

pure silk™

water quality management



CCS Salt Chlorinator
CMS Chromatolyzer



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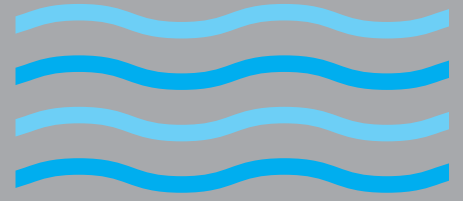
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During initial trials of our new water management system, a teenage test swimmer summed up the total experience perfectly: “It’s amazing. The water feels incredibly clean and pure. It’s so soft and smooth, it’s like swimming in silk.”



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.

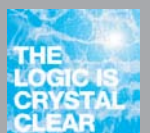
In the past, pool owners have taken regular trips to the pool shop to test their pool water. Then return to manually add bulk chemical to hopefully bring the pool back to that elusive balance - temporarily.

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 Chromatlyzer is connected)

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

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

If the chlorinator flow clock is due to switch off the chlorinator and filter pump but the Chromatlyzer 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 Angler's 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 mouse button and investigate water flow problems.

OPERATING INSTRUCTIONS

- Read Owner's Manual before operating the unit.
- Ensure correct water balance is maintained.
- Test the water regularly about chlorine levels weekly.

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

- PRESS THE VIEW BUTTON TO DISPLAY THE TIME/ON/OFF PERIODS. HOLD FOR 3 SECONDS TO SET.
- PRESS THE UP/DOWN BUTTONS TO ADJUST & ALTER THE HOUR/PERIODS.
- PRESS THE VIEW BUTTON TO CHECK OR PAUSE ON/OFF PERIODS.

TO SET PUMP PROTECTION SWITCH

- HOLD THE DOWN BUTTON FOR 10 SECONDS TO SET ON/OFF PUMP PROTECTION.
- USE THE UP/DOWN BUTTONS TO SET THE PUMP PROTECTION. IT TO DO THIS YOU WILL NEED TO ALLOW THE PUMP TO RUN ON ALL PUMP ON/OFF PERIODS UNLESS OTHERWISE SPECIFIED IN THE MANUAL.
- LEAVE THE 24 HR TIME TO CHECK ON/OFF PERIODS. PUMP PROTECTION SET THE DISPLAY TIME TO 00:00.

MAXIMUM SALINITY
DO NOT ADD SALT AT 2000 PPM.

UP 24 HOUR CLOCK
HOLD TO CLEAR

DOWN PUMP PROTECTION
HOLD FOR 3 SECONDS TO SET

VIEW TIME → 24 HOUR CLOCK → ON/OFF PERIODS

OFF ON AUTO BOOST AUTO DEMAND

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.

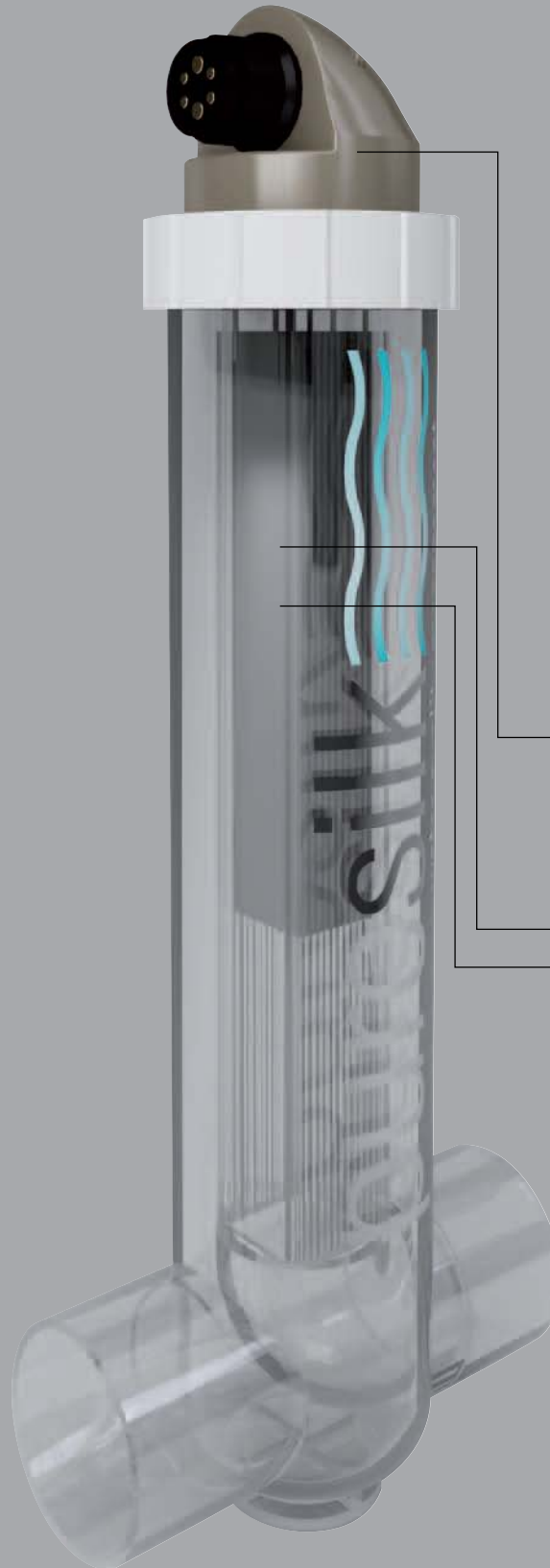
The system can be set to operate at full output for 24 hours then automatically return to normal operation.

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.

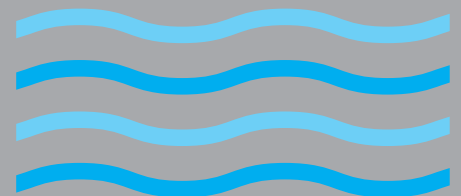
Vertical Cell and Internal By-Pass System.

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.

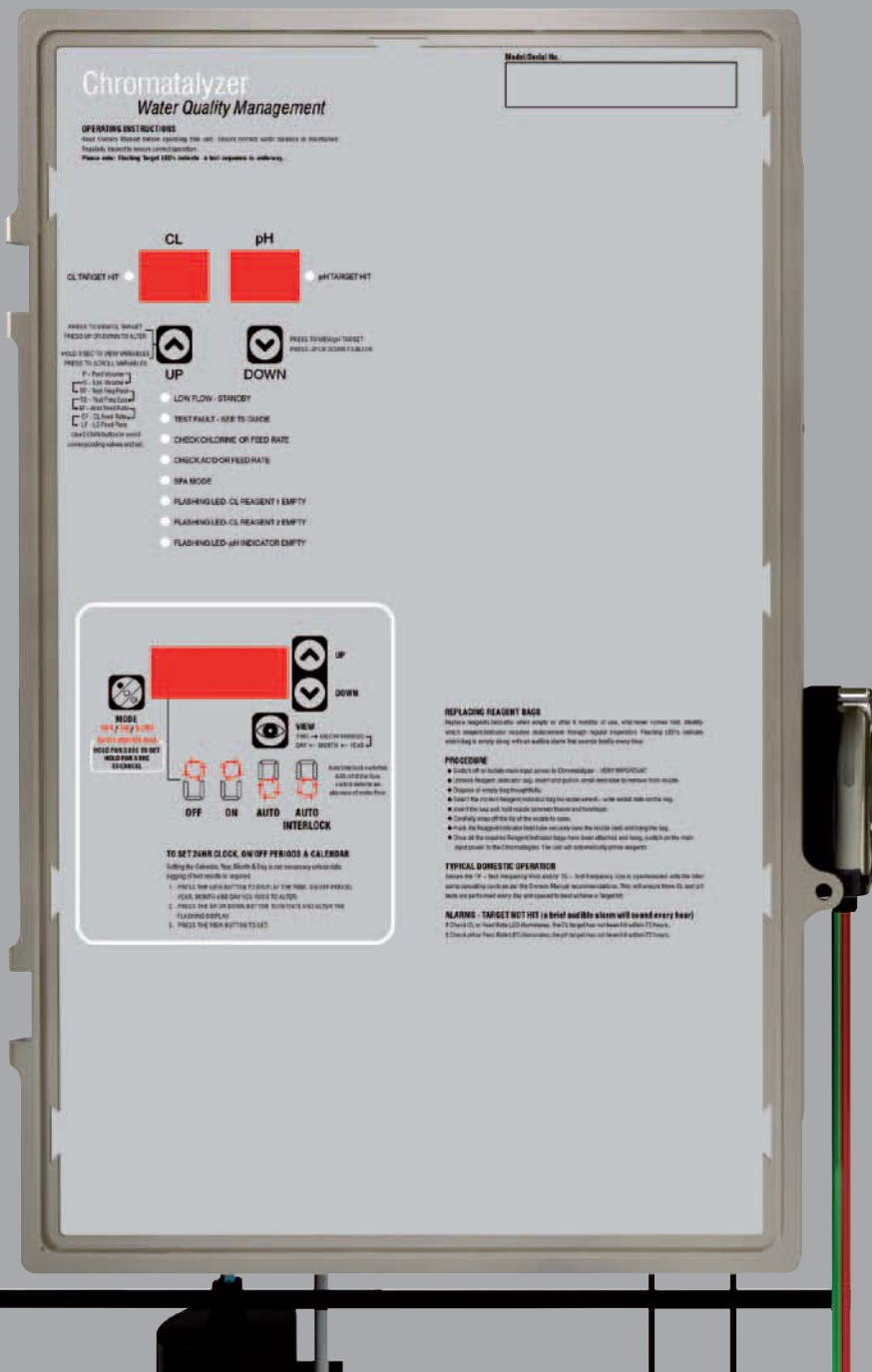
If necessary, the microprocessor activates the Peristaltic Pump to deliver just enough acid to bring the pH back into balance.

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.



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.

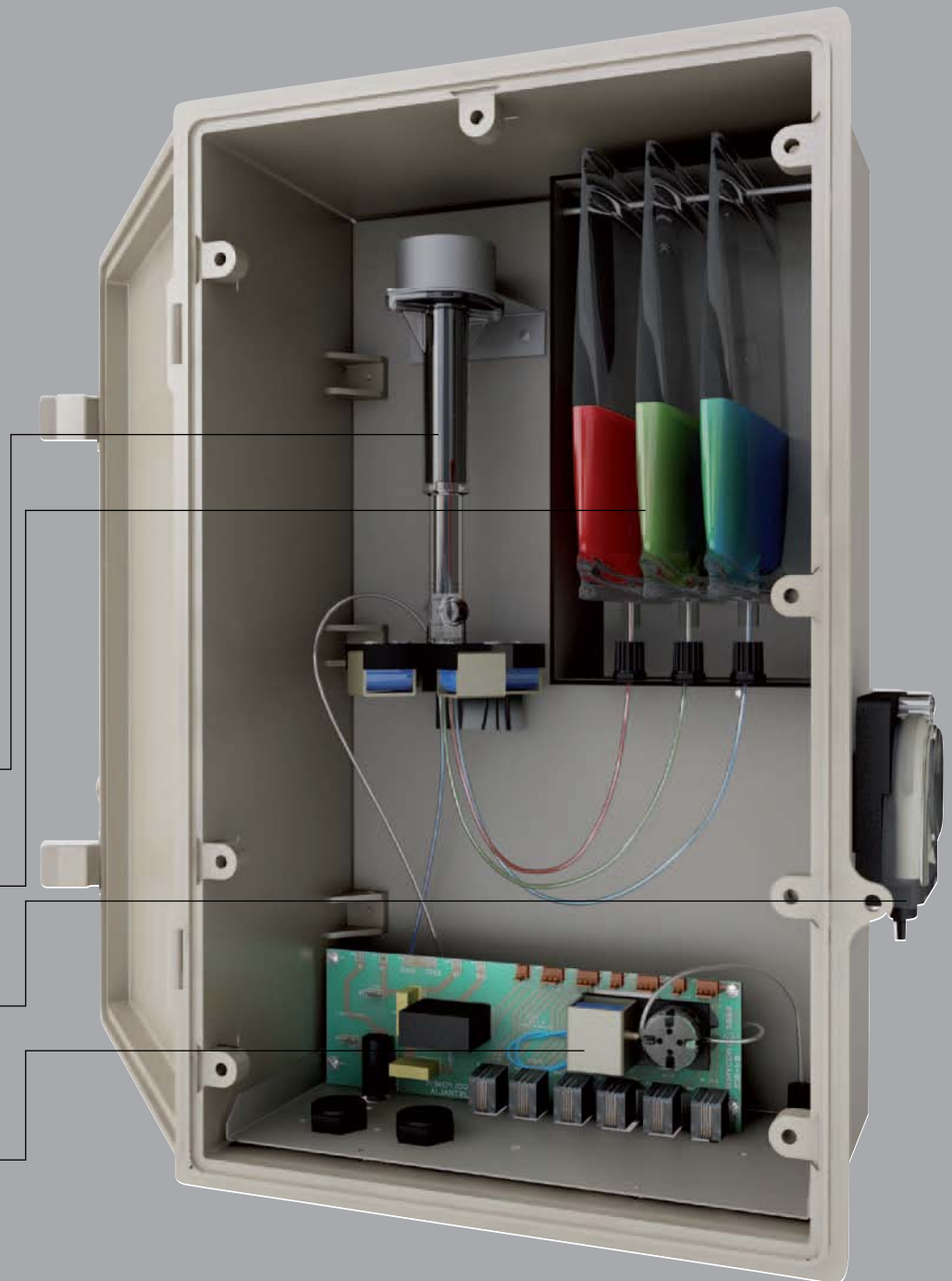
Puresilk™ CMS Microprocessor:

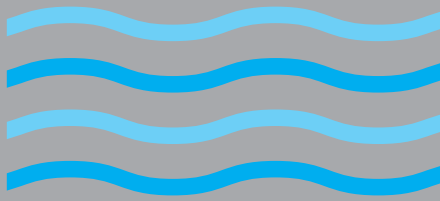
Easily configures to suit most domestic and commercial pool and spa sizes. Little or no programming is required.

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.

