

The logo for KUSTOM POOLS Cairns is centered in the upper half of the page. It features a stylized blue and white oval graphic to the left of the text. The text "KUSTOM" is in a bold, dark blue font, "POOLS" is in a lighter blue font, and "Cairns" is in a smaller, dark blue font below "POOLS".

KUSTOM POOLS
Cairns

Pool Owner's Guide

Equipment Operation & Chemical Guide



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WATER CHEMISTRY GUIDE

SANITISING POOL WATER

Sanitisation of pool water is to prevent swimmers from getting sick. Untreated pool water is the perfect environment for the growth of dangerous bacteria. These bacteria can cause infections in ears; throats etc... and lead to disease.

Bacteria is controlled by adding a sanitiser such as chlorine on a regular basis and passing all of the pool water through a filter to remove the dead bacteria. It is important to ensure that any new bacteria entering the water is met by a residual of chlorine in sufficient concentration so that it is killed in a short period of time.

A large dog can add twenty times more bacteria to a pool than one person. The primary source of bacteria entering the water is swimmers. Top up water, leaves, grass and debris contribute to the bacteria level.

An accepted level of free chlorine is between **3 and 5 mg/l or ppm**.

The pool will require an amount of chlorine each day to kill all bacteria. Chlorine is consumed by algae, debris, sweat, phlegm etc., sunlight; increased water temperature but the most savage consumers of chlorine are sunlight and swimmers.

SUNSCREEN / STABILISER / CYANURIC ACID

Sunlight can destroy up to 5 mg/l of chlorine in less than 3 hours, so it is recommended that sunscreen be used. The concentration required and to be maintained is between **40 mg/l and 65 mg/l or ppm**.

ALGAE PREVENTION & REMOVAL

Approximately 50 algae species may be found in pool water varying from Mustard green / yellow that exist in suspension, to the green clinging type and the black spot.

Algae may develop in crevices or corners where circulation is poor, but will be highly unlikely to form if chlorine residual has been maintained at all times and circulation is adequate.

ALGAE REMOVAL

1. Adjust the pH to 7.0 to 7.2
2. Backwash or clean the filter.
3. Add an appropriate dosage of Algaecide
4. Add a pool shock to the water.
5. Brushing of the pool walls and steps may be required.
6. Vacuum the pool. If the algae passes through the filter media and returns to the pool it will be necessary to vacuum to waste.

WATER BALANCE

Correctly balance water is essential when considering the long term effect on pool finishes, exposed metal, and equipment. If the water is out of balance it will either be corrosive or scale forming.

There are 5 factors which contribute to balanced pool water:

1. Total Alkalinity
2. Calcium Hardness
3. Temperature
4. Total Dissolved Solids (TDS)

pH

Maintaining the pH is one of the most important parts of pool care. It plays an important part in both controlling the efficiency of the chlorine and protecting the lining of the pool and the equipment from scaling and / or etching.

It is a measure of the acid / alkaline balance of the water on a scale of 0 to 14. With 7 being distilled water, which is neither acidic nor alkaline.

The ideal pH level is between 7.2 and 7.4. This is not only the ideal level for body comfort, but also the ideal level for achieving maximum chlorine efficiency.

A low pH level will eventually cause corrosion of any metal parts exposed to the water, and also etch pool linings.

A high pH level will eventually cause scaling on tiles, lights and other areas of the pool lining and interior.

PH decriaser used is, (liquid acid)

TOTAL ALKALINITY

Total Alkalinity is the measurement expressed in milligrams per litre, of all the hydroxides, carbonates and bi-carbonates in the water. It is an important factor in maintaining balanced water and, at the correct levels, acts as a buffer on the pH by controlling the rate of change in the pH level.

The ideal range for Total Alkalinity in swimming pool water is between 80 and 150 mg/l. Low Total Alkalinity makes it very difficult to control pH and a water balance problem referred to as "pH Bounce" occurs. Low Total Alkalinity is also very corrosive, similar to low pH.

High Total Alkalinity makes it difficult to maintain the pH in the desired range, with the pH constantly tending to rise. This condition can lead to bi-carbonate scaling throughout the pool.

Total Alkalinity is lowered by the addition pH Decreaser (Liquid acid). Total Alkalinity is raised by the addition of Alkalinity Increaser (Sodium Bi-carbonate).

Dosage rates are indicated on the labels of all chemical containers.

CALCIUM HARDNESS

Calcium Hardness is also measured in milligrams per litre and is the measure of the amount of dissolved calcium and magnesium in the pool water.

The ideal range for Calcium Hardness in swimming pool water is 175 to 250 mg/l.

Low Calcium Hardness can cause etching and corrosion.

High Calcium Hardness can cause scaling on the pool walls and throughout the equipment.

To increase the level of Calcium Hardness, add Calcium Hardness Increaser.

To Decrease the level of Calcium Hardness add pH Decreaser (Liquid acid) or dilute the pool water.

Dosage rates are indicated on the labels of all chemical containers.

SWIMMING POOL EQUIPMENT GUIDE

SALT WATER CHLORINATION SYSTEM

Please remember that your salt water chlorinator unit is not designed to chemically maintain your pool water and keep it balanced, but rather to produce chlorine from a mild salt solution within the water.

Water testing and balancing is an integral and essential maintenance program that will ensure trouble free chlorinator performance, as well as a healthy and sparkling clean pool.

To maintain the stability of these recommended pool water levels, we recommend that the water be regularly tested and corrected, if required.

ADDITION OF SALT

For best results, the salt concentration within the pool water will require a minimum range of approximately 3500 to 5,000 parts per million (ppm). Dependant on the brand of Chlorinator installed on your pool.

Whilst adding salt please ensure that your chlorinator power supply is switched off to prevent overload situations and/or damage to the electrodes or power supply.

SPECIAL NOTE

Contrary to popular belief, the action of your salt water chlorinator does not use up the salt content of your pool water. In effect, as the water is passed over the cell plates, the salt is electrolysed and converted into sodium hypochlorite (chlorine). This sanitises your pool water and converts back into salt. However, salt loss will occur through swimmer action, filter back washing and wet weather overflow conditions.

CHEMICAL WATER BALANCE

As previously advised, for best performance and operation of your salt water chlorination system, certain water balances must be maintained within your swimming pool. Please check your pool water and ensure that your chemical balances are within the following guidelines:

pH	7.2 - 7.4
Total Alkalinity	90 ppm – 150 ppm
Cyanuric Acid	40 ppm – 65 ppm
Salt	3500 ppm – 5000 ppm
Chlorine	3 - 5 ppm

CHLORINE CONTROLLER

The chlorine controller regulates the amount of chlorine production relevant to the position the unit has been set at. By adjusting the chlorine control, you **increase or decrease chlorine manufacture**.

CHLORINE OUTPUT INDICATOR

Your power supply may be fitted with an indicator to display chlorine output.

During operation of your chlorinator, the indicator will adjust relevant to the degree to which the chlorine control has been adjusted. Working in conjunction with the chlorine controller, you can increase or decrease chlorine output to suit your pool's requirements. As you increase the output, the indicator will adjust progressively to 100%

You have full control of chlorine production merely by adjusting the chlorine control to meet your chlorine demand.

TIME CLOCK OPERATIONS

The time clock within your chlorinator is designed to switch your equipment on or off at the time zones you have nominated.

SPECIAL NOTE FOR RP MODELS

Although you have a reverse cycle (Automated Cell Cleaning) chlorinator, it is recommended from time to time that the cell be checked for any accumulation of calcium or other deposits that may have built up. Within a 24 hour reverse cycle, there may be a fine film of calcium build up on the edge of the plates, but this will be automatically cleaned after every cycle. It is good practice to check the cells occasionally to ensure that the lead connections are clean and firmly tightened, the electrode spacers are in place and remove any other foreign objects that may have become trapped. Although it is not widely practised, we recommend cleaning the cell once or twice a year.

SPECIAL NOTE

A clean electrolytic cell will extend the cell life as well as produce maximum chlorine without the necessity of running the power supply at continual high settings. By keeping your cell in a clean state at all times, you are effectively safe guarding your investment, and maximising the cell life of your salt water chlorinator.

CHLORINATOR RUNNING TIMES

Chlorinator running times will vary from pool to pool, and are dependent upon the situation they are installed into, pool size, and the overall usage of the pool in general.

Several factors will determine the operational time of the chlorinator. The following rates are based on the average swimming pool size of approximately 60,000 litres.

TIME	The longer you run your filter plant and chlorinator, the more chlorine you will produce.
RATE	The higher the chlorine percentages, the more chlorine is being produced.
CELL CLEANLINESS	The cleaner the cell, the better the chlorine production rate.

BASIC POOL CHEMISTRY

The more correctly maintained, the less chlorine waste.

Taking the above into account, we therefore suggest the following operational hours:

SUMMER: (Peak swimming season) 8-10 hours per day (minimum)

AUTUMN & SPRING: 6-8 hours per day

These are recommended times only, and it may be necessary to adjust these, depending on your bather load, weather conditions and special requirements.

GENERAL CHLORINATOR OPERATION

Before switching on your salt water chlorination system, please ensure that you have added the correct amount of pool salt. That it has fully dissolved and is distributed throughout the pool water. Ensure that the base pool chemistry is at the recommended levels, and the pool water is clean and crystal clear.

Switch on the pool filter system and the chlorinator unit. At this point it may register a water flow fault as the cell housing fills with water, and an alarm may activate. This is normal start up procedure and will cease as soon as the unit registers full and correct water flow throughout the electrodes.

With the chlorine output now turned to the maximum position, the indicator should indicate 100%. With the correct amount of salt added to the pool water you should achieve a 100% reading. In this position, the unit is producing maximum chlorine output.

After determining your particular pool's chlorine needs, you can set the controller to the desired setting to achieve your chlorine requirements, and/or adjust your daily running times. Normally, once set, these controls do not require further adjustment.

Set your chlorine controller to achieve maximum and optimum results for your pool situation. Please remember that an over chlorinated pool is not a healthy pool, so it may not be necessary that you run your chlorinator at maximum output to maintain recommended chlorine levels.

PUMPS

PRIMING

The pump will prime and re prime providing the hair and lint pot bowl is full of water and there is sufficient supply from the pool.

If you loose the water from the lint pot it will be necessary to re fill the bowl.

ALLOW ONLY A FEW MINUTES MAXIMUM FOR WATER TO FLOW

The lint pot basket should be inspected and cleaned at regular intervals.

Pumps are designed to work with clean water at a temperature not exceeding 35 degrees.

VACUUMING THE POOL

1. Connect vacuum head to telescopic pole.
2. Connect the hose to vacuum head and lower into pool.
3. Ensure air is removed from the vacuum hose by placing the unattached end over a pool return whilst the filtration system is still running.
4. Switch filtration system off.
5. Ensure the main drain pipe if fitted (hole inside skimmer) to the bottom of the pool is capped.
6. Fit vacuum plate into skimmer and lock into position.
7. Switch filtration system on.
8. Connect hose to vacuum plate.
9. Commence vacuuming.

NOTE – *If the pool is fitted with more than one skimmer, the skimmer not being used to vacuum from must have threaded cap fitted to the vacuum plate and main drain pipe with the plate fitted into the skimmer.*

When vacuuming is complete, backwashing may be required and all baskets should be inspected and cleaned if necessary.

SAND FILTERS

Sand filters are designed to work with water at a temperature > 0 and $<$ than 45 degrees. Incoming water from the piping is automatically directed by the multiport valve to the top of the filter bed. As the water is pumped through the filter sand, dirt and debris are trapped by the filter bed and filtered out. The filtered water is returned from the bottom of the tank to the pool.

FILTER HEAD

FILTER	For filtering the pool water.
BACKWASH	For cleaning the filter media to the waste line. Flushes trapped dirt to the waste line.
RINSE	For flushing the filter system to the waste line. This process settles the filter sand into place and ensures any dirt is rinsed out of the filter to the waste line and not into the pool.
WASTE	For bypassing the filter sand to the waste line. Used to lower the water level or for vacuuming water with high dirt loads to the waste line.
RE-CIRCULATE	For bypassing the filter sand to the pool.
CLOSED	For closing all flow to the filter.

NOTE - When the filter is first started and has been purged of air, you must note the pressure on the pressure gauge. This is what is known as the filter operation pressure and it is important that you be aware of this figure.

All filtration systems will operate at different pressures depending on the pool hydraulics. Do not be alarmed if your filter operates at different pressures than other pools for this reason.

SAND FILTER BACKWASHING

Time for backwashing is determined by the following conditions:

1. The flow rate is insufficient to meet demand.
2. The cleaning efficiency decreases to the point where water quality deteriorates.
3. When the pressure gauge is 20 kpa higher than start up pressure.

BACKWASHING IS RECOMMENDED AT LEAST ONCE PER MONTH.

BACKWASHING INSTRUCTIONS

NOTE – *Ensure ball valve is open on backwash pipe if fitted.*

1. Switch off the pump
2. Depress and turn handle to backwash position
3. Switch pump on
4. When the water in the sight glass appears clear, switch pump off (this may take 1 to 2 minutes)
5. Depress and turn handle to rinse position
6. Switch on the pump
7. When the water in the sight glass appears clear, switch pump off (this may take 15 to 30 seconds)
8. Depress the handle and turn to filter, switch pump on and normal operation is resumed.

CARTRIDGE FILTERS

The cartridge filters do not require a media such as sand to operate, instead the filter contains a cartridge element which is easily removed to clean or replace.

START-UP PROCEDURE

1. Loosen the air bleed screw on top of the filter lid
2. Prime the swimming pool pump –(refer to pump installation & operation manual)
3. Turn on the swimming pool pump and allow the pump to run until all the air has been expelled from the filter vessel. Water will run from the air bleed screw.
4. Tighten the air bleed screw
5. The filter is primed and operational.

In some cases this may be required to be done a few times before the unit will remain primed and fully operational.

MAINTENANCE

When the filter is first started and has been purged of air, you must note the pressure on the pressure gauge. This is what is known as the filter operation pressure and it is important that you be aware of this figure.

All filtration systems will operate at different pressures depending on the pool hydraulics. Do not be alarmed if your filter operates at different pressures than other peoples for this reason. You will need to clean the filter cartridge (element) once the pressure gauge has reached 20 kPa above the operating pressure.

EXAMPLE: Filter operates normally at 60kPa needs to be cleaned at 90kPa

CLEANING

1. Unscrew the filter lid lock ring and remove the lid off the filter tank. In some cases where pressure has built up, you will need to release air from the tank using the air bleed screw before removing the lid.
2. Remove the cartridge element from the filter tank.
3. Using a garden type hose, clean the surface of the pleated elements. Ensure that you get in between the pleats to effectively clean the filter.
4. Place the cartridge back into the filter tank ensuring that it is seated correctly.
5. Place the lid onto the tank and screw the lock ring down.
6. Ensure that you have placed the lid O ring on the lid before you start up the filter.
7. Refer to the start up procedure to re-commence operation.

EQUIPMENT WARRANTY

Zodiac equipment warranty Phone: 1300 763 021

Spa Electric pool light warranty Phone: 03 9793 2299

Proof of purchase or pool handover certificate is required.

Zodiac Pumps

Flo Pro 3 year warranty for domestic installations
2 year warranty on Mechanical Seal

Zodiac Filters

CV & CS Cartridge 2 year warranty for domestic installations
Titan Sand 10 year tank warranty
1 year on other components

Zodiac Tri XO Chlorinators 3 year warranty on Power Unit & Cell for domestic installations.

Zodiac Cleaners AX10 & CX20 2 year warranty

Pool Lights Spa Electrics LED 1 year warranty for all installations