



SALINE CHLORINATOR

Installation, Operation, and Maintenance Manual



TABLE OF CONTENTS

1.0 DESCRIPTION.....	3
1.1 General Information.....	3
1.2 Principals of Operation.....	3
1.3 General Specifications and Sizing Guidelines.....	3
2.0 INSTALLATION.....	7
2.1 Unpacking.....	7
2.2 Storage.....	7
2.3 Safety Considerations.....	8
2.4 Plan Ahead.....	9
2.5 Tools Checklist.....	9
2.6 Additional Parts Required for Installation.....	9
2.7 Power Supply Installation.....	9
2.8 Disconnect Box Installation.....	10
2.9 Electrolytic Cell Installation.....	11
2.10 Install Kit Installation.....	12
2.11 Plumbing the System.....	14
2.12 Bypass Plumbing.....	15
2.13 Pressure Drop Plumbing.....	16
2.14 Plumbing Rectifier Cooling Lines.....	19
2.15 System Wiring.....	20
2.16 Electrolytic Cell Wiring.....	21
2.17 Additional Wiring for Chlor-C or Classic Systems.....	22
2.18 Bonding the System.....	23
3.0 OPERATION.....	24
3.1 Preparing the Water.....	24
3.2 Starting the System.....	24
3.3 System Operation.....	25
4.0 MAINTENANCE.....	26
5.0 WARRANTY INFORMATION.....	30

SECTION 1 DESCRIPTION

1.1 GENERAL INFORMATION

The ChlorKing® Saline Chlorination system is an on-site sodium hypochlorite generator designed for commercial swimming pool applications. The ChlorKing® is capable of producing up to 25 pounds of equivalent chlorine per day. The system manufactures bleach continuously from a salt concentration of 5000ppm added to the pool. The ChlorKing® is designed for commercial service and can be operated 24 hours a day or controlled by any pool controller.

1.2 PRINCIPALS OF OPERATION

Electrolytic Cell Assembly

The electrolytic cell assembly consists of a clear PVC cell housing containing an electrolytic cell made from precious metal coated cell plates. Pool water from pool circulation system is directed through the cell in an off-line installation. The pool water, maintained at 5000ppm salt concentration is converted in the electrolytic cell to sodium hypochlorite. The sodium hypochlorite is then circulated to the pool and combines with organics and further combines to form salt to be used again by the electrolytic cell. This is called a closed loop system because the salt is used repeatedly and is only lost through splash-out, backwashing and rainfall.

Power Supply and Control Box

The power supply provides the current to the electrolytic cells to produce the rated amount of sodium hypochlorite. The power supply houses all the safety features to prevent system operation in the event of a malfunction.

1.3 GENERAL SPECIFICATIONS

SODIUM HYPOCHLORITE PRODUCTION:

Model Designation	Sodium Hypochlorite Production (lbs/day)	Rated Power in DC Amps	Rated Pressure	Minimum Water Flow Rate (gpm)	Inlet Diameter (Inches)	Outlet Diameter (Inches)
Chlor1.5	1.5lbs/day	30	30 psi	20 gpm	1 inch	¾ inch
Chlor2.5	2.5lbs/day	50	30 psi	20 gpm	1 inch	¾ inch
Chlor3.5	3.5lbs/day	70	30 psi	20 gpm	1 inch	¾ inch
Chlor5.0	5.0lbs/day	25	30 psi	20 gpm	1 inch	1 inch

Chlor7.5	7.5lbs/day	37.5	30 psi	20 gpm	1 inch	1 inch
Chlor10.0	10lbs/day	50	30 psi	20 gpm	1 inch	1 inch
Chlor15.0	15lbs/day	75	30 psi	20 gpm	1 inch	1 inch
Chlor20.0	20lbs/day	100	30 psi	20 gpm	1-1/2 inch	1-1/2 inch
Chlor25.0	25lbs/day	125	30 psi	20 gpm	1-1/2 inch	1-1/2 inch
Chlor1.5C	1.5lbs/day	30	30 psi	20 gpm	1 inch	1 inch
Chlor2.5C	2.5lbs/day	50	30 psi	20 gpm	1 inch	1 inch
Chlor3.5C	3.5lbs/day	70	30 psi	20 gpm	1 inch	1 inch
Chlor5.0C	5.0lbs/day	25	30 psi	20 gpm	1 inch	1 inch
Chlor7.5C	7.5lbs/day	50	30 psi	20 gpm	1 inch	1 inch
Chlor10.0C	10lbs/day	50	30 psi	20 gpm	1 inch	1 inch
Chlor15.0C	15lbs/day	100	30 psi	20 gpm	1 inch	1 inch
Chlor20.0C	20lbs/day	100	30 psi	20 gpm	1 inch	1 inch
Chlor25.0C	25lbs/day	100	30 psi	20 gpm	1 inch	1 inch
Chlor.75M	.75lbs/day	3.125	30 psi	20 gpm	1 inch	3/4 inch
Chlor1.25M	1.25lbs/day	6.25	30 psi	20 gpm	1 inch	3/4 inch
Chlor2.0M	2.0lbs/day	10	30 psi	20 gpm	1 inch	3/4 inch
Chlor2.5M	2.5lbs/day	12.5	30 psi	20 gpm	1 inch	3/4 inch
Chlor5.0M	5.0lbs/day	25	30 psi	20 gpm	1 inch	3/4 inch

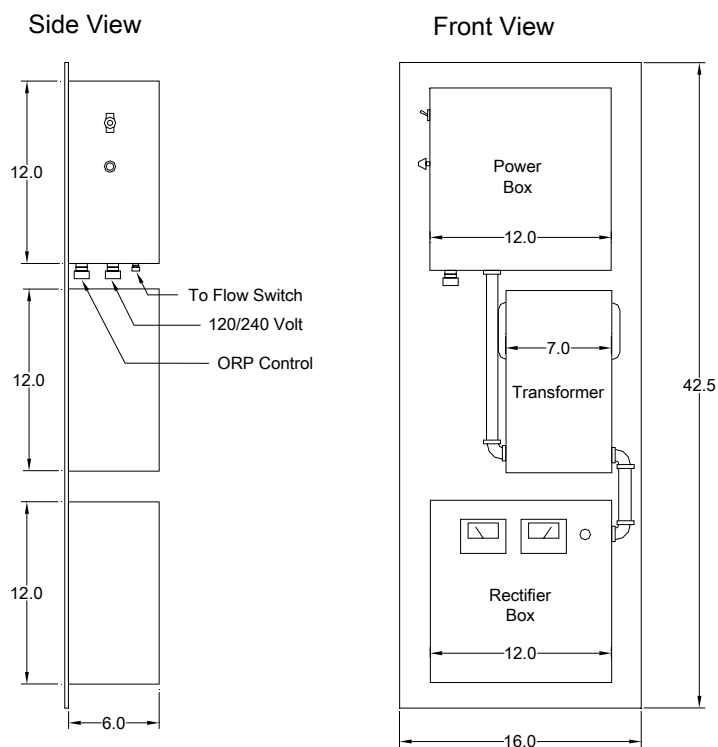
ELECTRICAL REQUIREMENTS:

Model Designation	Voltage (supply AC)	Phases	Frequency	Amps	Fuse Size	GFCI Breaker
Chlor1.5	120	1	60Hz	6.6	15	20
Chlor2.5	120	1	60Hz	9.9	15	20
Chlor3.5	120	1	60Hz	13.8	20	20
Chlor5.0	120	1	60Hz	9.9	15	20
Chlor7.5	220	1	60Hz	6.9	15	20
Chlor10.0	220	1	60Hz	9.9	15	20
Chlor15.0	220	1	60Hz	14.9	25	30
Chlor20.0	220	1	60Hz	17.9	30	30
Chlor25.0	220	1	60Hz	20.9	30	30

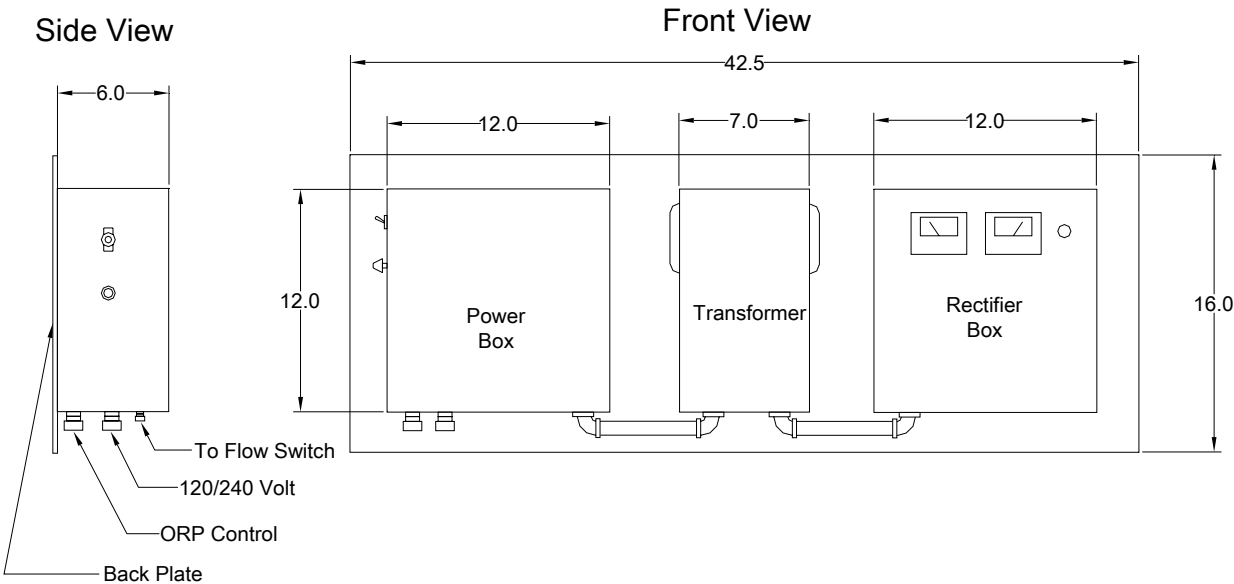
Chlor1.5C	120	1	60Hz	6.9	15	20
Chlor2.5C	120	1	60Hz	9.9	15	20
Chlor3.5C	120	1	60Hz	13.8	20	20
Chlor5.0C	220	1	60Hz	5.9	15	20
Chlor7.5C	220	1	60Hz	6.9	15	20
Chlor10.0C	220	1	60Hz	9.9	15	20
Chlor15.0C	220	1	60Hz	14.9	25	30
Chlor20.0C	220	1	60Hz	17.9	30	30
Chlor25.0C	220	1	60Hz	20.9	30	30
Chlor.75M	115	1	60Hz	1.74	10	20
Chlor1.25M	115	1	60Hz	1.74	10	20
Chlor2.0M	115	1	60Hz	3.47	10	20
Chlor2.5M	115	1	60Hz	3.47	10	20
Chlor5.0M	120	1	60Hz	6.5	10	20

SPACE REQUIREMENTS:

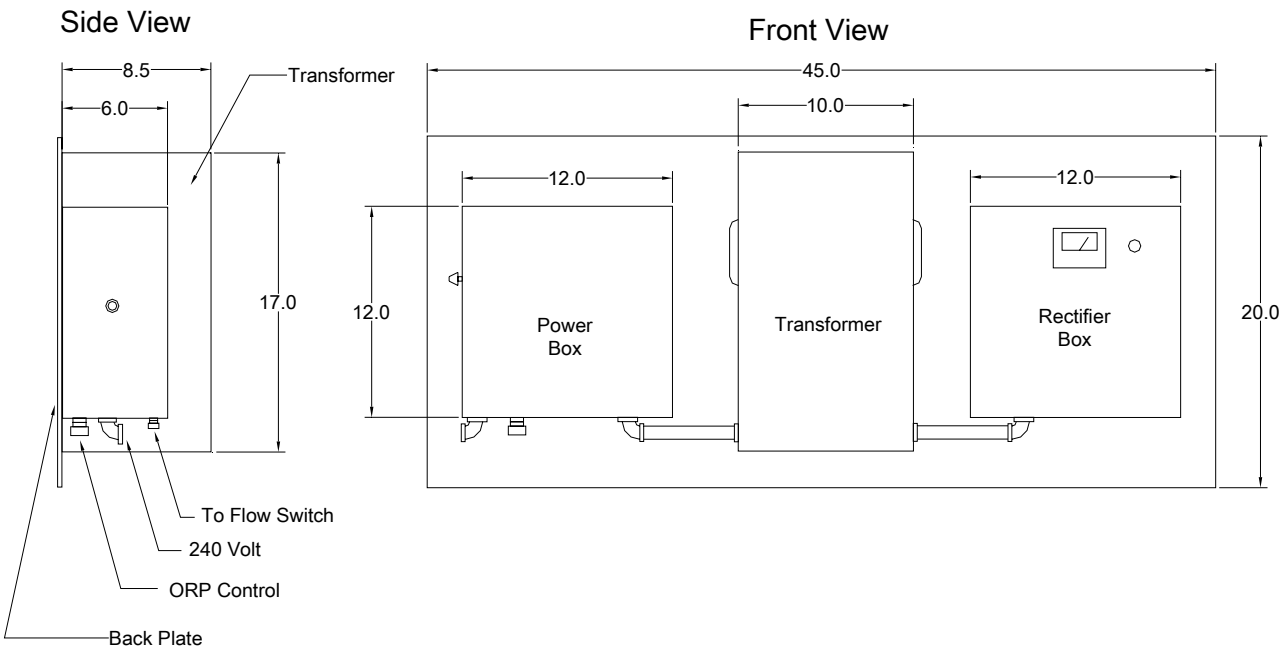
Power Supply - Vertical 2.5, 3.5, 5, 7.5, 10 Pound Systems



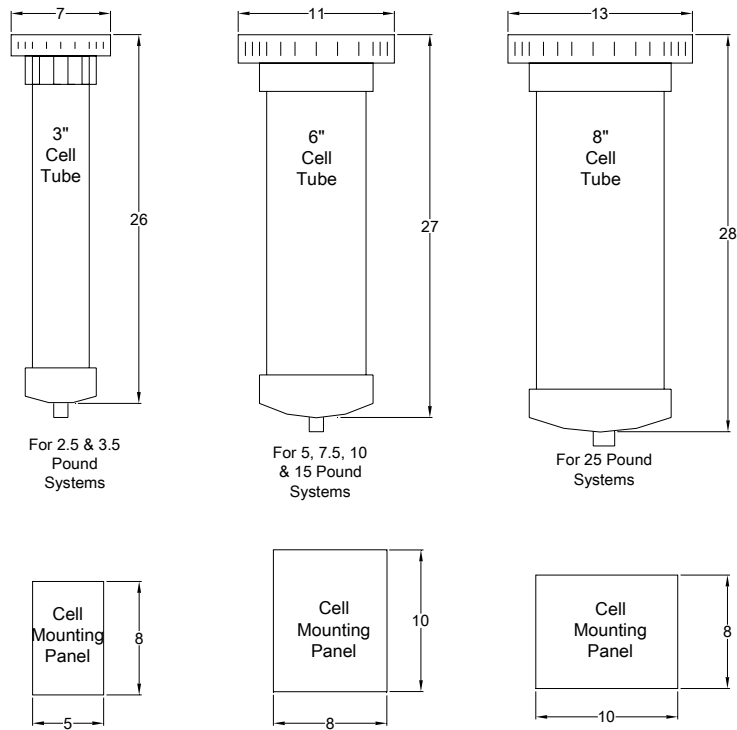
Power Supply Horizontal - Dimensions 2.5, 3.5, 5, 7.5, 10 Pound Systems



Power Supply - Dimensions 15 Pound & 25 Pound Systems



Cell Tube Dimensions



SIZING GUIDELINES

Chlorinator sizing must comply with local codes. Please contact your local health department for specific requirements or contact your local ChlorKing® representative for assistance.

SECTION 2 INSTALLATION

2.1 UNPACKING

Units are shipped from the factory. In the event of damages during shipping, it is the responsibility of the customer to notify the carrier immediately and to file a damage claim. Open the crate carefully and examine all material inside. Check against the parts list to be sure that all items are accounted for and intact.

2.2 STORAGE

When storing units, use the original packaging and store under a shelter to protect the contents from weather.

2.3 SAFETY CONSIDERATIONS

IMPORTANT SAFETY INSTRUCTIONS READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

WHEN INSTALLING, OPERATING, AND MAINTAINING THIS EQUIPMENT, KEEP SAFETY CONSIDERATIONS FOREMOST. USE PROPER TOOLS, PROTECTIVE CLOTHING, AND EYE PROTECTION WHEN WORKING ON OR INSTALLING THE EQUIPMENT. FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND TAKE ANY ADDITIONAL SAFETY MEASURES APPROPRIATE. BE EXTREMELY CAREFUL IN THE PRESENCE OF HAZARDOUS SUBSTANCES.

THE PERSONNEL RESPONSIBLE FOR INSTALLATION, OPERATION, AND MAINTENANCE OF THIS EQUIPMENT MUST BE FULLY FAMILIAR WITH THE CONTENTS OF THIS MANUAL.

ANY SERVICING OF THIS EQUIPMENT MUST BE DONE WITH THE UNIT FULLY OFF AND DISCONNECTED FROM THE POWER SOURCE AND ALL PRESSURE BLED FROM THE LIQUID LINES.

WARNING

- CONNECT THE EQUIPMENT ASSEMBLY TO A CIRCUIT PROTECTED BY A GROUND-FAULT CIRCUIT-INTERRUPTER.
- ONLY A CERTIFIED TECHNICIAN MAY INSTALL AND SERVICE THE **CHLORKING®** X-GEN SYSTEM.
- MODIFYING THE **CHLORKING®** X-GEN SYSTEM IN ANY WAY MAY CAUSE BODILY INJURY AND WILL VOID THE WARRANTY.
- DO NOT ALLOW CHILDREN TO OPERATE THE **CHLORKING®** X-GEN SYSTEM.
- ONLY REPLACE COMPONENTS WITH THOSE SPECIFIED BY THE MANUFACTURER.
- WHEN INSTALLING THE SYSTEM, ENSURE THAT POWER IS LINKED TO THE MAIN PUMP POWER SOURCE FOR THE POOL TO ENSURE THAT THE **CHLORKING®** X-GEN SYSTEM NEVER OPERATES WHEN THE PUMPS ARE OFF.
- ALL BOXES ON THE **CHLORKING®** X-GEN SYSTEM CONTAIN HIGH VOLTAGE COMPONENTS. NEVER OPEN ANY BOX WHILE THE POWER IS ON.
- THE SYSTEM HAS THE POTENTIAL TO RELEASE HIGH DOSES OF CHORINE. USE CAUTION WHEN HANDLING, SERVICING, OR OPERATING THE EQUIPMENT.
- CORD CONNECTED AT TIME OF MANUFACTURE
 - DANGER – Risk of injury
 - Replace damaged cord immediately
 - Do not bury cord

2.4 PLAN AHEAD

Almost every pump room encountered is different. It is imperative to have prior knowledge of the facility in which the unit is to be installed and to evaluate what type of tools, wall anchors, etc. will be needed to make the installation as problem free as possible. **See Tools Checklist and Additional Parts Required for Installation.**

2.5 TOOLS CHECKLIST

Power Tools: Drill, Hammer Drill

Drill Bits: 1-1/8 Hole Saw, Steel Drill Bit Assortment, Concrete Drills

Taps: 1 Inch NPT

Hand Tools: Set of Sockets to 1-1/16, Hammer, Screw Drivers, Wire Strippers, PVC Cutters, Level, Slip Joint Pliers, Crescent Wrench, 3/4 Inch Wrench, 9/16 Wrench, Tape Measure, Allen Wrenches, Wire Cutters, Teflon Tape, Electrical Tape, True RMS Clamp Meter, Air Tank

2.6 ADDITIONAL PARTS REQUIRED FOR INSTALLATION

Polypropylene tubing, both 1/2 and 3/8 inch

PVC tubing in 1 inch or PVC pipe in 1 inch

PVC 90's, 45's and couplings as needed

Anchors and mounting hardware

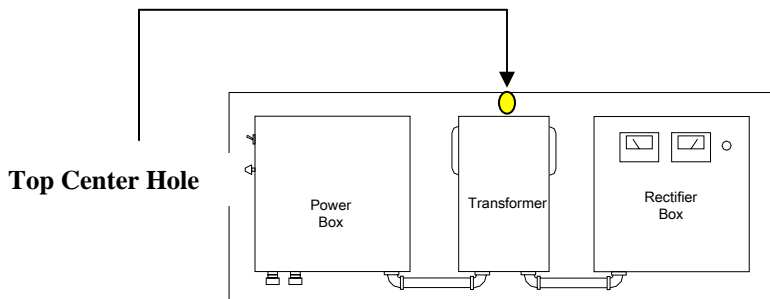
2.7 POWER SUPPLY INSTALLATION

WARNING

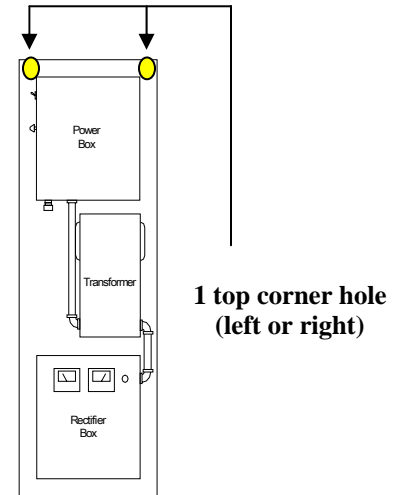
NEVER TRY TO SUPPORT THE WEIGHT OF THE POWER SUPPLY AND TRANSFORMER USING ONLY DRYWALL ANCHORS. THE POWER SUPPLY AND TRANSFORMER MUST HAVE A STUD FOR SUPPORT!

Locate a space on the wall, in the pump room, that will accommodate the dimensions of the power supply and transformer. The transformer must mount within 5 feet of the power supply to ensure that the cables can easily reach the power supply. The cell housing must be mounted within 5 feet of the power supply to ensure that the cables will reach the cell. On a drywall installation, locate studs to hold the weight of the power supply and transformer. Use concrete anchors for installations into concrete walls. Install in an easy to access location about chest high.

Using a level, mark where the board will be located. For horizontal units, mark for the top center hole and for vertical units mark for a top corner hole.



Horizontal Configuration



Vertical Configuration

On a concrete wall installation, mark the wall (using a dot) where the first concrete anchor hole will be drilled. For horizontal units, mark for the top center hole. For vertical units mark for a top corner hole. This will make the remaining anchor installation easier.

Mark the backboard for drilling. A backboard for the 1.5 to 10 lb. units will need six anchors. Backboards for the 15-25 lb. units will need eight anchors.

Horizontal Units: Using a level, mark the wall with a line. Find the center and drop down 1 inch. Mark, drill and set the first anchor. Hang the unit by this first anchor. Since concrete is difficult to drill, it will make it easier to keep the backboard level. Drill and set the rest of the wall anchors.

Vertical Units: Using a level mark a vertical line the length of the board on the wall. Measure inward for the line 1 inch and drill the first hole where the top left or right corner will be. Hang the unit from this point. Level, drill and set the remaining anchors.

Units Without Backboards: Install the enclosure and transformer if equipped directly to the mounting surface.

Note: On a drywall installation, not every anchor will be into a stud. Mark the wall through the holes drilled into the aluminum board to install drywall anchors where no stud is available. Hang the board on the available studs using heavy-duty wood screws. Use the strongest drywall anchors available for the remaining non-stud holes.

2.8 DISCONNECT BOX INSTALLATION (220 VOLT SYSTEMS ONLY)

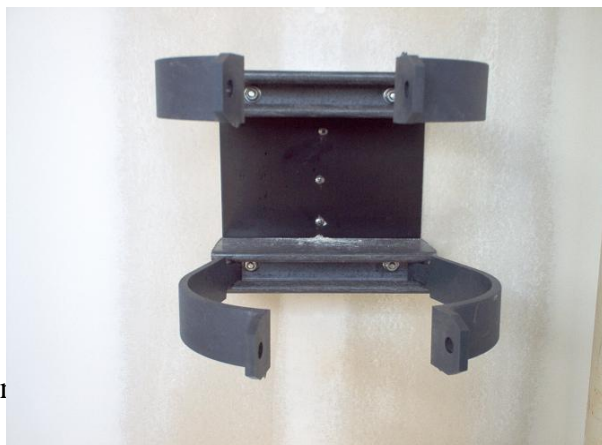
Locate a wall space close to the power supply board to hang the disconnect box (if required). Install the disconnect box using the appropriate anchors outlet, which will be tied to the circulation pump.



2.9 ELECTROLYTIC CELL INSTALLATION

Installing the wall mount backboard:

Install the wall mount with 3/16" screws. The wall mount **MUST** be installed onto a stud. Ensure that the wall mount is level. Mount the electrolytic cell and tube to the mounting backboard. Ensure that the cell and tube are mounted within 5 feet of the power supply and that nothing is installed above the cell tube. The cell may need to be removed for service.



Salin



Page 11 of 30

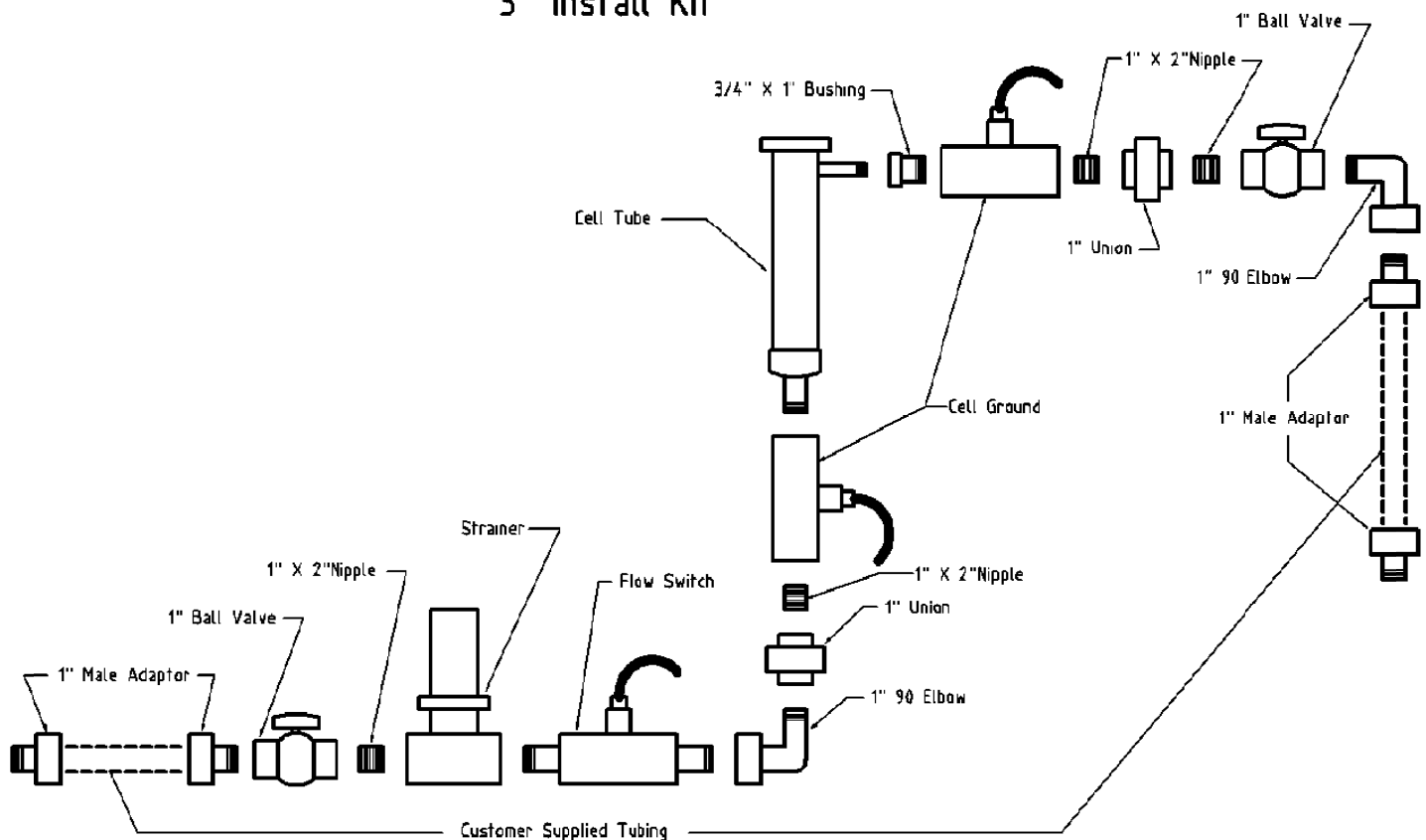
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2.10 INSTALL KIT INSTALLATION

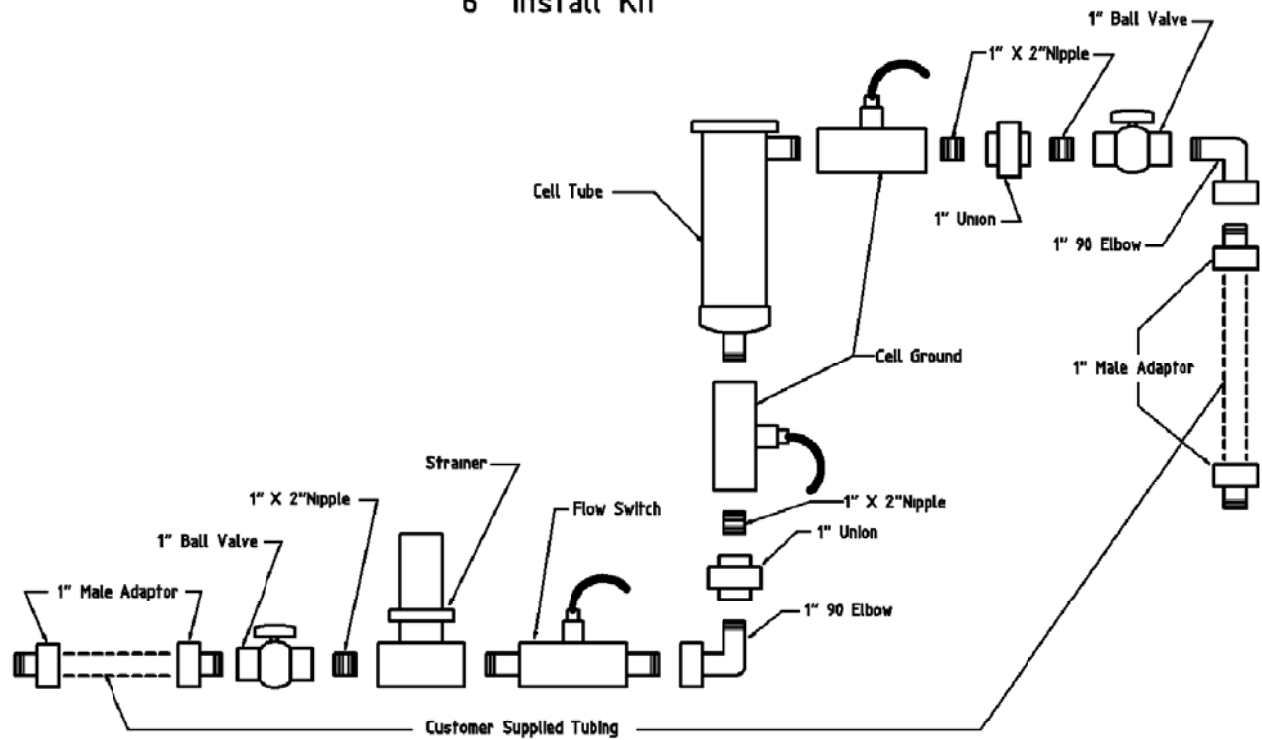
Install the parts found in the installation kit in the order shown in the following three diagrams based on the cell tube size of your system. **NOTE:** If installing a ChlorKing® 5000 or Acid wash system consult the ChlorKing® 5000 and Acid Wash installation manuals for additional instructions. **NOTE:** The flow switch must be installed with the arrow facing the bottom of the cell tube.

Assembly Diagram

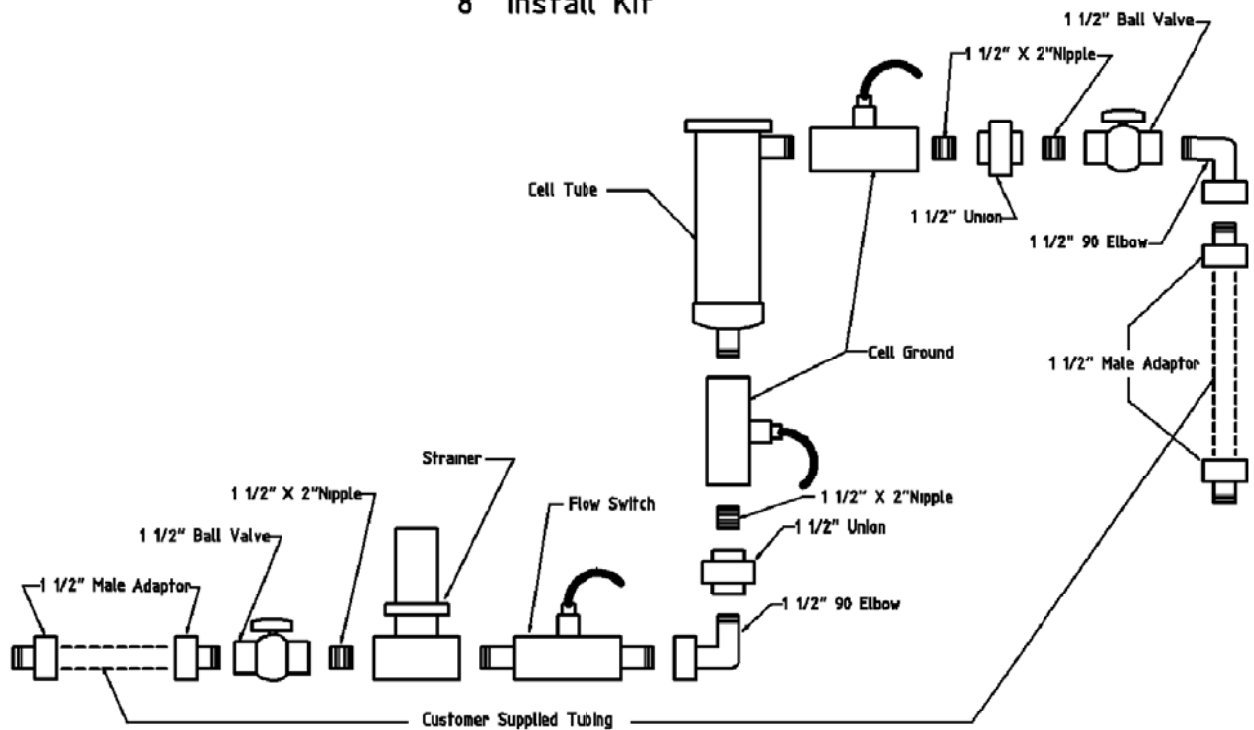
3" Install Kit



6" Install Kit



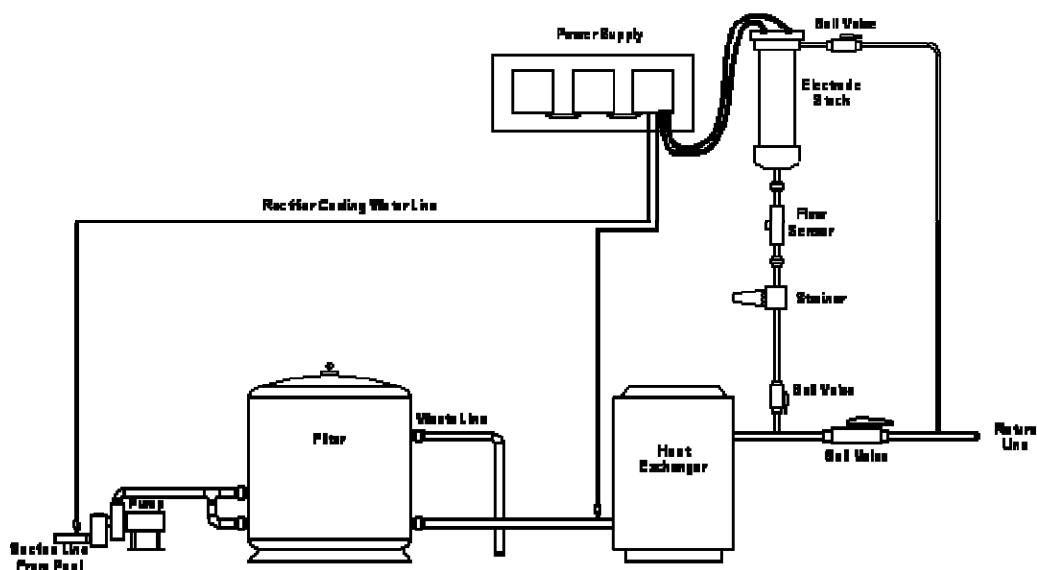
8" Install Kit



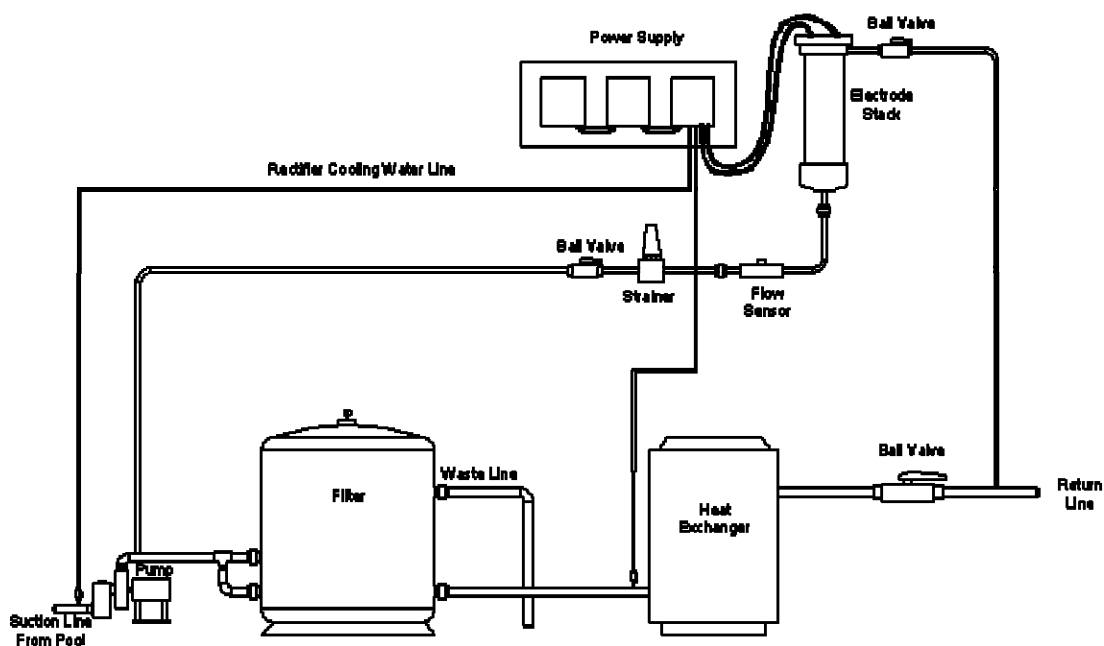
2.11 PLUMBING THE SYSTEM

Chlorking® systems require 20 of flow through the electrolytic cell to achieve the rated production of chlorine. Choose one of the following plumbing methods that will best accomplish 20 gpm of flow.

Bypass Manifold Plumbing



Pressure Drop Plumbing



2.12 BYPASS PLUMBING

Plumbing a by-pass flow stream through the ChlorKing® cell allows for maximum flow rates. In essence, this is the same application as plumbing a standard heater by-pass. In this case, the ChlorKing® cell takes the place of the heater. This is optimal when chlorine demand is higher at different times of the day or season (such as outdoor pools in hot climates). It is also a more demanding plumbing installation than using the pressure drop plumbing method because of the need to cut the pool return line to install a by-pass valve. Some pool filtration equipment has large piping (depending on the pool size and the builder who constructed it), which will dramatically change the cost and skill required for the install. Each installation will be custom made to that specific system's filtration system and can be slightly varied per each plumbing situation.

Materials Needed for By-Pass Plumbing Installation:

- 2-PVC Tee Fittings- (sized to the pool return line)
 - 1-PVC Valve- (sized to the pool return line)
 - 2-PVC Bushings- (sized to the pool return line and inlet and outlet of the ChlorKing® cell)
 - Miscellaneous couplings and elbows to plumb the return line back together
1. Find an appropriate location on the pool return line after the filter and after the heater by-pass return that will accommodate the fittings for by-pass.
 2. Cut the pipe and install a tee fitting. This is the feed line to the ChlorKing® cell (bottom of ChlorKing® cell). Use the PVC bushing to bush the side outlet of the tee fitting to the correct size of the fitting at the bottom of the ChlorKing® cell. (This will be either 1-1/2" or 1", depending on what size system is being installed.)
 3. Install a valve directly after the tee fitting to divert the water flow through the cell.
 4. Install the second tee fitting directly after the valve to accept the water coming from the discharge of the ChlorKing® cell (top of ChlorKing® cell) again using the correct sized bushing on the side inlet of the tee fitting to match the piping on the cell.
 5. After the second tee fitting is plumbed in, reconnect to the pool return and make the necessary attachments to the ChlorKing® cell.

After plumbing is completed, adjust the newly installed valve to divert the water flow through the cell at an accelerated rate. This allows more water to see a shock dosage of chlorine faster than using the pressure drop installation method. There will be a slight rise in pressure on the filter using this installation method, but usually no more than 3 to 5 psi. Accelerated flow has other advantages such as calcium deposits not forming as easily thus extending electrode plate life.

Again, we see this as the optimal method for plumbing the ChlorKing® cell and recommend this method. There are situations (namely the cost of valves and fittings for large piping) that make this method not quite as feasible as the pressure drop method of installation.

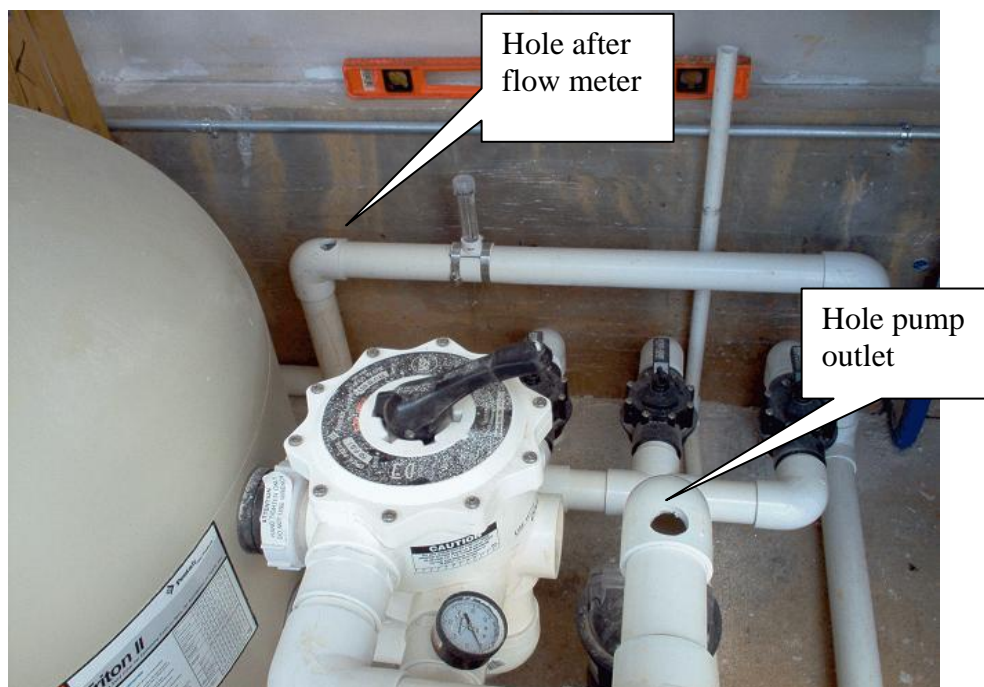
The dealer should assess this on a job-by-job basis. For further information, please call toll free @ 800-536-8180.

2.13 PRESSURE DROP PLUMBING

1. Drill a 1-1/8" hole for 1 inch plumbing or a 1-3/4 hole for 1-1/2 inch plumbing through a glued connection such as an elbow or coupling. This hole should be as close to the pump outlet as possible



2. Drill a 1-1/8 hole for 1 inch plumbing or a 1-3/4 hole for 1-1/2 inch plumbing on the return line after the flow meter as shown below:



3. Tap both supply and return with a 1" NPT tap for 1 inch plumbing or a 1-1/2 inch NPT tap for 1-1/2 inch plumbing as shown below:



4. Install male adapters in tapped holes as shown below:



5. Connect the pool circulation system to the electrolytic cell with Schedule 40, Schedule 80 or Flex pipe. The flow through the cell is from the bottom and out the top.

**Supply from the pump, goes into the bottom of the cell.
Return from the pool goes into the top of the cell.**

2.14 PLUMBING RECTIFIER COOLING LINES

6. Drill 9/16 inch holes, one on the pump suction side and one on the return line to the pool.



7. Tap holes with a 3/8" NPT tap as shown below:



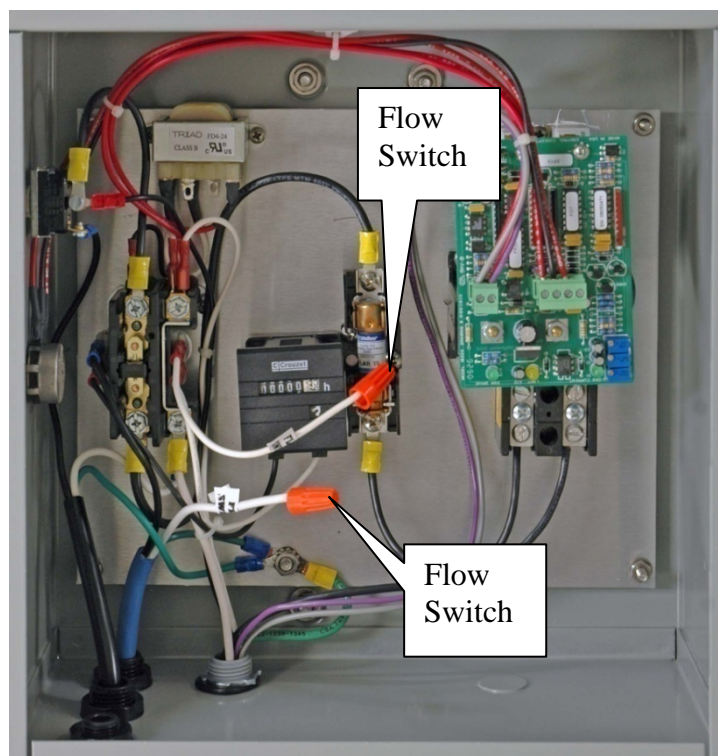
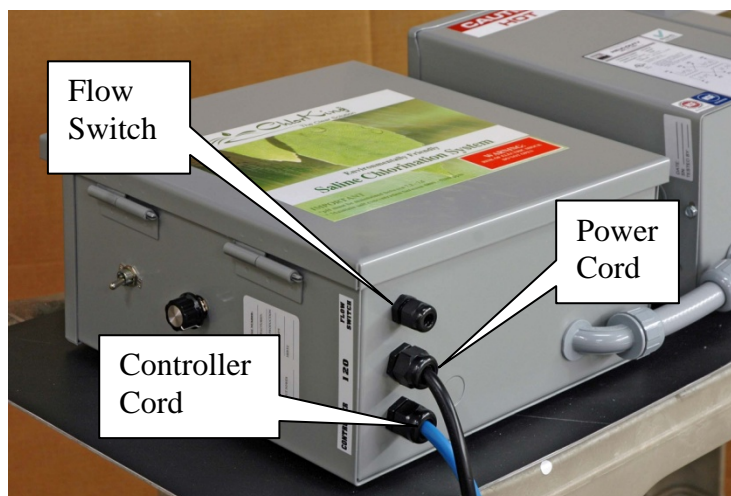
8. Install the supplied 3/8 inch valve and connect these to the power supply cooler fittings on the bottom of the power supply with 3/8 inch tubing. Install 3/8 inch tubing from the power supply cooler to pump suction.

NOTE: If a chemical feed controller is being used, the same 3/8 inch tubing can be used for both the sample cell and rectifier cooling. Plumb the tubing from the return line into the controller probe housing, then from the housing to the power supply cooler, and from the cooler to pump suction.

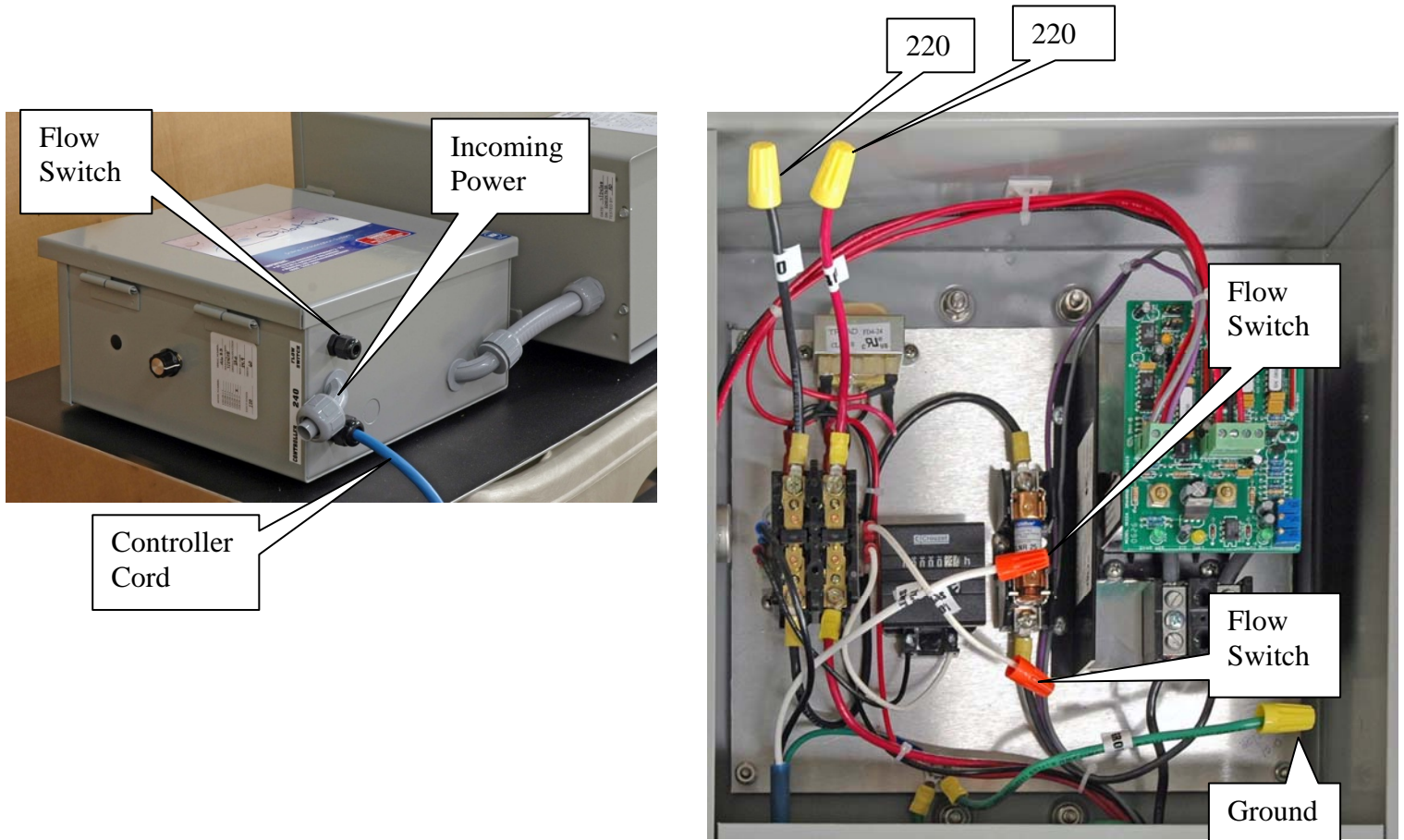
2.15 SYSTEM WIRING (CHLOR SYSTEMS)

All systems must be wired so that when the pool circulation pump is off the power to the ChlorKing® Chlorinator is off. Consult a Certified Electrician for the best wiring method to achieve this.

115/120-VOLT SYSTEMS: These units are cord connected at the factory with a standard plug for a 15-amp wall outlet. **Note:** The Chlor-3.5 is cord connected at the factory for a standard 20-amp wall outlet. All units are equipped with a blue control cord that plugs into a chemical feed controller for automated control or plugs into a standard wall outlet for manual operation. The wires from the flow switch connect to the white wires inside the power box. One flow switch wire connects to one white wire and the other flow switch wire connects to the other flow switch wire. Use the supplied orange wire nuts to make this connection.



220-VOLT SYSTEMS: These units are permanently wired to the electrical service in the pump room through the installed disconnect box. A Certified Electrician must do the permanent wiring. Connect the red and black wires to the appropriate wire nuts at the top of the contactor. (Labeled lines with wire nuts are provided.) Connect ground wire at wire nut provided. All units are equipped with a blue control cord that plugs into a chemical feed controller for automated control or plugs into a standard wall outlet for manual operation. The wires from the flow switch connect to the white wires inside the power box. One flow switch wire connects to one white wire and the other flow switch wire connects to the other flow switch wire. Use the supplied orange wire nuts to make this connection.

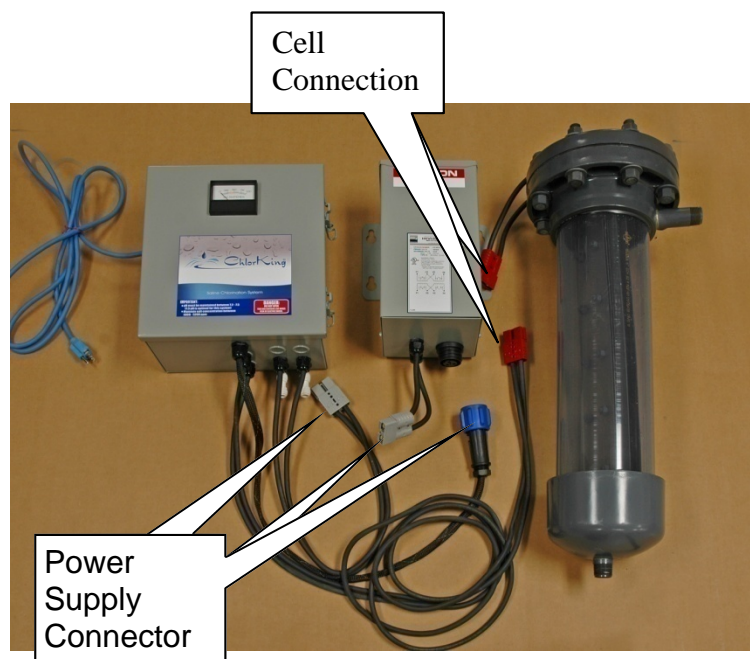
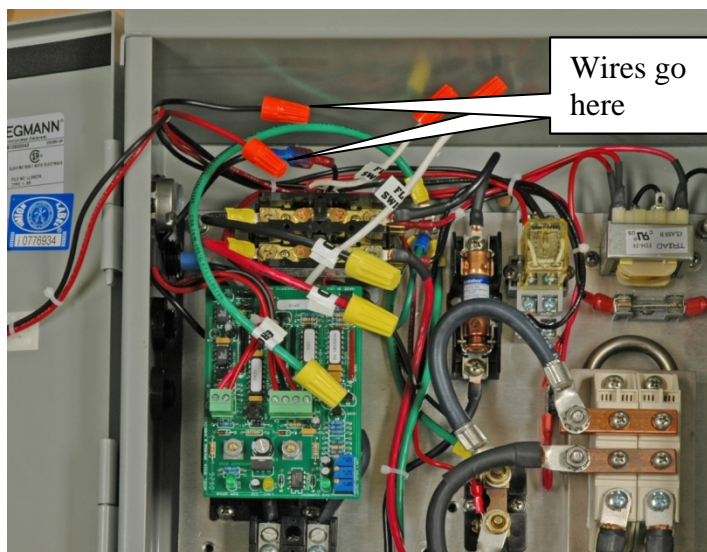


2.16 ELECTROLYTIC CELL WIRING

Connect the two large cables to the top of the cell with the nuts provided. Ensure that the connection is tight. Ensure that the lower nut does not turn when tightening the upper nut.

2.17 ADDITIONAL SYSTEM WIRING FOR CHLOR-C OR CLASSIC SYSTEMS

The Chlor-C or Classic ChlorKing® Chlorinators are shipped from the factory with a ChlorKing® 5000 Conductivity Controller. The ChlorKing® 5000 monitors the salt concentration in the pool and will turn the ChlorKing® power supply off if the salt concentration falls below 3000 PPM. Connect the two wires from the ChlorKing® 5000 to the red and black wires shown below. Connect the power supply to the transformer by connecting the gray connectors together and connecting the blue connector to the bottom of the transformer. Note: the blue connector has a locating tab and will only install one way. Connect the cell to the power supply with the red connectors.



2.18 BONDING THE SYSTEM

All ChlorKing® systems include cell-bonding assemblies. These assemblies are included in the install kit (See Section 2.10). The bonding assemblies must be connected with a minimum of 8 AWG bonding wire. Connect the bonding wire from the top cell grounding assembly to the bottom cell grounding assembly and then from the bottom cell grounding assembly to the bonding lug located on the outside of the power supply. The bonding lugs on the power supply are clearly marked with a decal that states “Bonding Lugs”. Connect the second bonding lug on the power supply to the bonding grid at the facility.



SECTION 3 OPERATION

3.1 PREPARING THE WATER

ChlorKing® saline chlorination systems operate by electrolyzing sodium chloride (salt) that has been added to the pool into sodium hypochlorite (liquid chlorine). In order for the ChlorKing® system to operate salt must be added directly to the pool at least 24 hours before the system is started.

40 pound of salt must be added for every 1,000 gallons of pool water. (i.e.: a 50,000 gallon pool will require 2000 pounds of salt or 50 x 40 pound bags). Once the salt has been added, brush the surface of the pool continuously until the salt has dissolved. Never leave large amounts of salt on the surface of the pool.

Only use pure NaCl. Do not use salt with additives. Contact your dealer of ChlorKing® for a list of approved salt.

Your pool water should be balanced in the following range before turning your ChlorKing® system on:

Chlorine:	2 – 5 ppm
Total Chlorine:	No more than 0.5 ppm above free chlorine
Ph:	7.2 – 7.6
Alkalinity:	80 – 120
Hardness:	180 – 280 ppm
Salt:	4500 – 5500 ppm
Cyanuric acid:	20 – 50 ppm (Outdoor Pools only)
Phosphates:	Less than 100 ppm

Use standard test kits to check water chemistry, and use either a conductivity tester or salt test strip to check saline levels.

(Note that most conductivity testers require frequent calibration to ensure accurate readings, failure to calibrate the equipment will result in inaccurate readings.)

3.2 STARTING THE SYSTEM

Confirm that the salt concentration is 5000 PPM.

Confirm that the valves to and from the cell are in the open position and water is flowing through the cell tube.

Make sure that water is flowing through the water-cooled heat sink.

Ensure that the cord labeled ORP is plugged either into a controller or directly into a wall outlet.

Be sure the disconnect box or on/off switch is in the on position.
Confirm that the out-put control knob is turned fully clockwise.

Depending on the model, the system will begin producing chlorine in 10 to 60 seconds.

If the ChlorKing® system is linked to a chemical feed controller, adjust the output to the system maximum, which will allow for full production every time the controller calls for it. If the system is being operated manually, adjust the system to find the point at which chlorine levels are maintained to the desired level. This may take several days of monitoring.

ChlorKing® systems connected to a chemical feed controller will only operate when the controller is in feed mode. Make sure that the chemical feed controller is not set in proportional mode or system damage may occur.

3.3 SYSTEM OPERATION

ChlorKing® systems operate when both the main power supply and blue controller cord have power applied to them. The ChlorKing® system will continue to operate for as long as power is applied from those two sources.

The system has an output range of 5-100% of the rated chlorine production for that model and can be adjusted by turning the black knob on the side of power supply box in a clockwise or anti-clockwise motion. Each model has separate maximum operating amperage, as listed below. When adjusting the control knob on the side of the power control box the amperage needle of the gauge will increase or decrease.

Higher amperage = higher chlorine production.

The table below lists all available **ChlorKing®** models with maximum operating amps and normal operating volts. (Both amps and volts are DC)

Mini-1.25	6.25amps @ 15v	Classic-1.5	30amps @ 5v
Mini-2.0	10amps @ 15v	Classic-2.5	50amps @ 5v
Mini-2.5	12.5amps @ 15v	Classic-3.5	70amps @ 5v
		Classic-5.0	25amps @ 20v
Chlor-1.5	30amps @ 4v	Classic-7.5	50amps @ 15v
Chlor-2.5	50amps @ 4v	Classic-10	50amps @ 20v
Chlor-3.5	70amps @ 4v	Classic-15	100amps @ 15v
Chlor-5.0	25amps @ 15v	Classic-20	100amps @ 20v
Chlor-7.5	37.5amps @ 15v	Classic-25	100amps @ 20v
Chlor-10	50amps @ 15v		
Chlor-15	75amps @ 15v		
Chlor-20	100amps @ 15v		
Chlor-25	125amps @ 15v		

SECTION 4 MAINTENANCE

ChlorKing® systems are designed to operate 24 hours a day and 7 days a week at maximum production rates and will give you years of trouble free use if you follow these basic maintenance and cleaning instructions.

This system produces sodium hypochlorite “liquid chlorine” from the salt that you have added to the water. It will only continue to operate correctly if salt is maintained at the correct 5000-ppm level. Low salt will lower the amount of chlorine produced, and cause damage to the electrolytic cell. **(Warranty’s will not be honored if it is determined that salt has been run low.)**

Remember, the titanium plates that make up the cell are the most expensive part of the ChlorKing® system and are going to need to be replaced roughly every 15,000 hours of operating time. By ensuring that salt is always at the correct level, and plates are cleaned regularly, you will increase their “life”, thus saving you money...

ChlorKing® offers a wide range of other products that can help you maintain salt levels in your pool, including conductivity controllers and saturated salt feeders for those pools that lose large amounts of water. Call for more info.

1. Check salt concentration. Salt must be maintained at 5000ppm. Check salt as often as necessary to ensure a 5000-ppm concentration. Salt concentration can be measured by using one or more of the following methods:

Salt test strips. Salt test strips are accurate as long as the expiration date has not expired and the cap is always replaced immediately. Follow the directions on the bottle.

A variety of hand held testers could be used. Hand held testers must be calibrated often. Follow the manufacturer’s instructions.

Salt can be measured with a permanently mounted monitor or controller. These are typically accurate and require no calibration. A controller can be used to automatically keep the salt concentration at 5000ppm.

Adjust the salt concentration as often as needed to maintain 5000ppm.

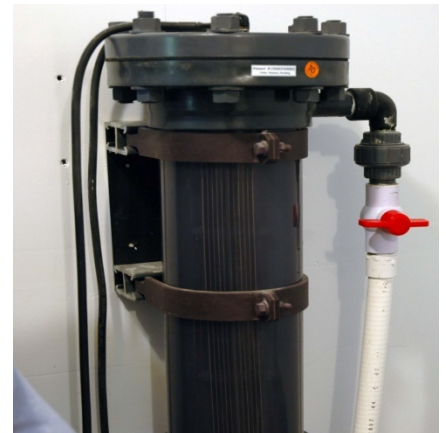
2. Test the flow switch for proper operation at least once a month and clean the strainer as often as needed. The strainer may need to be cleaned as often as every day or as little as once a month. This will vary by property and plumbing method.

Shut off the bottom valve stopping flow to the cell.

Immediately check to see if the system shut off by checking the ammeter on Box 3. The ammeter should go to 0 amps. If the system does not shut off, immediately open the valve. Do not allow the system to run with the valve closed. Check the flow switch and repair or replace as needed.

To clean the strainer, shut of the system power. Close the lower valve first and then close the upper valve.

Carefully unscrew the strainer cover. Allow pressure to release slowly. Water from cell tube will drain out when the strainer cover is removed. Remove the strainer screen, clean the screen and reinstall.



3. Evaluate the cell condition every week

Visually inspect the cell tube for leaks and the cell stack for calcium build up.



Check the connections at the top of cell.
Clean as needed.



4. Clean the cell when it needs it.

If the cell stack requires cleaning, first remove power from system.

Close the lower and upper cell tube valves.

Disconnect the cables from cell terminals.

Remove the bolts holding the cell stack in the cell tube or loosen the union holding the cell stack in the tube.

Lift electrode stack out of cell tube.



Immerse the cell stack in a bucket filled with a 4 to 1 muriatic acid solution.

Leave the cell in the muriatic acid until the solution stops bubbling and cell is clean.

Reassemble the cell stack in the tube and reconnect the cables to the top of the cell stack.



5. Visually inspect the power supply once every month.

Open the enclosures and visually check for any abnormal conditions such as burned wires, loose connections or corrosion.

6. Operate the system to verify performance once every month.

Turn the system on.

Adjust the potentiometer to zero and note that amps go to zero.

Adjust the potentiometer to maximum and verify amps go to maximum.

Adjust the potentiometer to the desired setting.

SECTION 5 WARRANTY INFORMATION

The ChlorKing® X-GEN system carries a limited 3-year warranty

1. 3-year warranty on assembly of electrical components and production tank.
2. 1 year on all electrical items.
3. 2 years or 15,000 hours, whichever occurs first, pro-rated hourly, on titanium electrodes. (Year 1 is warranted fully, thereafter pro-rated warranty applies, applicable over the full 2-year period. Applicable on electrode stacks where full price has been paid.)

ChlorKing® advises that titanium electrodes will have to be replaced every 15,000 hours of operating time. Under no circumstances shall the replacement titanium electrodes exceed the original 15,000-hour warranty.

ChlorKing® warranties will not be honored should it be shown that the operating and maintenance procedures have not been followed, particularly with regard to the cleaning frequency program.

ChlorKing® warranties of the titanium electrodes will not be honored if the system is operated in water temperatures lower than 59 degrees F.

- During the warranty period the customer shall return the defective component, freight prepaid, accompanied by the original invoice or proof of purchase, and ChlorKing® shall at its sole discretion elect to repair or replace the defective component and return it to the customer, freight pre-paid.

ChlorKing® accepts no responsibility other than to repair or replace a defective component, and this warranty specifically excludes product failure due to accidental damage, abuse, misuse, and negligence, damage due to non-compliance of the operating manual or unauthorized alterations or modifications to the system. ChlorKing® accepts no responsibility and is not liable for any extended warranties or variations to this warranty offered by re-sellers of ChlorKing® systems.