOSE PRIME.

1. Float Valve not operating properly

- a. Remove Chlorinator Lid from the Solu+on Tank and verify that the Float Valve moves freely.
- b. If the Float Valve does not move freely, take it apart and clean all rubber parts or replace plunger.
- c. Replace Float Valve if rubber parts are damaged.

2. Solenoid Valve failure (PowerBase Models 3140 and 3500 only)

- a. Check flow rate on Flow Meter.
- b. If no flow, then check for power to Solenoid Valve.
- c. If no power, check electrical system. Refer to Electrical Schematic.
- d. If power checks out, close inlet isolation valve, disassemble the Solenoid Valve and check for debris and plugged orifices.
- e. If no debris, then Solenoid Valve may be faulty.
- f. Replace or rebuild Solenoid Valve.

3. Improper Solution Tank leveling

- a. The Discharge Control Valve may be open too much, allowing too much flow through the pump
- b. Refer to "Operating and Maintenance Instructions" section of this manual for Solution Tank leveling instruction.

SOLENOID CYCLES ON AND OFF WHILE SYSTEM IS RUNNING. (POWERBASE MODELS 3140 AND 3500 ONLY)

1. System is not balanced.

- a. Slightly open up the Discharge Gate Valve to increase the flow rate through the Solution Delivery Pump or reduce flow to the chlorinator.

POWERBASE NOT CHLORINATING PROPERLY

1. Solu'on delivery pump does not pump when analyzer calls for chlorine.

- a. Check analyzer output signal voltage 120 Volts. To confirm that the problem is not the analyzer, unplug the "Controller" plug from the analyzer and plug it directly into the wall. If the pump starts, then the analyzer may be responsible for the malfunction.
- b. Check pump contactor voltage 120 volts. Confirm that the contactor "pulls in" when the analyzer signal is engaged. If the contactor "pulls in" and the pump does not start, confirm a 120 volt potential from the bottom left contactor to #2. The pump may be burned out.

2. Solenoid valve does not open to allow flow through the chlorinator (PowerBase Models 3075, 3140/3150 and 3500 only)

- a. Check analyzer output signal voltage—120 Volts. To confirm that the problem is not the analyzer, unplug the "Controller" plug from the analyzer and plug it directly into the wall. If the solenoid opens, then the analyzer may be responsible for the malfunction.
- b. Confirm that the coil is "actuating." The coil may be burned out evident by a tar-like substance oozing out of the coil body. If it warms up and the does not work, then the problem is inside the solenoid valve.
- c. Take solenoid valve apart. Be careful not to lose the small gaskets that seal the main body to the cover. Check for debris or build-up inside the solenoid valve.

3. Pump is running but not pumping solu'on

- a. Confirm that the solution tank is full. The pump may have lost prime. Stop and restart the unit to allow water to flow back into the pump.
- b. Discharge pressure may be too high. If the pressure is above 20 psig, the standard pump will not work.



WARRANTY & GUARANTEE

VOIDABILITY OF WARRANTY

This Warranty shall be void and unenforceable as to any Seller product which has been damaged by accident, mishandling, abuse or has been repaired, modified, altered, disassembled or otherwise tampered with by anyone other than Seller or an authorized Seller service representative; or, if any replacement parts are not authorized by Seller have been used, or, the product has not been installed, operated and maintained in strict accordance and adherence with the operating documentation and manuals for such product. Any expressed warranty, or similar representation of performance set forth in the operation documentation or a reverse osmosis, nanofiltration, or ultrafiltration membrane incorporated into a Seller product shall be void and unenforceable unless the feed water requirements set forth in the operating documentation for such product are unequivocally and strictly adhered to.

LIMITATIONS AND EXCLUSIONS

THIS WARRANTY AND REMEDIES DESCRIBED HEREIN AND HEREIN ABOVE ARE EXCLUSIVE AND IN LIEU OF ANY AND ALL OTHER WARRANTY OR REMEDIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR OTHER SIMILAR TYPES OF DAMAGES, FOR DAMAGES FOR THE LOSS OF PRODUCTION OR PROFITS, OR INJURY TO PERSON OR PROPERTY. NO PERSON HAS ANY AUTHORITY TO BIND SELLER TO OTHER THAN WHAT IS SET FORTH ABOVE.

THIS WARRANTY GIVES THE BUYER SPECIFIC LEGAL RIGHTS AND THE BUYER MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. THE PARTIES RECOGNIZE AND AGREE, THAT IN ALL RESPECTS THE LAWS OF THE STATE OF GEORGIA SHALL APPLY TO AND SHALL GOVERN ANY INTERPRETATION OR LEGAL SIGNIFICANCE OF THIS DOCUMENT.

NO WARRANTY OR OTHER LIABILITY OF SELLER TO BUYER UNDER THIS AGREEMENT OR OTHERWISE WILL IN ANY EVENT EXCEED THE COST OF REPLACEMENT OF THE APPLICABLE SELLER PRODUCT, PART, OR ACCESSORY THAT IS SUBJECT TO ANY BREACH OF SELLER'S WARRANTY. SELLER WILL NOT BE LIABLE FOR ANY DAMAGE TO ANY PROPERTY OF BUYER OR TO BUYER'S CUSTOMERS FOR ANY CONSEQUENTIAL, INCIDENTAL, OR ECONOMIC LOSS OR COMMERCIAL DAMAGE WHATSOEVER. REMEDIES HEREIN PROVIDED ARE EXPRESSLY MADE THE SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF ANY WARRANTY OR OTHER OBLIGATION HEREUNDER EXPRESS OR IMPLIED OR FROM THE OPERATION OF LAW.