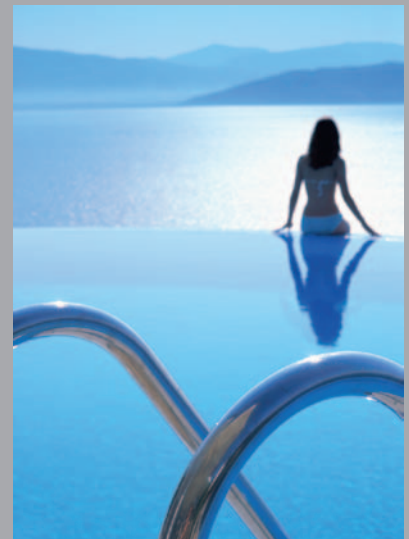


pureTMsilk

water quality management

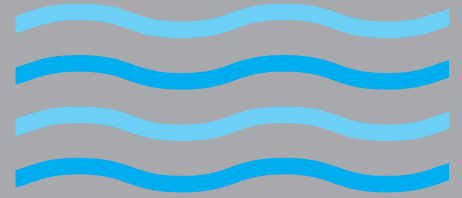


CCS Salt Chlorinator
CMS Chromatolyzer

During initial trials of our new water management system, a teenage test swimmer summed up the total experience perfectly: “It’s amazing. The water feels incredibly clean and pure. It’s so soft and smooth, it’s like swimming in silk.”



pure silk™ 



Purity:
homogeneous, uniform,
free from adulterants,
pollutants, contaminants
or foreign elements.

Water makes up two-thirds of our body mass and is the origin of life. So it's not surprising that it has such a positive influence on us.

But other life-forms also thrive in water. And some have far less positive affects on our health.

Bacteria and algae will grow in any body of water. In a swimming pool, they are introduced primarily by swimmers, top-up water, leaves, grass, dust and animals. A large dog for example, can contribute twenty times as much as a person.

To keep your pool water pure, these organisms need to be killed quickly and totally destroyed. And our most effective weapon in this battle is chlorine.

Chlorine is the world's most trusted 'sanitiser'. It kills all existing bacteria on contact and persists in the water as a 'residual sanitiser' killing all new bacteria immediately.

Balance:
equilibrium, parity,
all forces cancelled
by equal and
opposite forces.

Some chemicals also seek to dominate pool and spa water and they must be kept in balance. But heavy rain, too many swimmers, pool chemicals, etc all constantly upset this delicate balance.

If the water becomes too acidic or too alkaline it will cause itchy skin and red eyes. If pH drifts above the recommended range it will inhibit the chlorine's sanitising affect.

So, to maintain a healthy pool, cut chemical costs and conserve water both sanitiser and pH levels need to be checked and adjusted daily.

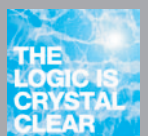
In the past, pool owners have taken regular trips to the pool shop to test their pool water. Then return to manually add bulk chemical to hopefully bring the pool back to that elusive balance - temporarily.

Puresilk™:
automatic purity
and balance.

Clevaquip has been a world leader in automated systems that use salt to create chlorine in the pool water. For decades they have been seen by many as the world's best.

Now their patented Puresilk™ systems not only take salt chlorination to a higher level of technical sophistication, they also introduce a fully automatic dosing system to maintain water balance.

Together these systems provide a level of convenience and water quality previously unattainable in domestic pool water management.



Puresilk™ CCS: Chlorine Control System.

Puresilk™'s Chlorine Control System has two parts. The upright electrolytic cell houses two specially-coated, electrically charged plates.

When slightly salty water passes between the plates, chlorine is released. And once through the cell the salt reforms, ready to start the whole process over again.

Managing and monitoring the chlorination process is a sophisticated microprocessor.

It makes the Puresilk™ Chlorine Control System the safest, easiest, most natural and most economical way to chlorinate a pool or spa through the use of some very ingenious and innovative technology. For example...

Purity, accuracy, consistency and safety?

While chlorine is accepted as the most effective sanitiser in pools and spas, it's mostly applied manually in tablet, granular or liquid form.

Water testing is haphazard, so doses are large and infrequent causing the pool to swing between too little and too much chlorine. And chlorine is volatile and can even explode if handled incorrectly.

By far the safest, easiest and most accurate way to add chlorine is to continuously generate it within the pool water using a little sodium chloride - better known as salt.

A Saline Solution.

Salt is amazing. Two-thirds of our body mass is made up of slightly salty water and salt water is used to aid healing. But at 4500 parts per million our salinity is 10 times less than sea water.

When we draw fresh water in through our skin, it actually causes irritation and discomfort.

The water used in salt chlorination is similar in concentration to our teardrops. So we feel relaxed, soothed and have that luxurious feeling of swimming in silk.

Model/Serial No.: _____

Optional AUTO DEMAND setting (Only available if a Puresilk Chlorinolyser is connected)

Previously this chlorinator should be connected to a Puresilk Chlorinolyser. If so, you have the option to activate the **AUTO DEMAND** setting by holding the **MODE** button for 3 seconds.

The **AUTO DEMAND** mode is identified on the digital display by reversing the travel of the lower section of the first **LED** display.

If the chlorinator time clock is due to switch off the chlorinator and filter pump but the Chlorinolyser indicates the target chlorine level has not been hit, it will continue to operate the chlorinator and filter pump until the target is achieved. This best ensures that in every 24hr period, the chlorine target is hit.

DO NOT ADD SALT UNLESS THE SALINITY HAS BEEN CHECKED BY A POOL PROFESSIONAL. EXCESSIVE SALINITY LEVELS WILL REDUCE THE EFFICIENCY OF THE CELL.

A low salt message on the diagnostic display may be triggered by conditions other than low salt.

If the salinity level is O.K., the following may trigger the low salt message:

- Cell is approaching the end of its life - test and replace, if necessary.
- Cell is dirty or has a scale build up on the electrodes - clean using a 50 parts water and 1 part hydrochloric acid solution as described in the owner manual.

The Puresilk cell is the most efficient salt chlorinating cell on the market. However, where calcium levels are high or the water source is high in minerals, the need to regularly inspect the cell and acid clean it may be necessary.

Failure to ensure the cell remains 100% clean will damage the electrodes and void the warranty.

Water balance - ensure the water is balanced as per the Langelier Index and as specified by your pool professional.

DISPLAY MESSAGE	ACTION
Clean Cell, Low Salt	If cell is clean, test salt level and add if required. If cell is dirty, clean cell as per instructions in manual.
Low Salt - Off	If salt level is O.K., cell may require replacement.
Low Flow - Off	Unit is on stand-by until correct water flow is re-established.
Flow Fail - Off	Optional pump protection has been activated. To override, push the mode button and investigate water flow problems.

MODE ONLY FOR PUMP PROTECTION

UP 24 HOUR CLOCK HOLD TO SWAP

DOWN PUMP PROTECTION HOLD FOR 3 SECS TO SET

VIEW TIME → % OUTPUT → ON/OFF PERIOD

MAXIMUM SALINITY DO NOT ADD SALT IF DOY FLAGGED

OFF ON AUTO BOOST AUTO DEMAND

OPERATING INSTRUCTIONS

- Read Owner's Manual before operating the unit.
- Ensure correct water balance is maintained.
- Test & balance water and adjust chlorine accordingly.

TO SET THE 24 HR CLOCK AND ON/OFF PERIODS (IF AVAILABLE)

- PRESS THE VIEW BUTTON TO DISPLAY THE TIME ON DISPLAY. PUMP PROTECTION TO ALTER.
- PRESS THE UP OR DOWN BUTTON TO INCREASE & ALTER THE 24 HOUR DISPLAY.
- PRESS THE DOWN BUTTON TO LOCK IN PUMP OR ON/OFF PERIODS.

TO SET PUMP PROTECTION MONITOR

- HOLD THE DOWN BUTTON FOR 3 SECONDS TO SET ON WHEN DISPLAY PROBLEMS.
- USE THE UP/DOWN BUTTON TO SET THE PUMP PROTECTION. 1 TO 99 THAT YOU WOULD ALLOW THE PUMP TO RUN IN A FULLY CHARGED CONDITION BEFORE IT IS ENGAGED OFF.
- LEAVE THE 99 TIME TO LOCK IN. TO DEACTIVATE PUMP PROTECTION, SET THE DISPLAY TIME TO 9999.

puresilk Automatic Chlorinator

The world's best salt chlorinator just got better

Automatic Self-Cleaning Cells.

The microprocessor automatically reverses the polarity of each electrolytic plate cleaning them completely.

Automatic Output Limiting.

This protects the power supply from over-salting and allows salt to be added without switching the chlorinator off. [No fuses, no circuit breakers needed.]

Automatic Low Salt Warning.

If salt levels fall below the optimum threshold, the diagnostic display scrolls a message requesting a salt top up.

Automatic Low Salt Stop & Re-Start.

If salt levels fall below the minimum point the cell shuts down and a message scrolls. The cell then continues to re-test and when normal salt levels are restored the cell automatically re-starts.

Automatic Memory Save.

If there's a power failure all information is stored for at least seven days. There are no batteries that can go flat or leak.

24-Hour Boost Mode.

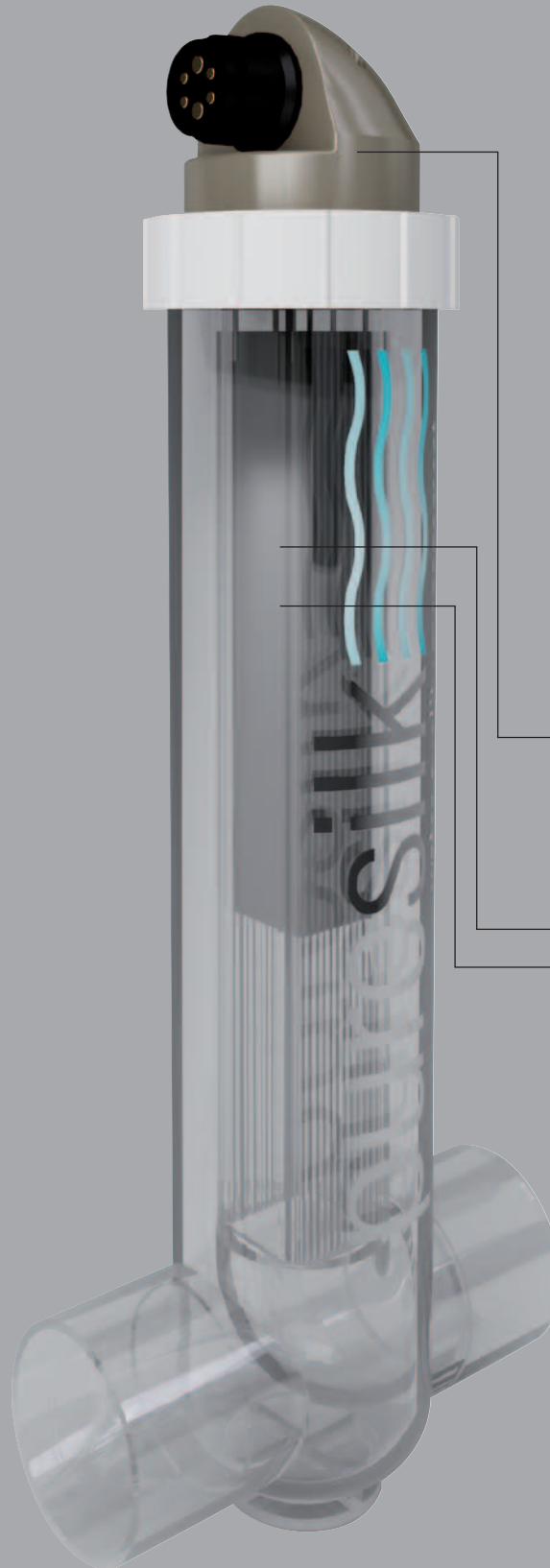
The system can be set to operate at full output for 24 hours then automatically return to normal operation.

Automatic Pump Protection Monitor.

If the pump is starved of water, the CCS switches the pump off to stop it running dry. Timing can be adjusted for different hydraulic conditions and pump types.

Automatic Pump Flush.

Cell power switches off 30 seconds prior to pump switch off to flush the cell and pump of concentrated chlorine. This prevents high chlorine levels corroding pipe work, heat exchangers or in-floor cleaning systems.



Puresilk™'s vertical bi-polar electrode cell is a revolution in cell design.

Heaters, water features, in-floor cleaners and the like have increased the pressures placed on filtration systems. So Puresilk™'s vertical cell was specifically designed to cope with this ever-increasing load.

Internal Flow Switch.

Unlike standard chlorinators, CCS has an internal flow switch built into the cell cap to eliminate the need for complicated and costly additional plumbing.

Vertical Cell and Internal By-Pass System.

The patented vertical cell and internal by-pass system actually reduces pressure drop across the cell making it ideal for the most complex of pool configurations.

Heavy-Duty Construction.

For added flexibility, the cell is suitable for both 40mm and 50mm connections. Cell housings employ high impact acrylics for greater durability and longer life. The twin start thread allows for quick and easy electrode removal. All of which makes the high pressure cell ideal for both high pressure spa and in-floor cleaning systems.

All CCS models are rated as 'heavy duty'.



Puresilk™ CMS Chromalyzer.

Relentless forces target water balance. Scale or corrosion will occur if it becomes too acidic or too alkaline.

Maintaining equilibrium requires constant monitoring. And balancing chemicals need to be precisely administered.

Until now, the pool owner had to test the water daily; take samples to a pool shop and add the chemicals manually.

The longer the gap between tests, the greater the imbalance and the greater the dosage required to restore that balance.

Now, with Puresilk™'s CMS Chromalyzer there's no guesswork or hard work.

With scientific precision the CMS monitors water quality at least twice per day and injects just the right amount of chlorine and/or acid to maintain perfect balance.

Balance, parity, equilibrium between opposing forces.

The patented Colorimetric Management System tests, analyses and corrects water purity using colourimetric sensing and sampling technology.

It automatically mixes precise amounts of water and reagents in a test chamber. A photodiode then accurately measures the light intensity passing through the sample.

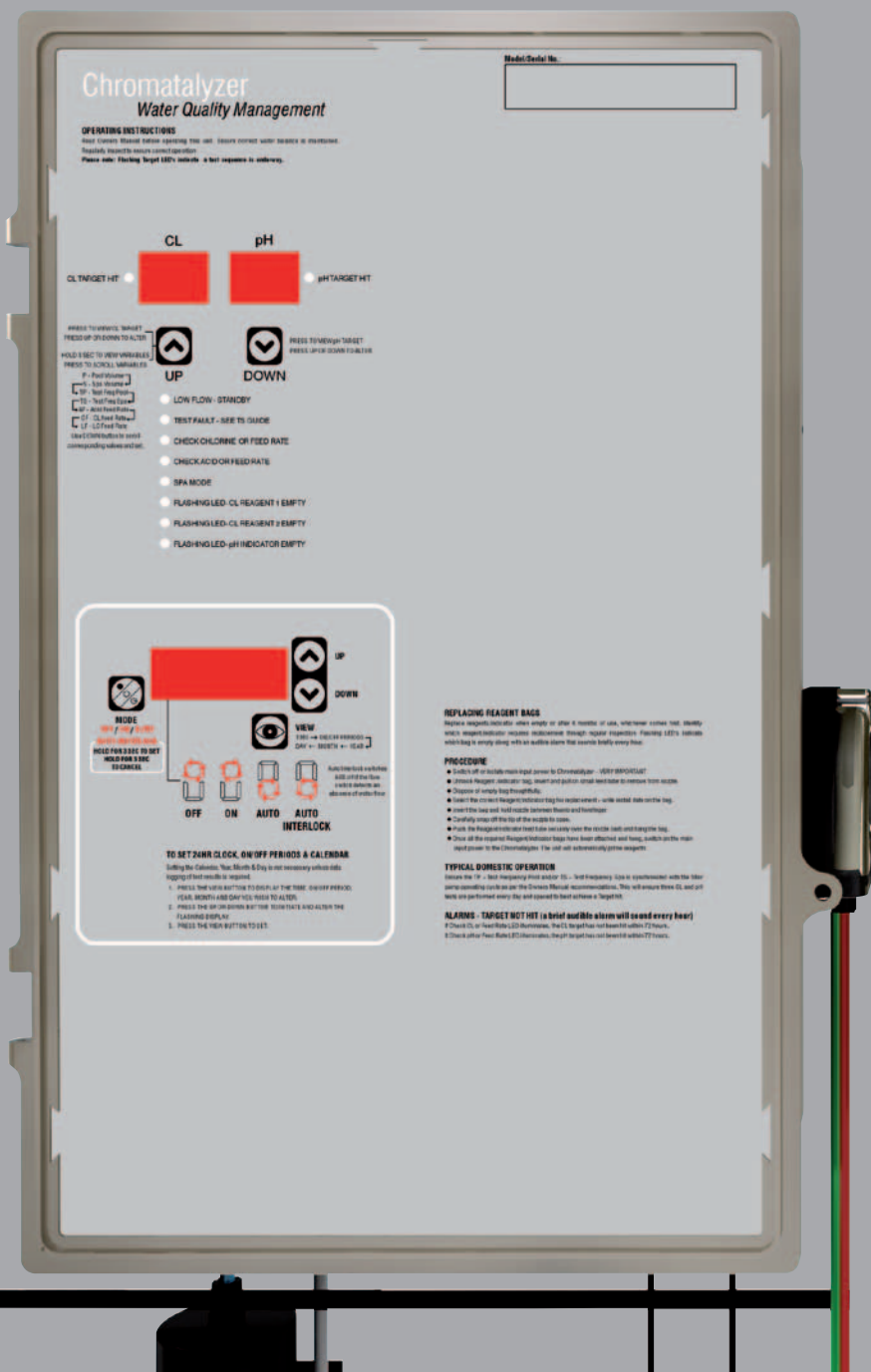
If necessary, the microprocessor activates the Peristaltic Pump to deliver just enough acid to bring the pH back into balance.

It may also adjust the CCS chlorinator's output to deliver just the right amount of chlorine to destroy any algae or bacteria.

The CMS almost manages itself:

- No calibration is required.
- Test chamber rinses itself after testing.
- Reagent satchels perform 500+ tests.
- Satchels only replaced every 6 months.
- Automatic pool to spa switching.
- Alerts if the CCS chlorinator is set too low.
- Alerts if the chlorine or pH targets are not achieved within a 12 hour period.

In essence, a Puresilk™ CMS Chromalyzer takes all the work out of water testing. It tests far more accurately and ensures that your pool or spa is always totally pure and balanced.



Chromalyzer Water Quality Management

OPERATING INSTRUCTIONS
Read Owners Manual before operating this unit. Always correct water balance in accordance.
Available Reagents ensure correct operation.
Please note: Flushing Target LED's indicate a test requires to underway.

CL TARGET HIT [Red Light] pH TARGET HIT [Red Light]

PRESS TO VERIFY INPUT
PRESS UP/DOWN TO ALTER
HOLD UP/DOWN TO VIEW VARIABLES
PRESS TO ACTIVATE VARIABLES

- UP** **DOWN**
- LOW FLOW - STANDBY
 - TEST FAULT - SEE TO GUIDE
 - CHECK CHLORINE OR FEED RATE
 - CHECK CALOR FEED RATE
 - SPA MODE
 - FLASHING LED - CL REAGENT IS EMPTY
 - FLASHING LED - pH REAGENT IS EMPTY
 - FLASHING LED - pH INDICATOR EMPTY

REPLACING REAGENT BAGS
Replace reagent indicator when empty or after 6 months of use, whichever comes first. Identify which reagent indicator indicates replacement through regular inspection. Flushing LED's indicate which bag is empty along with an audible alarm that sounds briefly every hour.

PROCEDURE

- Switch off or isolate main input power to Chromalyzer - VERY IMPORTANT!
- Attach Reagent Indicator Bag, insert and push seal into test chamber to remove from socket.
- Dispose of empty bag responsibly.
- Insert the correct Reagent Indicator Bag for replacement - write serial date on the bag.
- Seal the bag and hold inside between thumb and forefinger.
- Carefully break off the top of the reagent to cover.
- Push the Reagent Indicator Bag into test chamber the inside seal and reagent bag.
- Check all the required Reagent Indicators have been attached and being pushed on the main input power to the Chromalyzer. The unit will automatically perform reagents.

TYPICAL DOMESTIC OPERATION
Between the 1st - 3rd Emergency Flood and/or 10 - 12th Emergency Flood is synchronized with the solar panel charging on the day as the Owners Manual recommendations. This will ensure three CL and pH tests are performed every day and spaced to meet a target pH.

ALARMS - TARGET NOT HIT (a brief audible alarm will sound every hour)
If Check CL or pH Reagent LED Illuminates, the CL or pH bag has not been fit within 72 hours.
If Check other than Reagent LED Illuminates, the pH target has not been fit within 72 hours.

TO SET 24HR CLOCK, ON/OFF PERIODS & CALENDAR
Setting the Calendar, Time, Month & Day is not necessary unless date logging of test results is required.

1. PRESS THE VIEW BUTTON TO DISPLAY THE TIME. (VIEW PERIOD: YEAR, MONTH AND DAY) YES/NO TO ALTER.
2. PRESS THE UP/DOWN BUTTON TO ALTER THE FLASHING DISPLAY.
3. PRESS THE VIEW BUTTON TO YES.

Patented Australian technology that's light years ahead.

Achieving perfect performance without using probes!

Probes need regularly cleaning; hydrogen gas can affect them causing malfunction; they require regular re-calibration and can result in ground leakage into the water. Puresilk™'s CMS Chromatolyzer doesn't use probes, it's built on ingenious new technology, for example:

Colorimetric Testing:

A full analysis is performed by a photo-diode firing coloured light through a test sample containing specific reagents.

Patented Piston and Drive Shaft:

Precisely draws up an exact volume of pool water for mixing and analysis.

Reagent Satchels:

Hold enough reagent to automatically test chlorine and pH levels over 500 times.

Peristaltic Pump:

Injects the right amount of acid to balance the pool eliminating dangerous manual handling of acid.

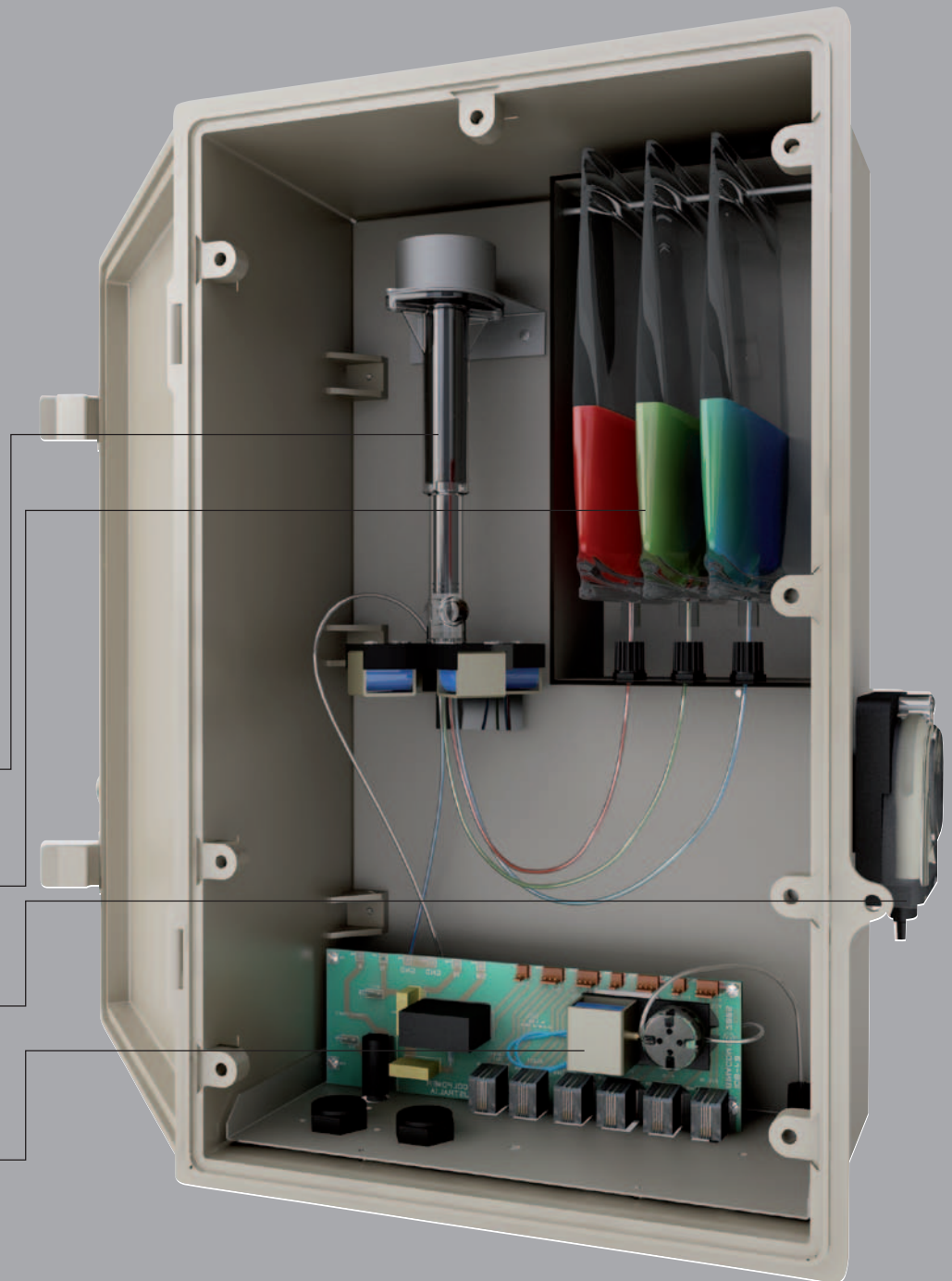
Puresilk™ CMS Microprocessor:

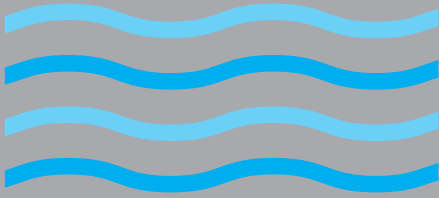
Easily configures to suit most domestic and commercial pool and spa sizes. Little or no programming is required.

Automatic Pool/Spa Switching:

If a normal 'salt' chlorinator applied pool settings to a spa it would over-chlorinate the spa creating serious damage.

Puresilk™'s CMS microprocessor instantly detects the switch from pool to spa and adjusts all its settings to provide the ideal level of chlorination for the spa.





Selecting a Puresilk™ CCS Chlorinator

Puresilk™ warranty. A guarantee of superior quality.

Puresilk™ systems are designed without compromise and constructed using the highest quality materials, they cope with conditions others cannot tolerate.

They perform efficiently and economically for longer without the need for constant adjustment or maintenance.

Puresilk™ warranties may differ according to market regulations across the world. But Puresilk™'s commitment to the highest levels of quality and durability is constant.

Maximum Water Temperature:

Some 'salt' chlorinators only quote cool climate specifications to show their units at their best, but Puresilk™ specifications cover all three climate types.

The Selection Chart assumes a maximum water temperature for each:

- Cool Climates it's around 18° Celsius.
- Temperate Climates it's 24° Celsius.
- Tropical Climate it's 25° C or above.

Low Salt Levels:

In some regions, chlorinators must cope low salt levels and this often imposes an unsustainable load on many normal units.

All Puresilk™ CCS chlorinators cope well with such conditions but LS ['Low Salt'] models are specifically designed for them.

They also offer superior performance in situations where water temperatures and calcium hardness levels are high.

Maximum Pool Size:

Listed maximum pool sizes are based on ideal conditions - water temperature low; water balance perfect; demand low and the filtration system in excellent condition.

When perfect conditions are in doubt, select a model at least one size larger than that specified in the chart.

It is always best to use peak demand levels for sizing. Allow for extremes of summer and the effects a pool heating system, now or in the future.

Commercial:

Commercial applications impose severe stress on the normal 'salt' chlorinator. The robust durability and high performance of the LS models is again a huge advantage.

Heavy Duty:

Every Puresilk™ CCS Chlorinator will easily cope while other chlorinators struggle. That's because every Puresilk™ model is a truly 'heavy duty' chlorinator.



Puresilk™ CCS Chlorinator Selection Chart.

Model:	CCS25	CCS30	CCS45	CCS15LS*	CCS20LS*	CCS30LS*	CCS40LS*	CCS50LS*
Salt Level								
Parts Per Million	3750	3750	3750	2500	2500	2500	2500	2500
Calcium Hypochloride Equivalent:								
Oz per Hr	1.35	1.63	2.45	0.8	1.1	1.6	2.2	2.75
Gms per Hr	38.5	46.2	69.3	23	30.7	46	61.4	76.8
Chlorine Gas:								
Oz per Hr	0.88	1.1	1.59	0.53	0.7	1.1	1.4	1.75
Gms per Hr	25	30	45	15	20	30	40	50
Maximum Pool Size - Cool Climate								
Gallons '000	40	48	72	24	32	48	64	80
Litres '000	150	180	270	90	120	180	240	300
Maximum Pool Size - Temperate Climate								
Gallons '000	32	38	57	20	25	38	50	64
Litres '000	120	144	216	72	96	144	192	240
Maximum Pool Size - Tropical Climate								
Gallons '000	24	29	43	14	20	29	38	48
Litres '000	90	108	162	54	72	108	144	180

* LS models are designed for conditions of Low Salt.
 Due to ongoing research and development, Puresilk™ reserves the right to alter specifications without notice.



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