

EcoSalt™

Salt Water Pool Systems

INSTALLATION & OPERATING INSTRUCTIONS

Includes Guarantee & Terms & Conditions

Model BMSC Series



**IMPORTANT:
PLEASE READ THIS
DOCUMENT
CAREFULLY.**

**Please pass these
instructions on to the
operator of this
equipment.**

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BY DAVEY WATER PRODUCTS

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EcoSalt™

Salt Water Pool Systems

Congratulations! You are now the proud owner of the renowned EcoSalt™ Salt Water Chlorinator. Please read all information in this manual carefully before installing or operating your EcoSalt™ Salt Water Pool Chlorinator.

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PACKING LIST - EcoSalt™

Included with your EcoSalt™ System are the following items, please check the contents of the box carefully prior to attempting to install the system:

1. Power Supply / Controller
2. Electrolytic Cell
3. 2 x 50mm Barrel Unions
4. 2 x 50x40 PVC Reducing Bush
5. Mounting Kit & Spare Fuse

IMPORTANT NOTICE:

FACTORS THAT WILL IMPROVE THE PERFORMANCE & LIFE OF YOUR SALT WATER CHLORINATOR PLEASE READ THIS BEFORE OPERATING YOUR CHLORINATOR

POOL BUILDERS: Please cover this information with your customer during the new pool "Hand over Session"

Salt Water Chlorinators are a valuable piece of pool sanitising equipment and must be cared for to get the best performance and life span from it.

There are **THREE** main factors that will damage your chlorinator and reduce the life of the product. Please monitor the following factors in accordance with your installation & operating instructions.

1. MAINTAIN RECOMMENDED SALT LEVELS:

RECOMMENDED OPERATING RANGE: 4500-6000ppm

NOTE: ABOVE GROUND POOL MODELS ONLY: 2500ppm

- Run chlorinator at the Salt Levels stated within this document and on the product to ensure optimum sanitiser output and cell life.
- Operating this device at low salt levels will damage the cell and reduce its life.
- The control panel displays a red LED indicator warnings when the salt levels are low.
- If no action is taken to rectify the salt levels, damage to the cell may result which will not be covered under warranty.

2. MONITOR & MAINTAIN YOUR CHLORINATOR CELL:

EcoSalt™ has a "Reverse Polarity" cell.

- To keep your salt water chlorinator in the best possible condition, regular monitoring of the electrolytic cell is recommended. The 'Cell' is the clear plastic housing containing the removable cell head.
- During the chlorination process a white powdery Calcium scale may naturally build up on the titanium plates in the cell. Monitor the cell to prevent excessive scale build up. Excessive scale build up will cause damage to your cell, and dramatically reduce its efficiency and lifespan.
- Reverse Polarity models have low maintenance cells that minimise scale build up.
- The control panel displays a red LED indicator warning when the cell requires cleaning.
- If Calcium scale builds up please clean the cell, following the cleaning instructions provided on page 11.
- **NEVER:** Use concentrated acid to clean your cell.
- **NEVER:** Leave cell in cleaning solution for extended periods of time
- **NEVER:** Use metal implements, scourers or brushes to clean your cell

3. BALANCED POOL WATER CHEMISTRY:

- Salt levels **MUST** be maintained at 4500-6000ppm for optimum performance and lifespan (NOTE: Above ground pool models: 2500ppm)
- Calcium Hardness levels **MUST** be kept to ideal ranges of **200-275ppm** (for Concrete and Tiled Pools) and **100-225ppm** (for other surfaces) to prevent excessive scale build up and damage to equipment
- pH levels **MUST** be kept to ideal levels to prevent damage to equipment and pool surfaces and to obtain optimum sanitiser effectiveness.
- Total Alkalinity and Stabiliser levels must also be kept in an ideal range.

Note: Please refer to the **RECOMMENDED POOL WATER CHEMISTRY** chart on page 13 for more information.



Note: The Chlorinator is not intended for use by young children or infirm persons without supervision. Please ensure that young children are supervised to ensure that they do not play with the Chlorinator.



Power connections and wiring must be carried out by an authorised electrician.

INSTALLATION INSTRUCTIONS FOR ECOSALT™

INSTALLING THE POWER SUPPLY:

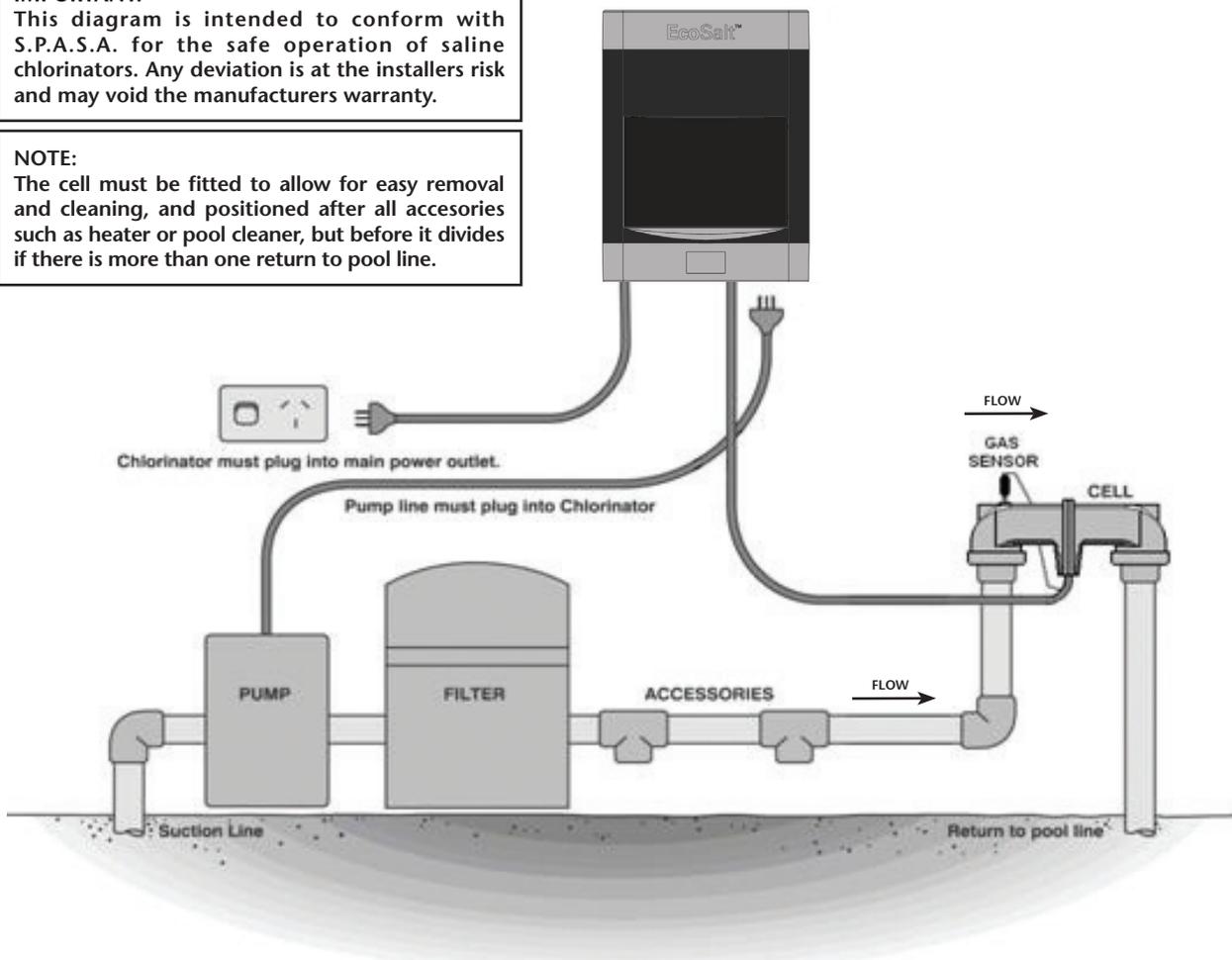
Select a convenient well-ventilated location within one metre of filter equipment and mount the Power Supply vertically onto a post or wall 1.5 metres above ground level. Australian Standards requires that the Power Supply shall not be located within 3 meters of the pool water. Plug Power supply into a suitable weatherproof outlet and plug pump into the power outlet of the Power Supply Unit. The Unit must be kept away from acid and other chemical storage areas. Acid and chemical vapours will corrode the electronics inside the Unit. It must also be kept away from heat sources. Good ventilation is necessary for correct operation.

IMPORTANT:

This diagram is intended to conform with S.P.A.S.A. for the safe operation of saline chlorinators. Any deviation is at the installers risk and may void the manufacturers warranty.

NOTE:

The cell must be fitted to allow for easy removal and cleaning, and positioned after all accessories such as heater or pool cleaner, but before it divides if there is more than one return to pool line.



Two self-tapping screws and wall plugs have been provided for fast and simple installation. Simply cut out Template at bottom of page 15 for location of drill entry points. Use a 7mm masonry drill bit when fitting Power Supply to a brick or concrete wall. When mounting to a post drill pilot holes and fit screws provided. Once screws are in position simply hang chlorinator via bracket on back of Unit.

CONNECTING THE ELECTROLYTIC CELL TO THE POWER SUPPLY:

The EcoSalt™ uses a reverse polarity electrolytic cell for low maintenance operation.

The EcoSalt™ Power Supply is fitted with a flexible lead terminated with connectors. These must be correctly fitted to the connections on the underside of the cell. Fit black connectors to the outer titanium rods. Fit the white connector to the middle titanium rod. The blue flow sensor should be pushed onto the thread of the small threaded bolt on the top of the cell.

The power outlet on the bottom of the power supply is dedicated to the PUMP ONLY.

IMPORTANT: Water must touch the gas sensor in the cell for correct operation. This can be achieved by fitting the cell as shown in the installation diagram on page 4.



Do not use a double adaptor to connect more than one pump - it can cause overload to the system and could void your warranty.

PRE - START UP PROCEDURE:

Before operating your EcoSalt™ please ensure the following items have been added to your pool:

- **SALT** - Load salt into the pool at the rate of around 45-60kg per 10,000 litres to achieve a recommended salt level of 4500 - 6000ppm. (Note: Above ground pool models only: At a rate of 25kg per 10,000 litres to achieve a recommended salt level of 2500ppm).

Connect manual vacuum system and slowly vacuum until salt dispersal is complete. Place vacuum head into deepest end of pool and allow vacuum to continue for a further 2 or 3 hours. Salt should now be completely mixed. **Never add salt directly into skimmer box.**

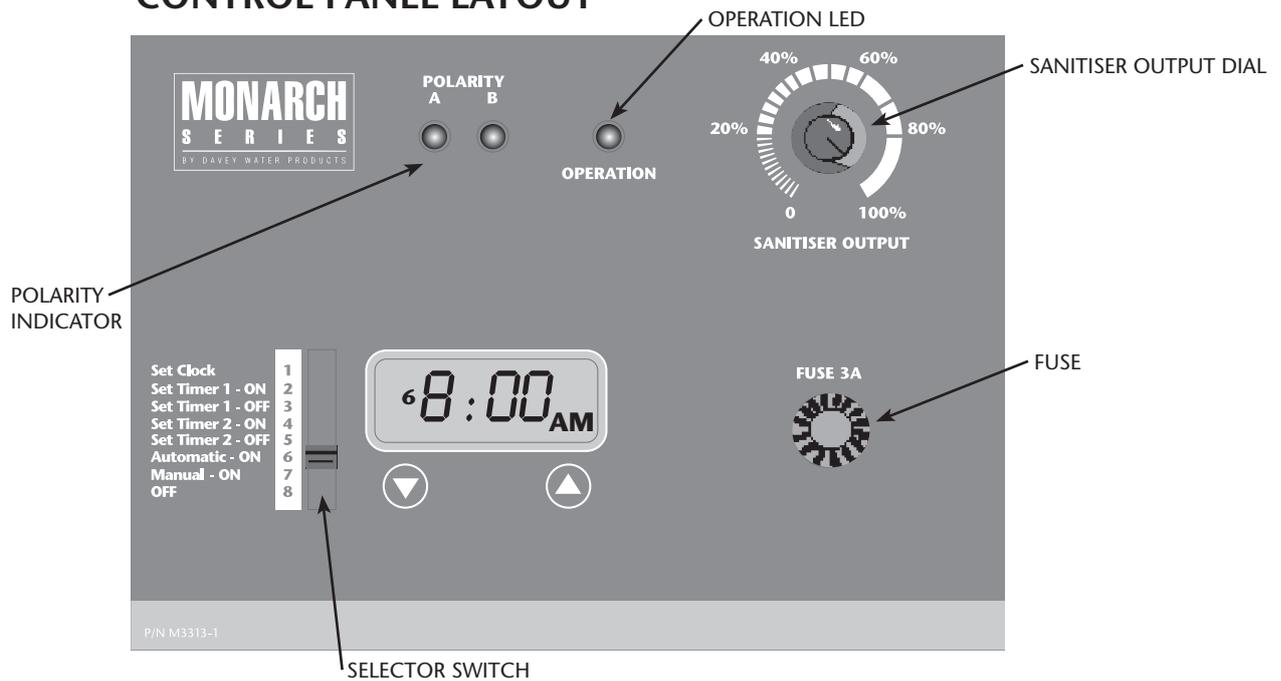
- **CHLORINE** - For a new pool installation that has not been chlorinated, add sufficient Chlorine (liquid or granular) to achieve a reading of 3 ppm (with a suitable test kit), or run the chlorinator system continuously for at least 24 hours or until a reading of 3 ppm is reached.
- **STABILISER** - It is essential that pool stabiliser be added and maintained at the rate of 30 - 50 ppm at all times. Do not exceed 100 ppm.

(Refer **Day to Day Operation** page 11 for further information).

OPERATION OF YOUR ECOSALT™ SYSTEM:

Cell Output is expressed as a percentage. Set the system control to the percentage output required and the unit will automatically adjust the cell output to the set level. The Unit is fitted with an electronic control and warning system. This regulates the output of the Unit to the preset maximum and changes cell polarity as indicated by POLARITY LEDs A&B. These LEDs will alternate over a number of hours or days depending on how the unit is set to operate. The warning system consists of one **Operation LED** which will glow Green to indicate normal operation or RED to indicate possible faults with the Unit or damaging operating conditions.

CONTROL PANEL LAYOUT



Once the salt level in the pool is correct the Unit may be switched On. **Note: Once the unit starts there is a short time delay until the cell operates to ensure the filtration system is primed with water)** At this point the **Operation LED** should be Green; if red refer below. Note: Polarity LED may be either A or B (whichever is on or brightest).

The **RED Operation LED** will indicate a number of different possible problem situations:

| Possible Problem | Action |
|------------------------------------|--|
| Salt Level Below Minimum | Add Salt |
| Cell is Calcified | Clean Cell |
| Water temperature very cold | Add Salt to compensate for cold water |
| There is a problem with water flow | Check pump / pipes for blockage or damage. Check that gas sensor is connected properly |

EcoSalt™ SPECIAL FEATURES:

SYSTEM CONTROL (SANITISER OUTPUT DIAL):

The **System Control** varies the amount of time the Cell operates during the filtration cycle.

The **System Control** will not vary the electrical current supplied to the Cell.

As an example, if one filtration cycle is set at 5 hours, and the **System Control** is set to 80%, then the total amount of time the Cell will operate during the 5-hour cycle will be 4 hours. If the **System Control** is set to 60%, the Cell will operate for 3 hours total over the 5-hour filtration cycle. At 100% the Cell will be ON for the entire 5 hour cycle.

When the **System Control** is set to 0, the Cell will be OFF for the duration of the filtration cycle. When the **System Control** is set to 100%, the Cell will be ON for the duration of the filtration cycle.

To turn the Cell OFF, simply turn the **System Control** to 0.

NOTE: It is recommended to turn the sanitiser output dial to "0" when back washing..

POLARITY INDICATORS A & B:

These LEDs are used to check that the Cell current polarity is reversing. Whichever is on (or brightest) indicates the polarity of operation. The Cell will operate in one polarity for a number of hours so any change in these LEDs will happen slowly and depend on how the unit is operated.

LOW SALINITY INDICATION

Your EcoSalt™ is fitted with a number of protective systems including the **operation LED** whose primary function includes **Low Salinity Indicator**. As the salt level in the pool decreases, the wear on the Cell increases. Although salt is not consumed in the EcoSalt process, it is lost through splashing, back washing and on bathers as they leave the pool. The salt level is also reduced by rain, which causes dilution. Salt is not lost to evaporation.

As the salt level in the pool falls toward the minimum **Operation LED** will turn RED. At this point the salt level should be increased by adding 25kg of salt per 25,000 litres of pool water. The addition of salt should not affect the EcoSalt™ as it is protected against overloads. If no action is taken and the salt level continues to fall damage to the system may result.

There are other factors that can cause the Unit not to work correctly:

1. **Heavy Rain** - can cause very diluted pool water to pass over the Cell due to surface skimming.
2. **Scaled Cell** - a scaled Cell will not draw as much electrical current as a clean Cell when first started.
3. **Cold Water** - cold pool water reduces the ability of a Cell to carry electrical current.
4. **Failing Cell** - as the Cell ages there will come a time when the electrical current draw will drop. This can be compensated for with the addition of extra salt. A Cell is considered failed when it draws less than **80 % of maximum** current. Please note that the **Low Salinity Indicator** is not like T.D.S. meters, which are temperature compensated Scientific Instruments. The accuracy will be within 500ppm salinity and they are water temperature dependent, just as the Cell is.

AUTOMATIC TIME CLOCK OPERATION:

The digital timer includes a backlit Liquid Crystal Display which displays time of day in 12-Hour format with AM / PM indication and a selector switch position indicator. The digital timer has up and down buttons for incremental settings.



Timer Setting and Functions:

To set your clock and various functions please refer to the table of instructions below.

NOTE:

When you first turn on the power to the chlorinator, it will take approximately 5 seconds for the LCD to appear on the screen.

| Function Description | Selector Switch Position | Functions and Instructions |
|----------------------|--------------------------|---|
| Set Clock | 1 | Set the current time on the digital clock |
| | | Select the Set Clock position on the selector switch to enable the time of day to be input. A number '1' will appear at the left of the screen. (a) The display will flash on and off as long as the selector switch remains at this position. Use the up ▲ and down ▼ buttons to reach the desired times. Hold the buttons down for fast increments |
| Set Timer 1 - ON | 2 | Set the start time for the first run time sequence |
| | | Select the Set Clock 1-ON position on the selector switch. A number '2' will appear at the left of the screen. This time factory pre-set to 6am. Proceed as per (a) in the 'Set Clock' instruction to change time. To disable this timer, move up or down to 11:59PM. Press the UP button one more time to turn OFF. NOTE: This step will also disable the time for 'Set Timer 1 -OFF'. |

| | | |
|------------------|---|---|
| Set Timer 1- OFF | 3 | Set the completion time of the first run time sequence |
| | | <p>Select the Set Timer 1- OFF position on the selector switch. A number '3' will appear on the left of the screen.</p> <p>This time is factory pre-set to 8am. Proceed as per (a) in the 'Set Clock' instruction to change time.</p> |
| Set Timer 2- ON | 4 | Set the completion time of the second run time sequence |
| | | <p>Select the Set Timer 2- ON position on the selector switch. A number '4' will appear on the left of the screen.</p> <p>This time is factory pre-set to 5pm. Proceed as per (a) in the 'Set Clock' instruction to change time.</p> <p>To disable this timer please refer to selector switch position 2 above.</p> |
| Set Timer 2- OFF | 5 | Set the completion time of the second run time sequence |
| | | <p>Select the Set Timer 2- OFF position on the selector switch. A number '4' will appear on the left of the screen.</p> <p>This time is factory pre-set to 11pm. Proceed as per (a) in the 'Set Clock' instruction to change time. To disable this timer, see notes on selector switch 4.</p> |
| Automatic ON | 6 | Filtration system switches on and off automatically according to your set times |
| | | <p>Select the Automatic ON position on the selector switch. A number '6' will appear on the left of the screen.</p> |
| Manual ON | 7 | Over-rides the automatic time clock settings & switches filtration system ON |
| | | <p>Select the Manual ON position on the selector switch. A number '7' will appear on the left of the screen.</p> <p><i>NOTE: Chlorination will be constant until turned OFF or back to Automatic ON. Over chlorination may occur if left for long durations</i></p> |
| OFF | 8 | Over-rides the automatic time clock settings & switches filtration system OFF |
| | | <p>Select the OFF position on the Selector switch. A number '8' will appear on the left of the screen.</p> <p><i>NOTE: Filtration & sanitisation will cease. Not recommended for long durations.</i></p> |

SAFETY NOTICE

IMPORTANT Certain local electrical regulations state "If the supply cord is damaged, it must be replaced by a special cord available from the manufacturer or its service agent".

MAINTENANCE OF POWER SUPPLY:

Little or no maintenance is normally required with the exception of replacing blown **Fuses**. These **Fuses** can be sourced from your local EcoSalt™ Dealer. However it is essential that the wall or post to which the Unit is installed be sprayed (not the Unit itself) periodically with a good surface type insect repellent, since penetration by insects may cause damage, which is not covered by your warranty.

The back of the Unit has been designed as a heat sink. It is normal for this area to become very hot.

MAINTENANCE OF ELECTROLYTIC CELL:

The cell is composed of precious materials, and although proper maintenance can prolong its life to the maximum, eventually the process of electrolysis will wear away its delicate coating, at which time it gradually ceases to produce chlorine.

Mineral salts and calcium (scale) are deposited on the outer and the inner plate as electrolysis takes place. This build up – will interfere with the flow of electrical current in the Cell and thus lowers sanitiser production. It is essential to inspect the Cell regularly and clean when necessary. The rate at which deposits will form on the plate differs with each pool and can be influenced by the following:

- Calcium hardness of the water
- Water Temperature
- pH control
- Water which has been chlorinated with calcium hypochlorite for an extended period
- Calcium in the plaster surfaces of a concrete pool

Because these conditions vary so much, check the Cell at least weekly to begin with to see when either scale or a blue/green soapy substance appears on the plate. You will then be able to determine the cleaning cycle necessary for your pool (obviously more in summer). The intervals between cleaning could get longer to the point where cleaning is only necessary a few times each year. One exception is the use of bore water or ground water, in which case cleaning may always need to be as frequent as once a week.



NOTE:

In areas with hard water, reverse polarity systems may require occasional manual cleaning.

The life of Eco Salt™ electrolytic cells vary substantially from one installation to another due to variations in operating time, water quality and composition, system and cell maintenance. Please ensure that when cell replacement is necessary you use the correct genuine Eco Salt™ replacement cell to match your system. The correct Eco Salt™ Replacement cells to use are shown in the table below:

| EcoSalt™ BMSC: Reverse Polarity Cells | |
|---------------------------------------|-----------------------|
| Model | Replacement Cell Code |
| EcoSalt 13 | MO681REP |
| EcoSalt 20 | MO682REP |
| EcoSalt 26 | MO683REP |

ALWAYS INSIST ON GENUINE ECOSALT REPLACEMENT PARTS. If it is necessary to replace the Electrolytic Cell, beware of "look alikes". Only the Genuine EcoSalt Cell is designed and warranted to operate with the EcoSalt Power Supply.

SERIOUS DAMAGE MAY RESULT TO THE ELECTRONICS INSIDE THE UNIT IF COPY ELECTRODES ARE USED AND MAY VOID WARRANTY.

To clean the EcoSalt™ cell: Ensure that the power supply is turned off- failure to do so may result in the pool pump turning on while the cell is not in place. Disconnect the power lead from the underside of the cell. Remove the cell from the pool return line by undoing the unions. Take care not to lose the o-rings.

METHOD 1

Add 1 part HYDROCHLORIC ACID to 10 parts WATER in a suitable container. The Cell should be placed on a suitable surface that allows it to form a U shape and some of the solution can be poured safely into the up-turned cell. Take care when doing this as the solution can foam and create a spill which must be cleaned up by dilution. As an alternative the Cell can be immersed completely in a container.

METHOD 2

As an alternative, an approved commercial Cell cleaning solution can be used a number of times effectively.

When clean the Cell should be rinsed thoroughly and the connections should be dried carefully to avoid connector corrosion. It should not take longer than a few minutes to clean, if it does the Cell should be cleaned more frequently. Return the Cell to its position in the pipe work and re-connect it.

| | |
|---|---|
|  | WARNING: Follow safety instructions provided with the Hydrochloric Acid or cleaning solution. When handling Hydrochloric Acid, the use of eye protection, mask and gloves are highly recommended. Extreme caution should be taken whenever handling Hydrochloric Acid or Cell Cleaning Solution. |
|---|---|

SAFETY DEVICE:

Hydrogen Gas is a by – product of the chlorine producing process. A Gas Sensor has been incorporated into the Unit and Cell, which will switch off chlorination if gas is detected in the Cell Housing or there is no water flow. EcoSalt™ Units are also fitted with a Thermal Cut – Out to prevent overheating. If the temperature rises too high, power is automatically disconnected. The Unit will resume operation when it cools down.

DAY TO DAY OPERATION:

Four Prime rules must be observed if your unit is to give the best possible service:

1. STABILISER

The importance of pool stabiliser cannot be over – emphasised. It is essential in helping retain chlorine in your pool. Chlorine is rapidly dissipated by sunlight and the use of stabiliser will reduce this dissipation substantially. Without stabiliser, it may be necessary to run the Unit for up to three times as long!

Stabiliser should be added at the rate of 500 grams for every 10,000 litres of water. Stabiliser should be maintained at a level of 30 – 50 ppm. Before adding more stabiliser, have your pool water analysed at your pool shop to ensure that you do not add too much.

2. pH AND TOTAL ALKALINITY:

A correct pH level must be maintained to prevent problems such as black spot, staining, cloudy water, etc. An incorrect pH level can damage the pool. Correct pH levels are as follows; Fibreglass – 7.2 to 7.4 Concrete & tiled – 7.4 to 7.6 If you allow the pH level to rise to 8.0 or above, the chlorine required could be as much as three times the normal amount.

Total Alkalinity should not be confused with pH, although the two are closely related. Total Alkalinity determines the speed and ease of pH change. The ideal range is 80 – 150 ppm, or refer to your pool professional.

You should use a test kit which includes a test for Total Alkalinity. Low Total Alkalinity can cause unstable pH levels – i.e. An inability to keep the pH constant may cause staining, etching and corrosion of metals. High Total Alkalinity will cause constantly high pH levels.

3. SALT LEVELS:

| | |
|---|--|
|  | Warning: Some people recommend that you put salt directly in the skimmer box. This is a very poor practice as it allows very high concentrations of salt to be passed through your filtration and other pool equipment. |
|---|--|

Salt is the essential element by which your Unit operates. Not enough salt means not enough chlorine - this simple rule governs the total operation of your EcoSalt™, and insufficient salt will damage your Cell.

RECOMMENDED SALT LEVEL RANGE: 4500 - 6000ppm
(Above ground pool models only: 2500ppm)

Salt is NOT used up in the process of producing chlorine or by evaporation. Salt is only lost through back - washing, splash - out, overflow or by leakage from the pool or plumbing. Heavy rain can dilute the salt solution in your pool; therefore salt levels should be checked during this season.

Low salt levels will destroy the coating on the Anode plates and will void all Warranty.

The EcoSalt™ has a built in warning indicator to minimise damage resulting from insufficient salt levels, however, the ultimate responsibility is on the owner to ensure adequate salt levels are maintained all year round.

4. RUNNING TIMES:

These instructions cover EcoSalt for residential use only.

If you run your chlorinator for 24 hours a day, or for long periods, the Cell life will be greatly reduced. It is important that the correct model EcoSalt™ has been installed on your pool. Many models are available from Davey to cope with small courtyard pools up to commercial applications. (Consult your local EcoSalt™ Dealer for more information).

Note: The EcoSalt guarantee does not apply to commercial or semi-commercial installations, i.e. where the system runs more than an average of 8 hours per day over the year. Guarantee on commercial and semi-commercial installations is 12 months only on both power supply and cells.

CHLORINE PRODUCTION:

The EcoSalt™ must be run daily to generate sufficient chlorine to sanitise the pool. During Summer this is approximately eight hours per day, preferably in two periods - between 6.00 and 8.00am and between 5.00 and 11.00pm. Night time is preferable because chlorine dissipates rapidly in direct sunlight. If these running times are observed, and the Cell is functioning correctly, your pool will have sufficient chlorine when tested in the morning.

If the level is too low either longer running times are required or the **Sanitiser Output Control** needs to be adjusted to maximum. Harsh local conditions such as traffic pollution or wind borne dust require different running times, in which case, seek advice from your pool shop. During Winter approximately 4 to 6 hours a day should provide enough chlorine. Without sufficient filtration/chlorination, your pool will never function correctly. **ALWAYS RUN THE FILTER WHEN SWIMMING IN THE POOL.** In extremely hot weather or during periods of heavy bathing loads, the running time may need to be extended to 10 - 14 hours per day.

In some cases you may find your chlorine level to be too high. To determine if this is the case, run your filter/ chlorinator for the suggested times/chlorine production level and test your pool water on the morning after operation. If your chlorine test shows a high level of chlorine, either the running times can be reduced slightly, or the **Sanitiser Output Control** can be turned anti - clockwise. Test your chlorine level again the following morning at around the same time. If your chlorine level is still high, repeat the above process until the correct level is attained.

“SHOCK” TREATMENT:

Periodically, especially during extremely hot conditions, it may be necessary to boost the amount of chlorine in your pool in order to maintain absolute sanitation of the water. This can be achieved by adding either liquid or granulated chlorine. If granulated chlorine is added, the Cell must be checked regularly, since the additives from this product will clog the electrodes. Alternatively, extend the running time of your EcoSalt™.

CHLORINE TYPES AND COMPARISONS / MAX POOL SIZE:

Many chlorinator manufacturers calibrate their units to compare with 65% granulated chlorine, making it necessary to adjust their readings to a lower level in order to determine true chlorine production. Below is a comparison table of the available types of chlorine used to sanitise pools.

| EcoSalt™ | Production maximum grams/hour (100%) | Production* grams/hour (65% equivalent) | Chlorine produced over 8 hours grams (100%) | Equivalent in dry granulated chlorine grams (65%) | MAX POOL SIZE (Litres) | | |
|----------|--------------------------------------|---|---|---|------------------------|--------------------|-------------------------|
| Model | | | | | COOL CLIMATES | TEMPERATE CLIMATES | HOT & TROPICAL CLIMATES |
| 13 | 13 | 20 | 104 | 160 | 65,000 | 40,000 | 28,000 |
| 20 | 20 | 31 | 160 | 248 | 100,000 | 62,000 | 44,000 |
| 26 | 26 | 40 | 208 | 320 | 130,000 | 81,000 | 57,000 |



NOTE: The appropriate chlorinator size for your pool is dependent on the local climate and the bather load of the pool. Please note that chlorinator cell life can be increased with shorter running times during winter and lower output settings. Davey recommends that a chlorinator is run for between 6 - 8 hours a day during summer, and 4 hours during winter.

GENERAL INFORMATION:

RECOMMENDED POOL WATER CHEMISTRY

| POOL WATER BALANCE | Free Chlorine (ppm) | pH | Total Alkalinity TA (ppm) | Calcium Hardness (ppm) | Stabiliser - Cyanuric Acid (ppm) | Recommended Salt Level (ppm) |
|----------------------|---|---|-------------------------------|---|---|---|
| Ideal Reading/ Range | 1.5 - 3 | Concrete & Tiled Pools: 7.4-7.6 Other Surfaces 7.2-7.4 | 80 - 150 | Concrete & Tiled Pools - 200-275 Other Surfaces - 100-225 | 30 - 50 | 4500 - 6000 (Above ground pool models only: 2500ppm) |
| To Increase | Increase output of chlorinator. Add chlorine. Increase filtration time. | Add buffer or soda ash (Sodium Carbonate) | Add Sodium Bicarbonate | Add Calcium Chloride | Add Cyanuric Acid | Add Salt |
| To Decrease | | Add Muriatic Acid | Add Muriatic Acid or Dry Acid | Partially Drain & Refill Pool with lower hardness water to Dilute | Partially Drain & Refill Pool to Dilute | Partially Drain & Refill Pool to Dilute |
| Frequency of Testing | Weekly | Weekly | Weekly | Weekly | Regularly | Regularly |

COMMON TERMS:

Algae - Microscopic forms of plant life which enter the pool by rain, wind and dust. There are numerous varieties - some are free floating whilst others grow on walls and in cracks and come in different colours. Some are more resistant to chemical treatment than others.

Bacteria - The germs that contaminate your pool. Introduced by swimmers, dust, rain storms and other elements.

Balanced Water - The correct ratio of mineral content and pH level that prevents pool water from being-corrosive or scale forming.

Chloramines - Compounds formed when chlorine combines with nitrogen from urine, perspiration, etc. Chloramines cause eye and skin irritation, as well as unpleasant odours.

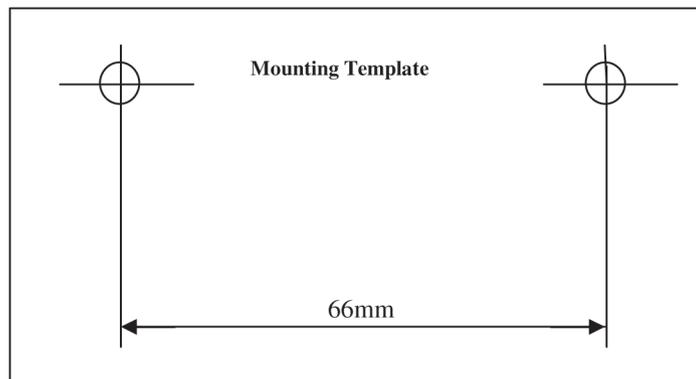
Chlorine Demand - The chlorine required to destroy germs, algae and other contaminants in the pool.

Chlorine Residual - The amount of chlorine remaining after chlorine demand has been satisfied. This is the reading obtained with your test kit.

Cyanuric Acid - Also known as stabiliser or conditioner. It reduces dissipation of chlorine by direct sunlight.

Liquid Acid - Chemical used to reduce the pH and total alkalinity in the pool water, and for cleaning chlorinator Cell.

ppm - An abbreviation for Parts Per Million the accepted measurement of chemical concentration in swimming pool water. 1 ppm- 1 mg/L.



Davey® Repair or Replacement Guarantee

In the unlikely event in Australia or New Zealand that this Davey product develops any malfunction within warranty periods beginning from the date of original purchase due to faulty materials or manufacture, Davey will at our option repair or replace it for you free of charge, subject to the conditions below.

Davey Guarantee Period

Power Supply - Two Years

Electrolytic Cell - Three Years

Should you experience any difficulties with your Davey product, we suggest in the first instance that you contact the Davey Dealer from which you purchased the Davey product. Alternatively you can phone our Customer Service line on 1300 367 866 in Australia, or 0800 654 333 in New Zealand, or send a written letter to Davey at the address listed below. On receipt of your claim, Davey will seek to resolve your difficulties or, if the product is faulty or defective, advise you on how to have your Davey product repaired, obtain a replacement or a refund.

Your Davey Guarantee naturally does not cover normal wear or tear, replacement of product consumables (i.e. mechanical seals, bearings or capacitors), loss or damage resulting from misuse or negligent handling, improper use for which the product was not designed or advertised, failure to properly follow the provided installation and operating instructions, failure to carry out maintenance, corrosive or abrasive water or other liquid, lightning or high voltage spikes, or unauthorized persons attempting repairs. Where applicable, your Davey product must only be connected to the voltage shown on the nameplate.

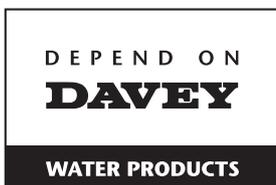
Your Davey Guarantee does not cover freight or any other costs incurred in making a claim. Please retain your receipt as proof of purchase; you **MUST** provide evidence of the date of original purchase when claiming under the Davey Guarantee.

Davey shall not be liable for any loss of profits or any consequential, indirect or special loss, damage or injury of any kind whatsoever arising directly or indirectly from Davey products. This limitation does not apply to any liability of Davey for failure to comply with a consumer guarantee applicable to your Davey product under the Australian or New Zealand legislation and does not affect any rights or remedies that may be available to you under the Australian or New Zealand Consumer Legislation.

In Australia, you are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Should your Davey product require repair or service after the guarantee period; contact your nearest Davey Dealer or phone the Davey Customer Service Centre on the number listed below.

For a complete list of Davey Dealers visit our website (davey.com.au) or call:



AUSTRALIA

Customer Service Centre
6 Lakeview Drive,
Scoresby, Australia 3179
Ph: 1300 367 866
Fax: 1300 369 119
Website: davey.com.au

NEW ZEALAND

Customer Service Centre
7 Rockridge Avenue,
Penrose, Auckland 1061
Ph: 0800 654 333
Fax: 09 527 7654
Website: daveynz.co.nz

Davey Water Products Pty Ltd
Member of the GUD Group
ABN 18 066 327 517

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P/N MMAN009-2 supersedes P/N MMAN009-1

* Installation and operating instructions are included with the product when purchased new. They may also be found on our website.