


PMRA Approved
2021-6492
2022-08-10
Carton label :

Polaris® AutoClear SC (PAGSC20K)
Chlorine Generator
Controls bacteria and algae in Swimming Pool Water For Residential Pools
DOMESTIC
A maximum of 132,000 L (35,000 gallons) (132.0 m3) of water can be treated
with one Polaris® PAGSC20K unit.
Maximum output of hypochlorous acid equivalent to 0.400 kg of free available chlorine per day
For swimming pools, a range of 1-3 ppm of free available chlorine must be maintained.
**READ THE LABEL AND THE INSTALLATION AND OPERATION MANUAL
BEFORE USING
KEEP OUT OF REACH OF CHILDREN
REG. NO. 34542 PCPA**
**WARNING: operating Polaris® PAGSC20K without water flow through the
cell can cause a build up of flammable gases which can result in FIRE OR
EXPLOSION.**
WARNING: Do not use this device with bromide products
Zodiac Pool Systems LLC
2882 Whiptail Loop East #100 Carlsbad, CA 92010
1.800.822.7933 | www.ZodiacPoolSystems.com
Zodiac Pool Systems Canada, Inc.
2-3365 Mainway, Burlington, Ontario L7M 1A6

Cell Replacement Label :

Polaris® AutoClear SC (PAGSC20K)
Chlorine Generator
Replacement electrode for the chlorine generating device Polaris® PAGSC20K
REG. NO. 34542, PCPA.
This cell must only be used on this model of chlorine generating device.
Read the Label, the Installation and Operation Manual of the chlorine generating device
Polaris® PAGSC20K before using.
Zodiac Pool Systems LLC
2882 Whiptail Loop East #100 Carlsbad, CA 92010
1.800.822.7933 | www.ZodiacPoolSystems.com
Zodiac Pool Systems Canada, Inc.
2-3365 Mainway, Burlington, Ontario L7M 1A6
+ 1 (888) 647-4004 | www.ZodiacPoolSystems.ca

Rating Label:

POLARIS AUTOCLEAR® SC (PAGSC20K) INPUT SWC: 120VAC, 60Hz, 2.5A OUTPUT: 28V D.C., 8A CHLORINE OUTPUT: See cell label/EPA Est. No. 100761-MYS-1	 Intertek 4007539
Pump Receptacle: 120 VAC, 60 Hz, 10A Max CONFORMS TO UL STD 1081 CAN ICES-003 (B) / NMB-003 (B) Certified to CSA Std. C22.2 No. 218.1	

Warning Label On The Back :

CAUTION:
READ THE INSTALLATION AND OPERATION MANUAL

WARNING:

Risk of electrical shock.

Connect only to circuit that is protected by a Ground-Fault Circuit-Interrupter (GFCI).

Disconnect the electric power before servicing.

CAUTION:



To reduce the risk of electric shock, do not install within 3 metres (10 feet) from the inside edge of the pool.

DO NOT MODIFY THIS EQUIPMENT FOR INDOOR/OUTDOOR USE

Warning Label On The Front :



Cell Rating Label :



Output Rate: 16.9 g/hr
Input: 28VDC, 8 A
Required Salt Level:
3250 ppm
EPA Est. 100761-MYS-1
**ELECTROLYTIC CELL FOR POLARIS AUTOCLEAR® SC
(PAGSC20K)**
**ETL LISTED CONFORMS TO UL STD 1081 CERTIFIED TO CAN/CSA
C22.2 NO. 218.1**
CAN ICES-003 (B) / NMB-003 (B)
Zodiac Pool Systems LLC 2882 Whiptail Loop East #100
Carlsbad, CA 92010

www.polarispool.com

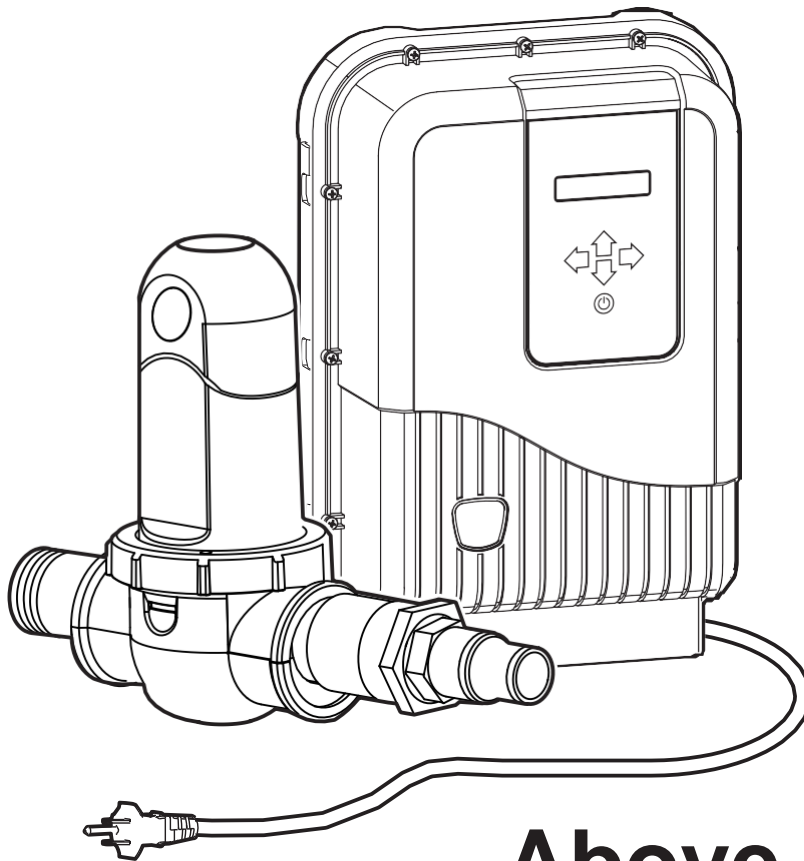
H0769600_REVA

Intertek
4007539

Pump Receptacle Label :

Filter Pump
120 VAC, 60Hz, 10A Max
H0770300_REVA

Polaris **AUTOCLEAR**^{SC}



Above Ground Salt Chlorinator

PAGSC20K

Installation and Operation Manual
English | Français | Español

H0770400_REVA



FOR YOUR SAFETY - This product must be installed and serviced by a qualified pool professional or personnel who are knowledgeable with the standards and code requirements for above ground pool equipment. The maintainer must be a qualified pool professional or personnel with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Improper installation and/or operation can create dangerous high pressure which can cause a catastrophic product failure and/or cause the multi-port valve or cell housing to be blown off possibly causing death, serious injury or property damage.



Improper installation and/or operation can create unwanted electrical hazard which can cause serious injury, property damage, or death. **DO NOT MODIFY THIS EQUIPMENT.**

Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in death, serious injury or property damage. Consult Polaris customer service at 1-800-822-7933 for assistance. Improper installation and/or operation may void the warranty.

**Controls bacteria and algae in swimming pool water
For Residential Pools, DOMESTIC
REGISTRATION NO. 34542 PEST CONTROL PRODUCTS ACT**

▲ WARNING

READ THE LABEL AND OPERATION MANUAL BEFORE USING. KEEP OUT OF REACH OF CHILDREN.

Maximum Overcurrent Protection - 15A

Use Copper Conductors Only

Disconnect Power before Opening Service Cover

For Outdoor or Indoor Use

Electrical Requirements: 120 VAC 60 Hz, 1.3 AMP

Maximum Output of Hypochlorous Acid is Equivalent to 0.400 kg of Free Available Chlorine Per Day

3,000 parts per million of salt

The maximum volume of water that can be treated with one unit of Polaris AutoClear SC (PAGSC20K) is 132,000 litres (35,000gallons) (132.0 m³)

For swimming pools, a range of 1-3 ppm of free available chlorine must be maintained.

Controls bacteria and algae in swimming pool water.

Do not use this device with bromide products.



Intertek

ETL LISTED
CONFORMS TO
UL STD 1081
Certified to
CAN/CSA C22.2
N° 218.1

NOTICE TO USER

This pest control product is to be used only in accordance with directions on the label. It is an offense under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

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Section 1. Important Safety Instructions

READ AND FOLLOW ALL INSTRUCTIONS

All electrical work must be performed by a licensed electrician and conform to all national, provincial, and local codes. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

⚠ WARNING

EQUIPMENT UNDER PRESSURE: Always turn pump off prior to installing or servicing the power pack, pod, or cell. Your pump/filter system is operated under pressure and the pressure must be released before you begin work. Please see your pump/filter owner's manual for further instructions.

⚠ WARNING

To reduce the risk of electric shock, fire or injury, service should only be attempted by a qualified pool service professional.

⚠ WARNING

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

⚠ WARNING

RISK OF ELECTRIC SHOCK, FIRE, PERSONAL INJURY, OR DEATH. Connect only to a branch circuit protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI.

Such a GFCI should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to this equipment without the test button being pushed, a ground current is flowing, indicating the possibility of an electric shock. Do not use this equipment. Disconnect this equipment and have the problem corrected by a qualified service representative before using.

Installation must be done in accordance with the National Electrical Code® ("NEC®" or NFPA-70®) in the US, the Canadian Electrical Code ("CEC" or C22.1) in Canada, and/or any other local and national installation codes.

⚠ WARNING

The power pack must be interlocked/interconnected with the pool pump motor power source to ensure that the chlorinator only operates when the pool pump is operating. The flow switch feature of the Polaris AutoClear SC (PAGSC20K) is intended to be used as a backup only and should not be used as the sole source of flow detection.

⚠ WARNING

Do not bury the cords. Locate cords to minimize abuse from lawn mowers, hedge trimmers, and other equipment. To reduce the risk of electric shock, replace damaged cord immediately and do not use an extension cord to connect unit to electric supply; provide a properly located outlet.

⚠ WARNING

The chlorine generating device is designed for above ground (residential) swimming pool use only. Contrary use could affect performance, void warranty, and may result in property damage, serious injury, or death.

- Operating a chlorine generator without water flowing through the cell may cause a build up of flammable gases, resulting in FIRE OR EXPLOSION.
- Keep equipment out of reach of children.
- Do not use if supply cord is damaged.
- A damaged supply cord should only be replaced by the manufacturer, service agent or electrician.
- When installing and using this electrical equipment, always follow basic safety precautions.
- Before performing installation, disconnect all power.
- Connect to a circuit that is protected by a ground fault circuit interrupter (GFCI).
- To reduce the risk of electric shock, replace damaged cord immediately.
- Do not use this device with bromide products.

⚠ WARNING

- The power pack must be installed at least 60 cm (2 ft.) vertically off the ground.
- The power pack must be installed at least 3 metres (10 feet) from the inside wall of your swimming pool or spa.

⚠ WARNING

Should a lack of water be detected, the unit's electronic flow switch is designed to turn off the system. Interfering with the electronic flow switch could result in personal injury and/or damage to the cell.

⚠ WARNING

Operating Polaris AutoClear SC models without water flow through the cell can cause a buildup of flammable gases which can result in FIRE OR EXPLOSION. READ THE LABEL AND OPERATION MANUAL BEFORE USING. KEEP OUT OF REACH OF CHILDREN.

⚠ WARNING

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

⚠ WARNING

PREVENT CHILD DROWNING: Do not let anyone, especially small children, sit, step, lean or climb on any equipment installed as part of your pool's operational system. Locate the components of your operational system at least 3 metres (10 feet) horizontally from the pool so children cannot use the equipment to access the pool and be injured or drown.

FCC Regulatory Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation/

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

⚠ CAUTION

This device is intended for use with above ground, permanently installed swimming pools. Do not use with storable pools. A permanently installed pool is constructed on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity.

⚠ WARNING

- People with infectious diseases should not use a swimming pool, spa or hot tub.
- To avoid injury, exercise care when entering or exiting the swimming pool, spa or hot tub.
- Do not use drugs or alcohol before or during the use of a swimming pool, spa or hot tub to avoid unconsciousness and possible drowning.
- Pregnant or possibly pregnant women should consult a physician before using a swimming pool, spa or hot tub.
- Water temperature in excess of 38°C (100°F) may be injurious to your health.
- Before entering a swimming pool, spa or hot tub measure the water temperature with an accurate thermometer.
- Do not use a swimming pool, spa or hot tub immediately following strenuous exercise.
- Prolonged immersion in a swimming pool, spa or hot tub may be injurious to your health.
- Do not permit any electric appliance (such as a light, telephone, radio, or television) within 3 metres (10 feet) of a swimming pool, spa or hot tub.
- The use of alcohol, drugs or medication can greatly increase the risk of fatal hyperthermia in swimming pools, hot tubs and spas.
- Water temperature in excess of 38°C (100°F) may be hazardous to your health.
- CHILDREN SHOULD NOT USE SWIMMING POOLS, SPAS OR HOT TUBS WITHOUT ADULT SUPERVISION.
- MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

⚠ CAUTION

It is important to note that certain materials used in and around swimming pools may not be compatible with chemicals commonly used to purify pool water (e.g. acids, chlorine, salt, stabilizers, etc.).

Zodiac Pool Systems LLC does not warrant or guarantee that the chlorinated water generated by the chlorine generating device will not damage or destroy certain types of plants, decking, coping and other materials in and around your pool. Before selecting materials to be used in and around your pool, please discuss all options with your contractor to assess the compatibility of such materials and chemicals.

When mixing acid with water, **ALWAYS ADD ACID TO WATER. NEVER ADD WATER TO ACID.**

Some helpful considerations may include:

- Choosing plants that can withstand splash out of pool water containing chlorine and/or salt and other water purification chemicals.
- All metal components used in and around a pool should be of a high grade, quality stainless steel.
- Careful selection of masonry products. The porosity and hardness of natural stones varies greatly. Therefore we recommend you consult with your builder or stone contractor on the best choice for stone materials around your pool.
- Sealing all masonry products. Professionals in the stone industry specify that even natural stone, especially when used outdoors, be sealed to prevent weathering, staining, and premature degradation. Consult with your stone or deck contractor for the proper sealer for the masonry products you have selected to use around your pool.
- For the optimal results, sealers should be reapplied on a regular basis. Reapply the protective sealer on a schedule per the manufacturer's instructions.
- Use of chemicals other than those recommended may be hazardous. Follow the chemical manufacturers instructions.

⚠ CAUTION

This device is intended for use with above ground, permanently installed (residential) swimming pools. Do not use with storable pools. A permanently-installed pool is constructed on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity.

SAVE THESE INSTRUCTIONS

Section 2. System Description

The cell must be installed horizontally as the last piece of equipment in the circulation plumbing system just before the pool.

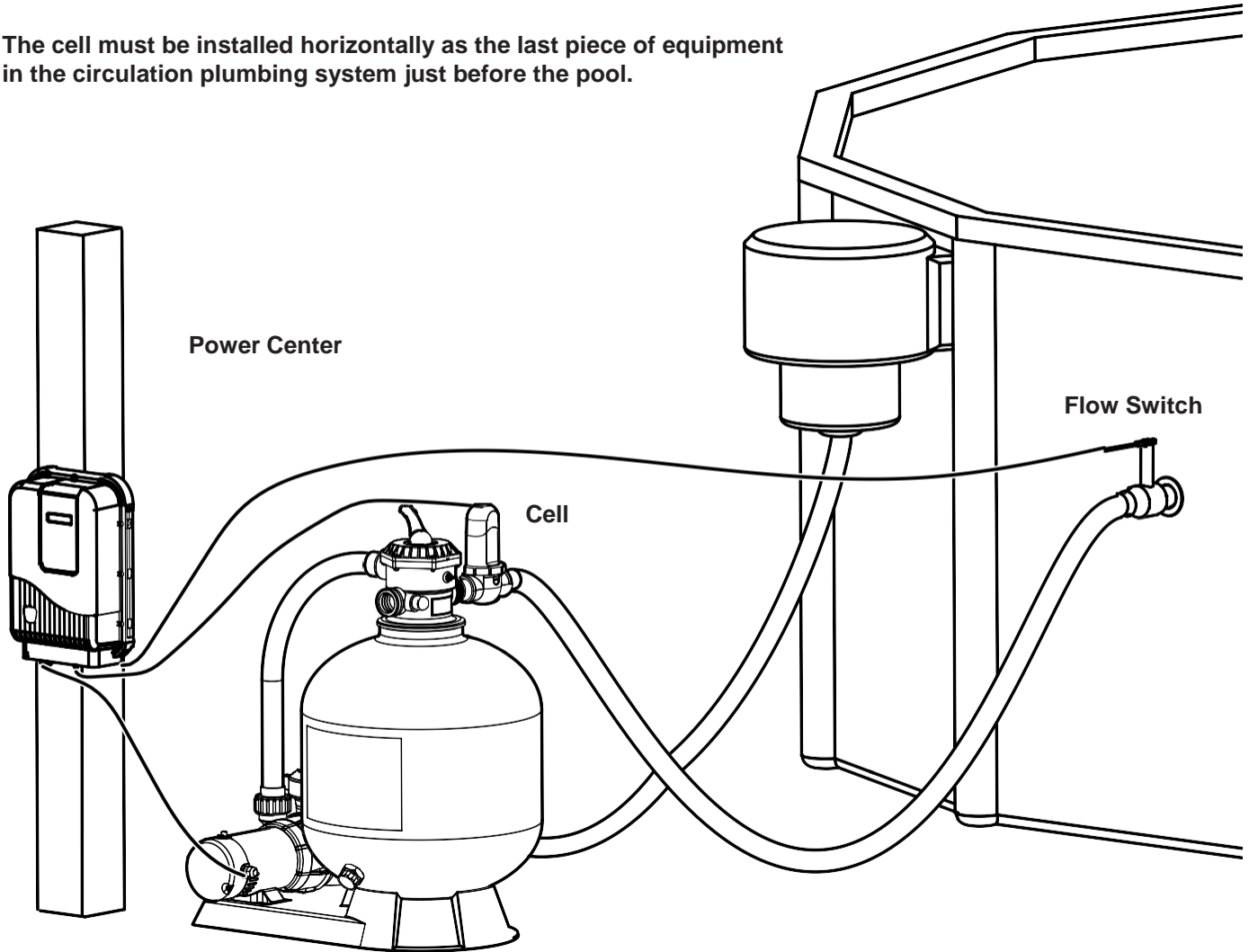


Figure 1. Example of Installation

2.1 Product Specifications

Maximum Operating Pressure: 35 psi	Output Voltage: 28V DC (max)
Minimum Flow Rate: 152 Lpm (40 gpm)	Output Current: 8A DC
Maximum Flow Rate: 348 Lpm (92 gpm)	Dimensions:
Maximum water volume treated: 132,000 L (35,000 gal.)	Power Pack (L x W x H): 25.4 cm x 11.4 cm x 33 cm (10 in. x 4.5 in. x 13 in.)
Chlorine Output: 0.400 kg (1.08 lbs.) per day	Electrolytic Cell (L x W x H): 16.5 cm x 14 cm x 30.5 cm (6.5 in. x 5.5 in. x 12 in.)
Required Salt Level: 3,250 ppm (3.0 gpl)	Weight:
Input Voltage: 120 V	Power Pack: 3.2 kg (7 lbs.)
Input Current @ 120 VAC, 12A (pump connected)	Electrolytic Cell: 0.9 kg (2 lbs.)
Input Current @ 120 VAC: ~2.5 A (salt cell and flow switch connected)	
Input Freq: 60 Hz	

2.2 Product Contents

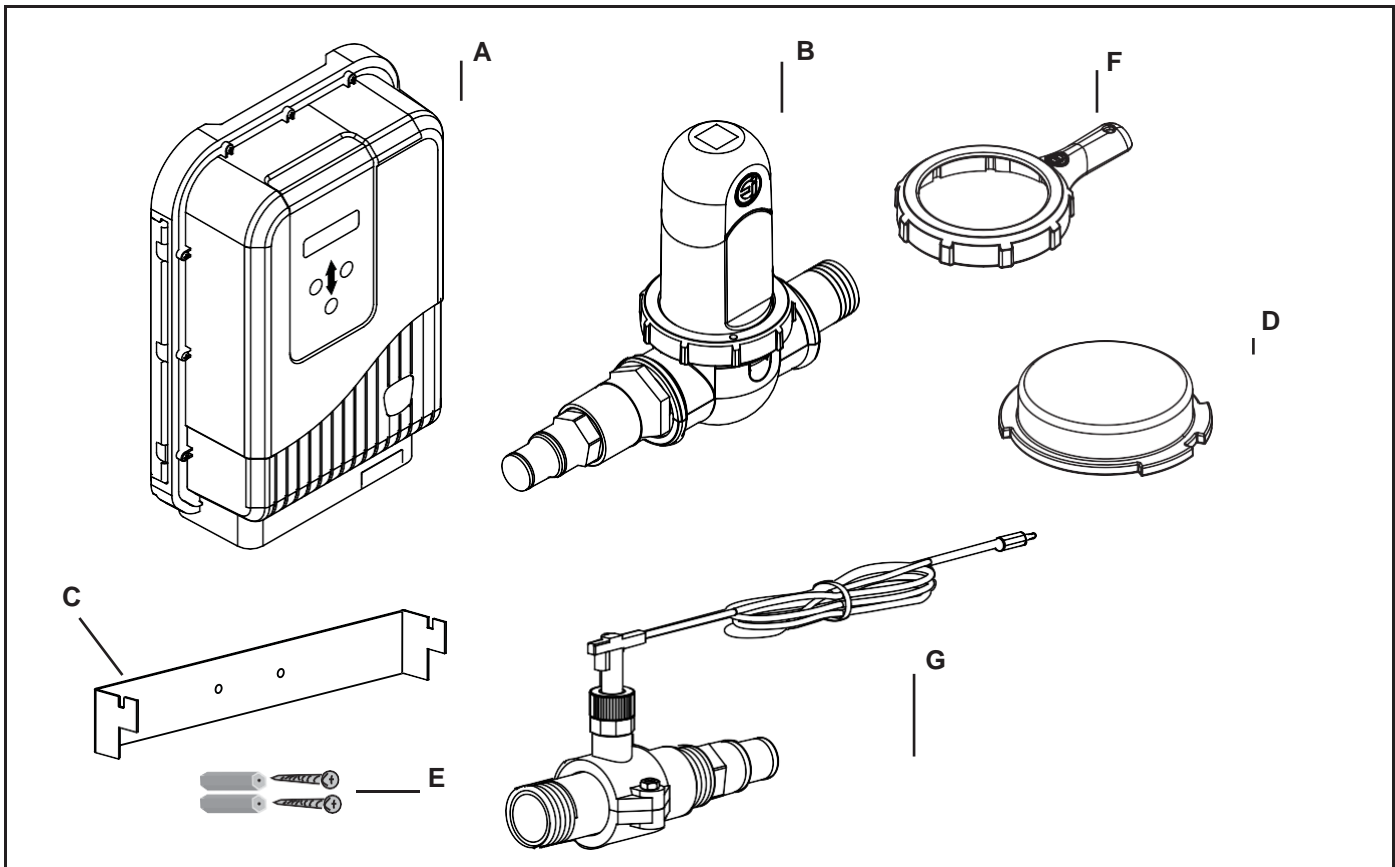


Figure 2. Carton Contents

ITEM	DESCRIPTION	QTY
A	Power Pack	1
B	Cell	1
C	Power Pack Bracket	1
D	Winterizing Cap	1
E	Screw Set (includes wall plugs)	2
F	Locking Ring Tool	1
G	Flow Switch	1

Section 3. Installation Instructions

⚠ WARNING

FOR YOUR SAFETY: This product must be serviced by a professional pool service technician as described on the front cover of this manual. The procedures in this manual must be followed exactly. Failure to follow warning notices and instructions may result in property damage, serious injury, or death. Improper installation and/or operation may void the warranty.

EQUIPMENT UNDER PRESSURE: Always turn pump off prior to installing or servicing the chlorine generating device. Your pump/filter system is operated under pressure and the pressure must be released before you begin work. Please see your pump/filter owner's manual for further instructions.

⚠ WARNING

To reduce the risk of electric shock, do not use extension cord to connect unit to electric supply; provide a properly located outlet.

⚠ WARNING

Risk of Electric Shock. Connect only to a branch circuit protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI.

⚠ CAUTION

To reduce the risk of electric shock do not place the power pack closer than 3 metres (10 feet) from the pool.

Do not bury the cords. Locate cords to minimize abuse from lawn mowers, hedge trimmers, and other equipment.

Before you begin your installation, please check that you have the right tools and a suitable location to install the power pack and cell. Please ensure that you have read and understood the Important Safety Instructions section.

3.1 Materials and Tools

Installation Materials Furnished

- Pipe spacer - for 40 mm (1½ in.) pipe
- Screw set (includes wall plugs)
- Installation and Operation Manual

3.2 Installation Requirements

⚠ WARNING

The chlorine generating device must be installed horizontally with the cell above the pipe to avoid buildup of flammable gases which can result in FIRE OR EXPLOSION.

It is required that the water flow pod is installed in the same piping as the electrolytic cell, without any valves or diverters between them.

The flow switch must be mounted as shown.

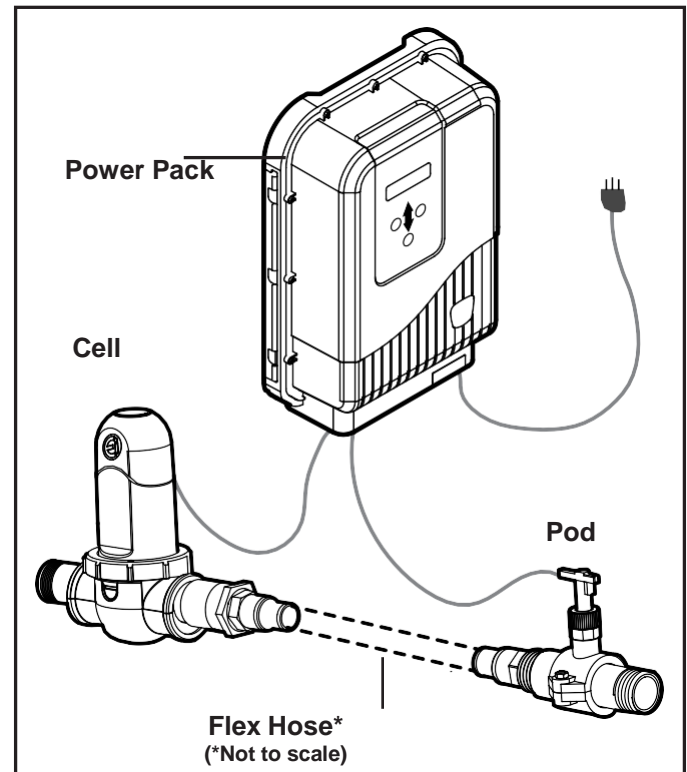


Figure 3. Installation Requirements

The installation requirements for the chlorine generating device are as follows:

- The power pack must be installed at least 0.6 m (2 ft.) vertically off the ground.
- The power pack must be installed at least **3 metres (10 feet)** from the inside wall of your swimming pool
- The cell must be installed with the provided pipe adapter.
- The cell must be installed no more than 4.6m (15 ft.) from the power pack.
- The power pack must be installed no more than 1 m (3 ft.) from an electrical outlet.
- The flow pod must be installed upstream from the cell.
- It is recommended that the flow switch and cell be installed 0.25 m (10 in.) from any 90° elbow.

3.3 Install the Power Pack and Cell

1. Ensure placement of the cell, the power pack, and the cell will meet all the installation requirements outlined in Section 3.2.

⚠ WARNING

We recommend that any procedure requiring potential contact with live electrical wiring and/or parts other than cords and plugs connected to electrical outlets be completed by a contractor who is licensed and qualified in pool equipment as described on the front cover of this manual. Failure to follow warning notices and instructions may result in property damage, serious injury, or death.

2. Screw the power pack bracket into position on a wall surface or post where it will mount securely, while ensuring it is no more than 4.6 m (15 ft.) from the cell.

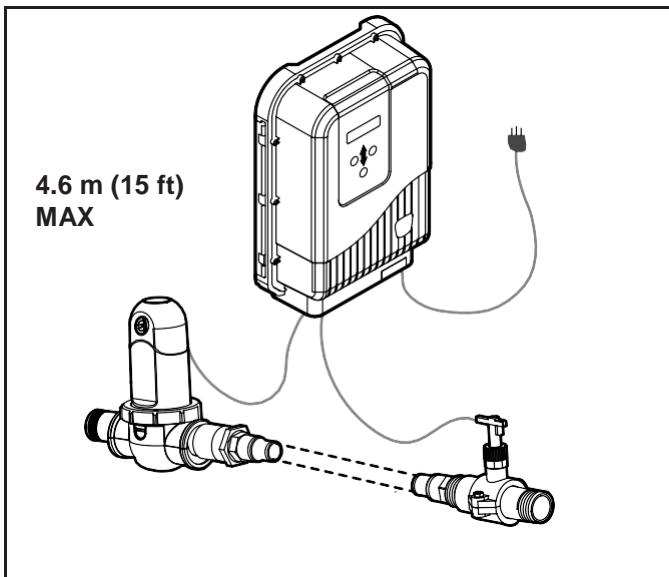


Figure 4. Installation Requirements

3. Position the power pack in place by aligning the bracket with the corresponding thru-holes.

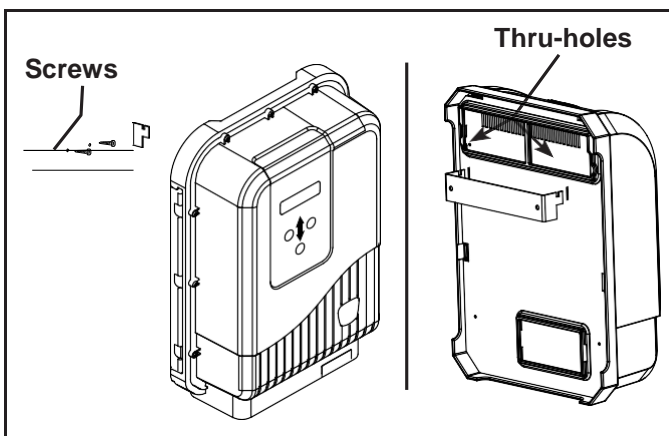


Figure 5. Attaching the Power Pack

4. Unscrew the locking ring from the cell and the pod in order to extract them from the lower clamp.

5. Press the two (2) push-buttons on either side of the upper clamp to separate the upper clamp from the lower clamp.

3.4 Bonding

⚠ WARNING

The National Electrical Code (NEC) and Canadian Electrical Code (CEC) requires that pool equipment be bonded to each other. Make sure to check your local codes to determine if the NEC, CEC, and/or other local installation codes are enforced by the Authority Having Jurisdiction (AHJ) or the local competent authorities in Canada. A solid copper bonding conductor min. 8.37 mm² (8 AWG), 13.3 mm² (6 AWG) in Canada, shall be used for bonding the power pack to a permanent bonding connection that is acceptable to the AHJ or local competent authority. A bonding conductor is included with this product. Refer to your locally enforced codes for the acceptable bonding wire gauge. Each piece of non-related pool equipment requiring a ground should also be bonded to the common, approved bonding point.

To avoid property damage, serious injury or death, NEVER use the chassis backplate of the power pack to ground any other equipment.

Attach the bonding point located on the bottom of the chassis backplate to a common bonding point. Do not use the power pack as the common bonding point. Each piece of non-related pool equipment requiring a ground should also be bonded to the common, approved bonding point. There should be one bonding connection to the power pack. In Canada, the Canadian Electrical Code (CEC) dictates that the bonding conductor be, minimum 13.3 mm² (6 AWG).

National Electrical Code® (NEC®) requires bonding of the Pool Water for Permanently Installed Pools. Where none of the bonded pool equipment, structures, or parts are in direct connection with the pool water; the pool water shall be in direct contact with an approved corrosion-resistant conductive surface that exposes not less than 5800 mm² (9 in²) of the surface area to the pool water at all times. The conductive surface shall be located where it is not exposed to physical damage or dislodgement during usual pool activities, and it shall be bonded in accordance with the bonding requirements of NEC Article 680. Refer to your locally enforced codes for any additional bonding requirements.

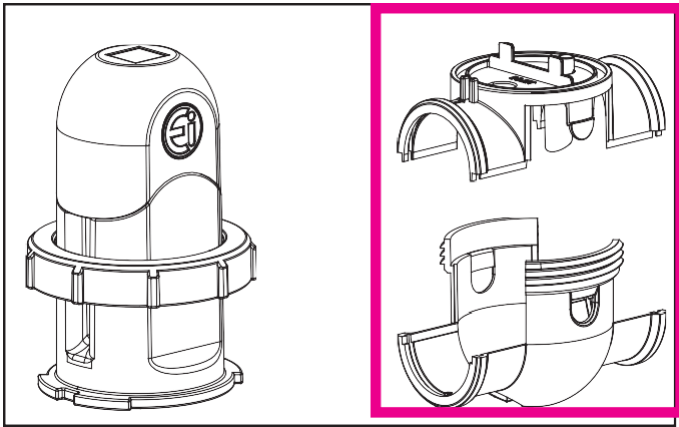


Figure 6. Disassemble the Cell

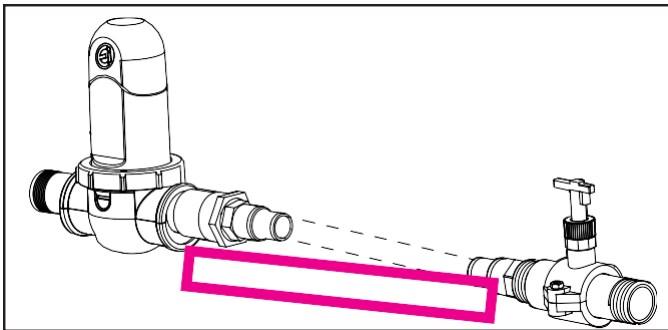


Figure 7. Water Flow

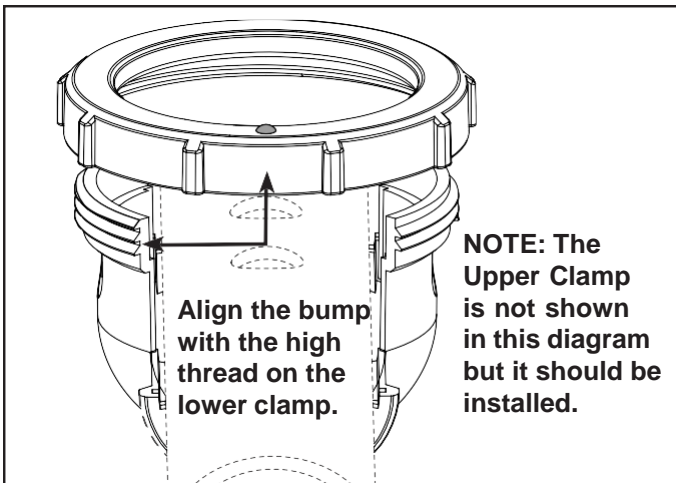


Figure 8. Locking Ring Alignment

1. Screw down the locking ring to the threaded clamp using the locking ring tool.

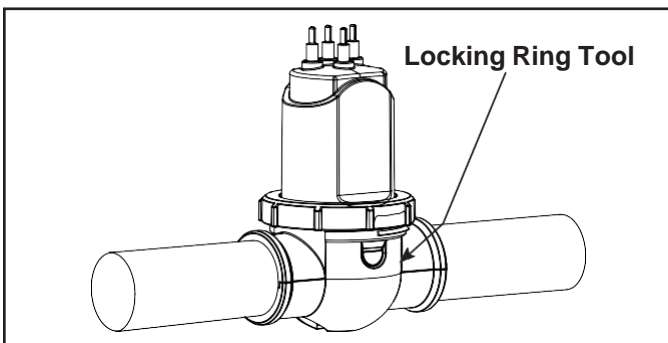


Figure 9. Locking Ring Tool

NOTE: Ensure the locking ring is level when engaging the threading housing.

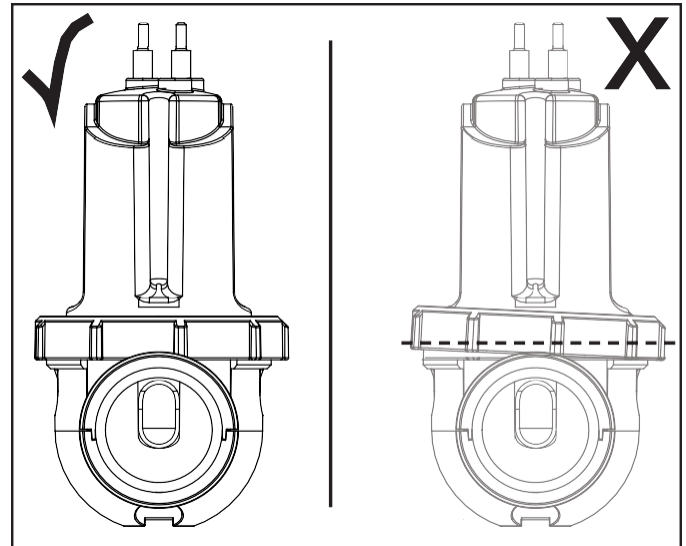


Figure 10. Locking Ring Level

2. Install the flow switch making sure the arrow on the flow switch points in the direction of the water flow. Make sure the switch is in line with the pipe.
3. Securely connect the cell leads to the like colored terminals.
4. Attach the terminal cap.

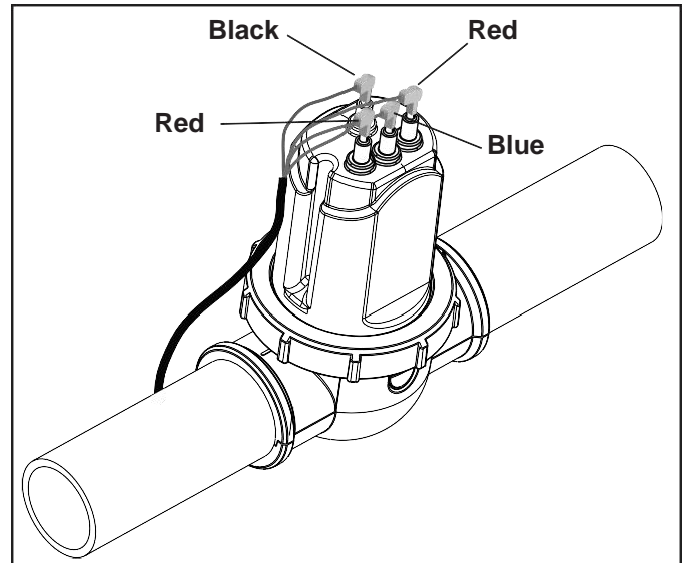


Figure 11. Connecting Cell Leads

5. Plug the pod connector into the power pack (see Figure 20).
6. Attach one end of the bonding wire to the bonding lug located on the bottom of the chassis backplate on the power pack (see Figures 21 and 22).
7. Attach the second end to a common bonding point such as the pool pump or heater. Make sure to refer to the pump or heater manual for the location of the bonding lug connection prior to making this connection.

NOTE: Do not use the power pack as the common bonding point. There should only be one bonding connection to the power pack. Each piece of non-related pool equipment requiring a ground should also be bonded to the common, approved bonding point.

8. Plug the power pack into the electrical outlet. Turn

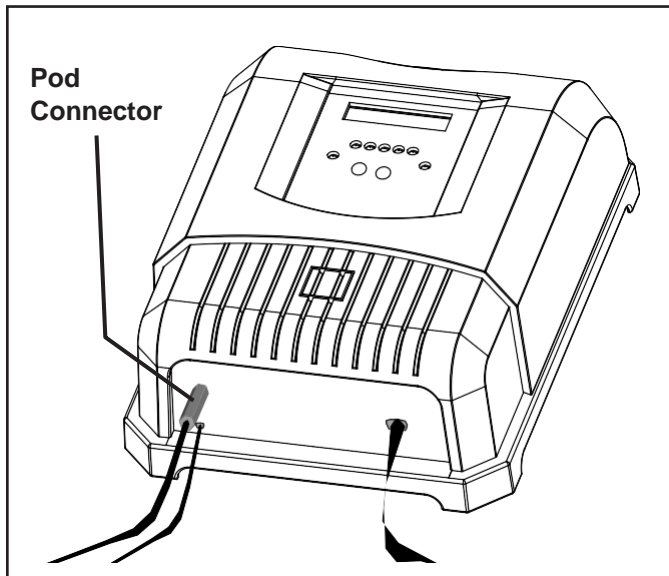


Figure 12. Pod Connector

Section 4. Pool Water Preparation

4.1 Determining Pool Size (Gallons of Water in Your Pool)

- **Rectangular Pools**
Average length (feet) x average width (feet) x average depth (feet) x 7.5 = gallon capacity.
- **Circular Pools**
Diameter (feet) x diameter (feet) x average depth (feet) x 5.9 = gallon capacity.
- **Oval Pools**
Long diameter (feet) x short diameter (feet) x average depth (feet) x 5.9 = gallon capacity.
- **Sloping Sides**
Multiply total gallons by 0.85 = gallon capacity.

4.2 Determining Pool Size (Litres of Water in Your Pool)

- **Rectangular Pools**
Average length (metres) x average width (metres) x average depth (metres) x 1000 = litres capacity.
- **Circular Pools**
Diameter (metres) x diameter (metres) x average depth (metres) x 790 = litres capacity.
- **Oval Pools**
Long diameter (metres) x short diameter (metres) x average depth (metres) x 790 = litres capacity.
- **Sloping Sides**
Multiply total litres by 0.85 = litres capacity.

4.3 Chemistry You Need to Know

- **Chlorine Stabilizer** (cyanuric acid) is needed to maintain proper levels of chlorine. Most non-stabilized chlorine is destroyed by the UV radiation from the sun within two (2) hours. Chlorine stabilizer should be maintained between 10 - 50 ppm. For indoor pools, it is not necessary to add chlorine stabilizer to the swimming pool water.
- **Nitrates** can cause extremely high chlorine demands and will deplete chlorine from your swimming pool. In some cases nitrates may even lower your chlorine levels to zero. Your local pool professional can test for nitrates. Make sure nitrates are not present in your pool.
- **Metals** (some metals) can cause loss of chlorine stain your pool. Have your local pool professional check for metals and recommend methods of removal.
- **Chloramines** should not be present in pool water. When organic materials combine with free chlorine, chloramines are formed. This ties up the free chlorine in your pool and does not allow the chlorine in your pool to disinfect. Chloramines also cloud pool water and burn the eyes. Shock to remove chloramines at the initial startup of the pool.

- **Super Chlorination** burns out the organic material that has combined with chlorine which frees the chlorine for sanitizing. This is accomplished by raising the chlorine level quickly and dramatically. To super chlorinate the pool using the chlorine generating device, set the chlorine production to 100% and then set the pump and the cell to run for 24 hours.
- **Shocking** (Superoxidation) is also a means of burning out the organic material that has combined with chlorine. This method involves the manual addition of chemicals to quickly raise the level of chlorine. When the chlorine level is quickly raised to 5 - 15 ppm the pool water is said to have been shocked.

NOTE: On initial startup of a pool, it is best to shock from an alternate source, i.e., use a shock treatment available at your local pool supplier.

⚠ CAUTION

Never use dry acid to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A buildup of by-products can damage the electrolytic cell.

- The **pH** condition resulting from the operation of a salt water chlorination system is close to neutral. However, other factors usually cause the pH of the pool water to rise. Therefore, the pH in a pool chlorinated by a salt water system tends to stabilize at approximately 7.6. If the pool pH rises above 7.6 have a pool professional test to see if other factors such as high calcium hardness or total alkalinity are the cause and then balance accordingly.
- **Total Dissolved Solids (TDS)** Adding salt to pool water will raise the TDS level. While this does not adversely affect the pool water chemistry or clarity, the pool water professional testing for TDS must be made aware salt has been added for the sanitizing system. The individual performing the TDS test will then subtract the salinity level to arrive at the correct TDS level.
- **New pool water** in a recently filled or newly refinished pool may contain undesirable matter which could interfere with the salt water chlorinator's ability to sanitize properly. Make sure the water is tested by a pool professional and properly balanced before turning on the chlorinator system. New plaster pools have a constant acid demand for six (6) months. Test often and maintain a proper pH to avoid excess scaling of the cell.
- **Sequestering Agents** can be used to compensate for source water which may have unusually high calcium hardness. High calcium hardness can contribute to scale formation in the pool. Sequestering agents will help keep minerals in solution and under some conditions can prevent scaling from happening. Consult your pool professional about the use of a sequestering agent.

4.4 Optimum Pool Water Conditions

- In accordance with Association of Pool and Hot Tub Alliance (PHTA) standards, we recommend the following water balance conditions be maintained on an ongoing basis to protect the pool finish and the equipment and to ensure the pleasing appearance of the water. The chlorine generating device is warranted to operate properly only if the following conditions are met:

Free Chlorine	Pools: 1 - 3 ppm. Continuous exposure to levels above 3.0 ppm may cause corrosion of pool metals.
Combined Chlorine (Chloramines)	None (Super chlorinate to remove all chloramines.)
pH	7.4 - 7.6 (Use muriatic acid to lower pH and soda ash to raise pH.)
Chlorine Stabilizer (Cyanuric Acid)	10 - 50 ppm (For outdoor pools only.)
Total Alkalinity	80 - 120 ppm
Calcium Hardness	Pools: 200 - 300 ppm
Metals (Iron, Manganese)	None
Nitrates	None
Phosphates	None

4.5 Chlorine Testing

Use a home test kit or ask your pool professional to test your water. It is recommended that chlorine test samples be taken from two (2) places, described below. Compare the two (2) samples. A higher level should be found at the pool return line. The higher level at the pool return line indicates the salt water chlorinator system is producing chlorine.

1. At the pool return line.
2. 46 cm (18 in.) below the surface and well away from the pool return line.

4.6 Salt (NaCl Sodium Chloride)

When to Add Salt

Add salt to the pool if the salt is too low (see Table 1) or if salt indicator light turns on. For a new pool or newly resurfaced pool, it is recommended to wait at least 30 days (surface should be completely cured) before adding salt. Do not run the chlorinator at this time. Manually chlorinate the pool. Contact your dealer for recommendations. Follow the pool surface manufacturer's guidelines for your particular pool. For vinyl and fiberglass pools, salt can be added at start up.

What Type of Salt to Use

- The purer the salt, the better the life and performance of the electrolytic cell. Use a salt that is at least 99.8% pure NaCl. The salt is an evaporated, granulated, food quality, non-iodized salt. Consult your salt supplier.
- Avoid using salt with anti-caking agents (sodium ferrocyanide, also known as YPS or yellow prussiate of soda) that could cause some discoloration of fittings and surface finishes in pool.
- Water conditioning salt pellets are compressed forms of evaporated salt and may be used but will take longer to dissolve.
- **Do not** use calcium chloride as a source of salt. Use sodium chloride only.
- **Do not** use rock salt because insoluble impurities mixed with the rock salt can shorten the life of the unit.

How Much Salt to Use

Use salinity test strips, a TDS/salinity meter, or another reliable method to test the salinity of the pool water. Once the existing salinity has been established, use Table 1 to determine the amount of salt to add to reach the desired level. Be conservative when adding salt as it is easier to add more if needed than it is to dilute if there is too much salt.

- 3,000 ppm of salt is recommended for optimum water conditions.

NOTE: In cooler water conditions (less than 18°C (65°F)), it may be necessary to add more than 4,500 ppm of salt to keep the "Check Salt" alarm from appearing on the power pack.

- Minimum salt level is 3,000 parts per million (ppm).
- Low salt concentration below 2,500 ppm will cause premature cell failure.
- High salt concentration above 6,000 ppm may cause corrosion damage to pool fixtures.

⚠ CAUTION

It is important to note that certain materials used in and around swimming pools may not be compatible with chemicals commonly used to purify pool water (e.g. acids, chlorine, salt, stabilizers, etc.).

Polaris Pool Systems, Inc. does not warrant or guarantee that the chlorinated water generated by the chlorine generating device will not damage or destroy certain types of plants, decking, coping and other materials in and around your pool. Before selecting materials to be used in and around your pool, please discuss all options with your contractor to assess the compatibility of such materials and chemicals.

Some helpful considerations may include:

- Choosing plants that can withstand splash out of pool water containing chlorine and/or salt and other water purification chemicals.
- All metal components used in and around a pool should be of a high grade, quality stainless steel.
- Careful selection of masonry products. The porosity and hardness of natural stones varies greatly. Therefore we recommend you consult with your builder or stone contractor on the best choice for stone materials around your pool.
- Sealing all masonry products. Professionals in the stone industry specify that even natural stone, especially when used outdoors, be sealed to prevent weathering, staining, and premature degradation. Consult with your stone or deck contractor for the proper sealer for the masonry products you have selected to use around your pool.
- For optimal results, sealers should be reapplied on a regular basis. Reapply the protective sealer on a schedule per the manufacturer's instructions.
- Use of chemicals other than those recommended may be hazardous. Follow the chemical manufacturer's instructions.

How to Add Salt to the Pool

1. Turn on pump to circulate pool water.
2. **IMPORTANT** - Turn the power pack off by pressing the ON/Off button (OFF will be displayed on the screen).
3. Test the water for salinity level using test strips, electronic meter, or by your local pool professional.
4. Use the Table 1 to determine the amount of salt to add. Be conservative when adding salt as it is easier to add more if needed than it is to dilute if there is too much salt.
5. Broadcast salt into pool. Do not add through skimmer, main drain, or surge tank. Brush the salt around the pool to facilitate dissolving. Circulate filter system for 24 hours to ensure even distribution.
6. After 24 hours, verify correct salt reading by testing the water salinity level using test strips, electronic meter, or by your local pool professional.
7. When the salinity level is correct, turn the power pack on. Press the OUTPUT button to set the desired production rate.

NOTE: For a new pool or newly resurfaced pool, it is recommended to wait at least 30 days (surface should be completely cured) before adding salt. Follow the pool surface manufacturer's guidelines for your particular pool. For vinyl and fiberglass pools, salt can be added at start up.

Table 1. Approximate Pounds and Kilograms of Salt Needed to Obtain 3,000 ppm (4.0 gpl)










Current Salt Level ppm	Pool Size – Litres (US Gallons)											
	38,000 L (10,000 gal)		57,000 L (15,000 gal)		76,000 L (20,000 gal)		95,000 L (25,000 gal)		114,000 L (30,000 gal)		132,000 L (35,000 gal)	
0	114 kg	(250 lbs)	170 kg	(376 lbs)	227 kg	(501 lbs)	284 kg	(626 lbs)	341 kg	(751 lbs)	397 kg	(876 lbs)
250	104 kg	(229 lbs)	156 kg	(344 lbs)	208 kg	(459 lbs)	260 kg	(574 lbs)	312 kg	(688 lbs)	364 kg	(803 lbs)
500	95 kg	(209 lbs)	142 kg	(313 lbs)	189 kg	(417 lbs)	237 kg	(522 lbs)	284 kg	(626 lbs)	331 kg	(730 lbs)
750	85 kg	(188 lbs)	128 kg	(282 lbs)	170 kg	(376 lbs)	213 kg	(469 lbs)	256 kg	(563 lbs)	298 kg	(657 lbs)
1000	76 kg	(167 lbs)	114 kg	(250 lbs)	151 kg	(334 lbs)	189 kg	(417 lbs)	227 kg	(501 lbs)	265 kg	(584 lbs)
1250	66 kg	(146 lbs)	99 kg	(219 lbs)	132 kg	(292 lbs)	166 kg	(365 lbs)	199 kg	(438 lbs)	232 kg	(511 lbs)
1500	57 kg	(125 lbs)	85 kg	(188 lbs)	114 kg	(250 lbs)	142 kg	(313 lbs)	170 kg	(376 lbs)	199 kg	(438 lbs)
1750	47 kg	(104 lbs)	71 kg	(156 lbs)	95 kg	(209 lbs)	118 kg	(261 lbs)	142 kg	(313 lbs)	166 kg	(365 lbs)
2000	38 kg	(83 lbs)	57 kg	(125 lbs)	76 kg	(167 lbs)	95 kg	(209 lbs)	114 kg	(250 lbs)	132 kg	(292 lbs)
2250	28 kg	(63 lbs)	43 kg	(94 lbs)	57 kg	(125 lbs)	71 kg	(156 lbs)	85 kg	(188 lbs)	99 kg	(219 lbs)
2500	19 kg	(42 lbs)	28 kg	(63 lbs)	38 kg	(83 lbs)	47 kg	(104 lbs)	57 kg	(125 lbs)	66 kg	(146 lbs)
2750	9 kg	(21 lbs)	14 kg	(31 lbs)	19 kg	(42 lbs)	24 kg	(52 lbs)	28 kg	(63 lbs)	33 kg	(73 lbs)
3000	Optimum		Optimum		Optimum		Optimum		Optimum		Optimum	

Table 2. Approximate Pounds and Kilograms of Stabilizer Needed to Obtain 50 ppm

NOTE: Minimum salt level is 3000 parts per million (ppm). Low salt concentration below 2,500 ppm will cause premature cell failure.

Current Cyanuric Acid Level - ppm	Pool Size Litres (US Gallons)					
	38,000 L (10,000 g)	57,000 L (15,000 g)	76,000 L (20,000 g)	95,000 L (25,000 g)	114,000 L (30,000 g)	132,000 L (35,000 g)
0	1,9 kg (4,2 lbs)	2,9 kg (6,3 lbs)	3,8 kg (8,4 lbs)	4,8 kg (10,5 lbs)	5,7 kg (12,6 lbs)	6,7 kg (14,8 lbs)
10	1,5 kg (3,4 lbs)	2,3 kg (5,1 lbs)	3,1 kg (6,7 lbs)	3,8 kg (8,4 lbs)	4,6 kg (10,1 lbs)	5,4 kg (11,8 lbs)
20	1,1 kg (2,5 lbs)	1,7 kg (3,8 lbs)	2,3 kg (5,1 lbs)	2,9 kg (6,3 lbs)	3,4 kg (7,6 lbs)	4,0 kg (8,9 lbs)
30	0,8 kg (1,7 lbs)	1,2 kg (2,5 lbs)	1,5 kg (3,4 lbs)	1,9 kg (4,2 lbs)	2,3 kg (5,1 lbs)	2,7 kg (5,9 lbs)
40	0,4 kg (0,8 lbs)	0,6 kg (1,3 lbs)	0,8 kg (1,7 lbs)	1,0 kg (2,1 lbs)	1,2 kg (2,5 lbs)	1,3 kg (3,0 lbs)

NOTE: The above chart is for general reference only. The recommended stabilizer reading is between 10 - 50 ppm and will vary dependent on geographic climate. Warm, sunny climates will require a stabilizer reading at the higher end of the given range. Consult your local pool professional for your optimum level. Always add stabilizer according to manufacturer's instructions. For indoor pools, it is not necessary to add chlorine stabilizer to the swimming pool water.




- Use the  and  buttons to set the Timer 1 start minutes, then press  to store.
- Use the  and  buttons to set the Timer 1 start hours, then press  to store.
- Repeat the steps for Timer 2.
- Press the  button to store the timers and move to setting the chlorine production rate.
- Use the  and  buttons to choose the required chlorine production rate (from 10 % to 100 %).

5.3 Chlorine Production Activated

When chlorine production starts, the “Start...” message is displayed on screen for about 6 seconds. “CHLORINATION” is then displayed, indicating that the device is producing chlorine.

“Boost” mode: chlorine production increased to 100% for 24 hr

In certain cases the pool may need higher than normal chlorination (stormy weather, high number of bathers, etc.). “Boost” mode is used to increase chlorine level quickly.




- Press buttons  and  simultaneously: “BOOST” is displayed on the screen and 100 % chlorine production starts.
- To stop “Boost” mode, press .

When “Boost” mode is activated, the rated chlorine production settings are temporarily overridden and the saltwater chlorinator will operate for a total of 24 hours at 100 % chlorine production.

“Low” mode: chlorine production reduced to 10% if the pool is covered

If the pool has a covering system (shelter, pool blanket, cover, etc.), “Low” mode is designed to adapt the chlorine production to situations where the pool is covered. Its effect is to limit chlorine production to 10%.

Manual Activation:

- Press buttons  and  simultaneously: “LOW” is displayed on the screen and chlorine production is reduced to 10 %.
- To stop “Low” mode, press .

5.4 Maintenance

Cleaning the Electrode

Although the saltwater chlorine generator is equipped with reverse polarity technology it is still necessary to check the cell and if required clean off any build up that may occasionally occur.

- Turn off the chlorinator and the filtration system, close the isolation valves (if applicable), and disconnect the cell power cable.
- Remove the cell and use a cell cleaning solution* cover all the electrode cell plates.
- Leave the cleaning solution to dissolve the scale deposit for about 15 minutes. Store your cleaning solution in a safe place or dispose of according to your local council regulations, never pour it into the rainwater drainage system or into sewers.
- Rinse the electrode using clean water and put back into position.
- Open the isolation valves (if applicable) and restart the chlorinator and the filtration system.

If you do not use a commercially available cleaning solution, you can manufacture it yourself by carefully mixing 1 volume of hydrochloric acid with 9 volumes of water (Warning: always pour the acid into the water and not the opposite and wear suitable protective equipment).

Section 6. Maintenance Instructions

Before servicing the chlorine generating device please ensure you have read and understood the Important Safety Instructions section.

IMPORTANT: Always test the chlorine levels of your pool before each use.

6.1 Weekly

1. **Chlorine Test.** Test pool water chlorine level with a reliable test kit. Maintain ideal range by adjusting the chlorine output level on the power pack (see Section 5.3). Recommended free chlorine level is 1 - 3 ppm.

NOTE: It is recommended that chlorine test samples be taken from two (2) places, one (1) at the pool return line, the other well away from the pool return line. Compare the two (2) samples. A higher level should be found at the pool return line. The higher level at the pool return line indicates the system is producing chlorine.

2. **pH Level Test.** Test the pH level of your pool with a test kit. If necessary, adjust to maintain a pH level of 7.4 - 7.6 (see Section 4.3).

⚠ CAUTION

Never use dry acid to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A build up of by products can damage the electrolytic cell.

3. **Total Alkalinity Test.** Test pool water for total alkalinity with a test kit. Take steps necessary to maintain an alkalinity of 80 - 120 ppm (see Section 4.3).
4. **Calcium Hardness.** Test pool water for calcium hardness level using test kit or by having a water sample tested by a pool professional. Adjust as necessary to maintain a calcium hardness of 175 - 400 ppm (see Section 4.3).

6.2 Monthly

1. **Check the cell.** It is recommended that every month the cell be removed and inspected for scale formation and/or debris. If cell needs to be cleaned, see Section 6.3 for instructions.
2. **Salt Level Test.** Use salinity test strips, a TDS/ salinity meter, or another reliable method to test the salinity of the pool water. Once the existing salinity has been established, use Table 1 to determine the amount of salt to add to reach the desired level. Be conservative when adding salt as it is easier to add more if needed than it is to dilute if there is too much salt. If the salinity level in the pool is correct and the salt LED does not go out, see Section 7: Troubleshooting.
3. **Pool Water Sample.** Take water sample to local pool store for testing.
4. **Stabilizer (Cyanuric Acid).** Test pool water stabilizer (cyanuric acid) level using a test kit or by having a water sample tested by a pool professional. Maintain ideal range of 10 - 50 ppm. Follow your pool professional's recommendations. For indoor pools, it is not necessary to add chlorine stabilizer to the swimming pool water.
5. **Metals Test.** It is recommended that the pool water be tested periodically for the presence of metals such as iron, and manganese. These metals should not be present in the pool water. If those metals are present, contact your local pool professional.

6.3 Cleaning the Cell**⚠ WARNING**

Disconnect power to the system at the main circuit breaker before performing this procedure to avoid risk of electric shock which can result in property damage, severe injury or death.

⚠ WARNING

- When cleaning the cell, wear protective eyeglasses and gloves.
- When mixing acid with water, **ALWAYS ADD ACID TO WATER. NEVER ADD WATER TO ACID.**

The power pack has an automatic cell cleaning feature (polarity reversing) that removes scale deposits from the cell (see Section 5.5).

Scale will form in excessively hard water or from pool water that is out of balance and in a scaling condition. Following the installation of the chlorine generating device, check the cell once a month for signs of scale.

If the cell has a tendency to scale, it is recommended that every month the cell be removed and inspected for scale formation and/or debris. Some filters allow debris to pass through to the cell which could lodge between the plates in the cell. A small amount of scale formation is normal. If by looking through the cell it is observed that there is excessive scale formation between the plates or debris is present, the cell must be cleaned as follows:

1. Ensure that all power to the power pack and the controller is disconnected/turned off at the circuit breaker.
2. Before removing the cell for cleaning, shut off any necessary valves to prevent any water loss.
3. Open the air relief valve to release any pressure in the pool system.
4. Remove the terminal cap and cell leads.
5. Undo the locking ring. If required, use the locking ring tool provided (see Figure 31).
6. Remove the cell (see Figure 32).
7. Refit the cap on the cell and invert (see Figure 33) With protective glasses and gloves on, add one (1) part muriatic acid to ten (10) parts water and mix.
8. Fill the cell to the top of the electrode plates with the acid solution. A foaming action will begin, which is caused by scale (calcium carbonate) being dissolved from the plates. If rigorous foaming action does not begin, the cell does not need to be cleaned (STOP THE CLEANING PROCESS - go to the step 10). Otherwise allow the cell to remain in the solution until the foaming has stopped (approximately 5 - 10 minutes).

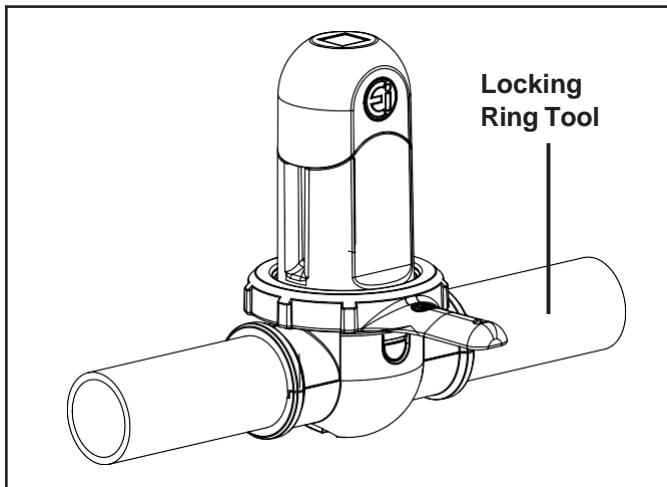


Figure 13. Undo Locking Ring

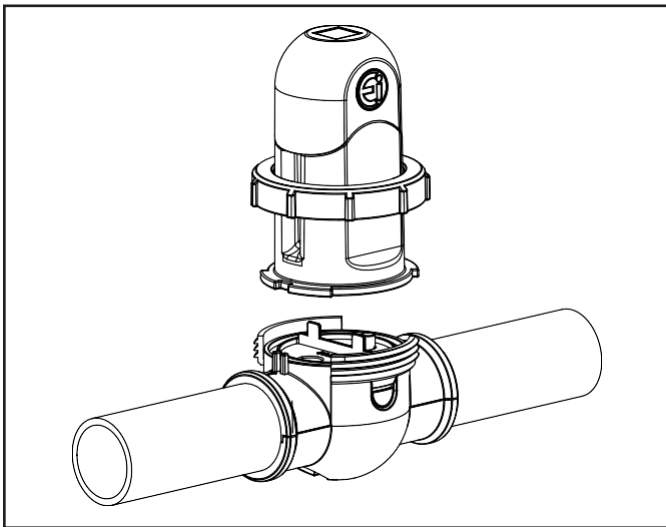


Figure 14. Remove the Cell

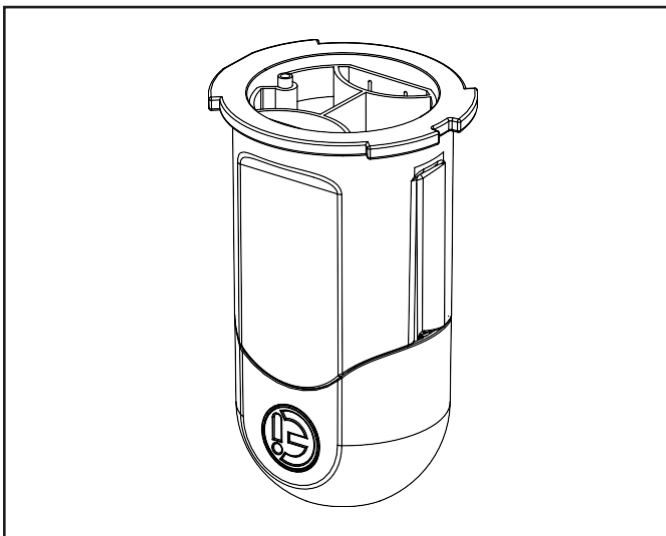


Figure 15. Invert the Cell

9. After the cell has been cleaned, dispose of the solution by pouring it into the pool water or dispose of according to local regulations.
10. Rinse the cell thoroughly with clean tap water and inspect. If deposits are still visible on the electrolytic cell, repeat step 9.

NOTE: Excessive acid washing will damage the electrolytic cell. **Do not leave in acid for more than 30 minutes.**

11. If the cell is clean, reattach the cell as described in Section 3.3.

6.4 Winterizing

NOTE: Do not use Ethylene Glycol (anti-freeze) in the system.

Very little chlorine is needed in cold water. Operating the chlorinator below 11°C (51°F) is not recommended. Operating the chlorinator in cold water can shorten the life of the cell.

If preventative measures are not taken, freezing water may cause severe damage to the cell. Prevent freeze damage to the cell by running pump continuously or winterize pool by draining water from pump, filter, and all intake and return lines. Remove the cell, clean and store it indoors. Coil the cell leads, wrap in plastic and tape to the power pack.

Winterizing caps are included with this product to replace the cell during winterizing or cell maintenance. This will enable pool pump to circulate water with the cell out of the line.

During the cold season, if you are using a FREEZE CONTROLLER on pump equipment and you choose to keep the chlorinator installed, turn the CHLORINE PRODUCTION down to 20%, otherwise, chlorine production will exceed the recommended level of 1 - 3 ppm.

⚠ WARNING

Disconnect power to the system at the main circuit breaker before performing this procedure to avoid risk of electric shock which can result in property damage, severe injury or death.

Winterizing Procedure

1. Ensure that all power to the power pack and the controller is disconnected/turned off at the circuit breaker.
2. Shut off any necessary valves to prevent any water loss.
3. Open the air relief valve to release any pressure in the pool system.
4. Remove the terminal cap and cell leads.
5. Undo the locking ring. If required, use the locking ring tool provided (see Figure 31).
6. Remove the cell (see Figure 32).
7. Attach the winterizing cap (see Figure 34).
8. Position the locking ring in proper alignment, making sure the bump aligns with the top thread.
9. Screw down the locking ring to the threaded clamp using the locking ring tool.

NOTE: Ensure the locking ring is level when engaging the threading housing (see Figure 35).

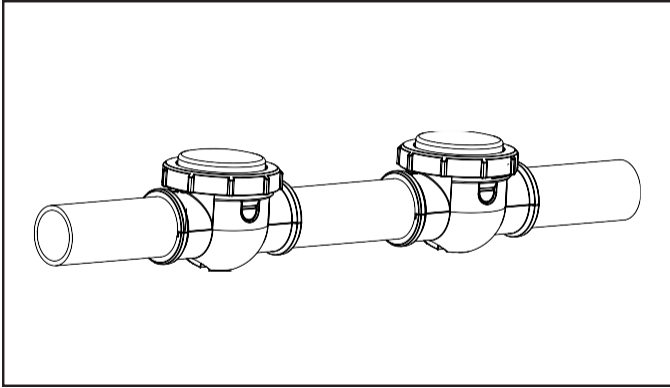


Figure 16. Installing the Winterizing Caps

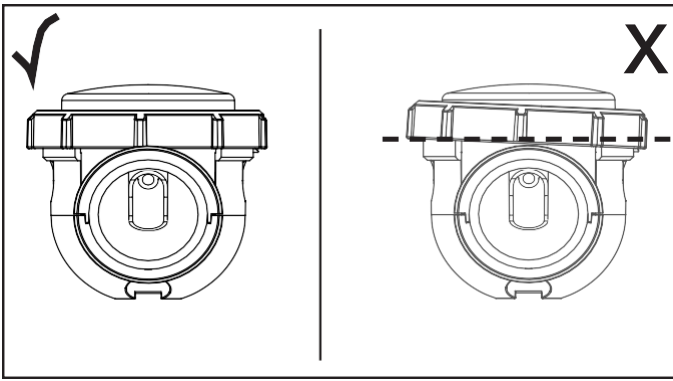


Figure 17. Locking Ring Level

Section 7. Troubleshooting

WARNING

Always turn pump off prior to attempting service or repair. Your pump and filter system is operated under pressure and pressure must be released before you begin to avoid system damage or personal injury. Follow the manufacturer's instructions to properly release the air in the pool filter.

7.1 Problems and Corrective Action

NOTE: Minimum salt level is 3000 parts per million (ppm). Low salt concentration below 2,500 ppm will cause premature cell failure.

Problem	Text Displayed	Possible Causes	Solutions
	CLEANING	The self-cleaning cycle is automatic; this message is not an error code but an information message.	<ul style="list-style-type: none"> Wait for about 10 minutes and chlorine production will resume automatically at the previously set level.
"Check Salt" warning displayed	CHECK SALT	<ul style="list-style-type: none"> Salinity is under 3,000ppm. Pool water temperature too low (< 18 °C, variable). Cell scaled up or worn. 	<ul style="list-style-type: none"> Add salt to the pool to keep the level at 3,000ppm. If you do not know the salt level or how to test it, consult your pool care professional. Display warning will come on when the water is too cold. No action required. Clean or replace the cell.
"Flow" indicator on	NO FLOW	<ul style="list-style-type: none"> Stop or failure of the filtering pump. Presence of air or gas in the cell (not filling with water). By-pass valves closed. 	<ul style="list-style-type: none"> Check filter, pump basket & skimmers and clean them if necessary. Ensure all valves are set for normal operation. If using a variable speed pump ensure the speed setting is high enough for adequate flow through the cell. If suction cleaner is connected to skimmer check cleaner for blockages or restriction of flow
	CHECK PUMP	<ul style="list-style-type: none"> This message is displayed alternately with "NO FLOW" if the situation continues. Check the pump connection into the power pack is secure. 	<ul style="list-style-type: none"> Perform the same checks as above. Note: that saltwater chlorine generator has built in pump protection. This means that saltwater chlorine generator will supply power for 4 minutes, if there is no flow detected it will retry after 20 minutes. It will repeat this again and if still no flow it will enter into standby and require restarting. All schedules will remain in memory.
	CHECK CELL	<ul style="list-style-type: none"> Short-circuit in the cell or cable disconnected/badly connected. Worn electrode. 	<ul style="list-style-type: none"> Check the cell connections. Replace the cell. Have the control box (electronic board and transformer) checked by a qualified technician if necessary.
	OVERHEAT	<ul style="list-style-type: none"> Device internal temperature over 70 °C. Device internal temperature over 80 °C. 	<ul style="list-style-type: none"> The device reduces its production to 50 %. Production stops. Production restarts automatically when the temperature drops.
	X	<ul style="list-style-type: none"> The device no longer stores the time. 	<ul style="list-style-type: none"> Check the condition of the battery. Replace it if necessary (3 V battery, type "CR2032").

NOTES

NOTES

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