



*Committed to Excellence*





# SANITIZATION



# AUTO CONTROLLER



## Intelligent Dosing Systems Water Chemistry at the touch of a button The TEC3000 dosing control system

The TEC 3000 is a unique and innovative intelligent chemical dosing system for the control of water quality in domestic and commercial swimming pools and spas.

### The TEC3000: Main features

- System uses fuzzy logic to learn, adapt and control
- Simple user interface
- Automatic adjustment and calibration
- Pre-programmed pool parameters
- Advanced amperometric cell for increased accuracy and stability
- Stops dosing under faulty conditions
- Controls pH and disinfection levels
- Numerous options available



## Intelligent Dosing Systems

### The TEC3000: a revolutionary approach

The TEC3000 Control System is an intelligent controller designed to control the chlorine level and pH in domestic and commercial pools. The unit has the novel ability to learn and alter the dosing rates of a pool allowing the chemical's set points to be maintained efficiently. The TEC3000 is also equipped with a time based capability that can potentially anticipate regular events that may cause a rapid change in pool loading and compensate for them. The TEC3000 learns as it is used. The controller's software uses fuzzy logic to adjust its parameters according to the information given by its own sensors and software program. The operator just needs to know the values of the pH and disinfectant levels required for the pool to be maintained correctly. **The TEC3000 will do the rest.**

As a matter of routine, the water in a swimming pool or spa must be manually sampled at regular intervals by the operator and tested to ascertain the chlorine and pH levels.

If the sample test values indicate a deviation from the desired level, the operator will take a confirmation sample at the controller. The water testing cell is provided with a sampling valve for this purpose. Should the test of this sample confirm that a correction of the pool chlorine level is required, this information can be simply put in by means of a single key stroke on the touch screen of the TEC3000 controller.



Only three touch screen keys are displayed for each of the two controlled parameters: increase (D), decrease (Ñ) and desired value

achieved (OK). All that the operator has to do after testing the sample from the water testing cell is to indicate whether the value of the parameter needs to increase, decrease or is correct by pressing the appropriate key. No further input is required – the TEC3000 learns and does the rest.

Being an intelligent controller it recognizes patterns in the pool to which it is installed. As a consequence, it can also recognize when the information given by the operator is being contradicted by the data collected from its own probes.

This can happen, for instance, as a result of incorrect pool side water testing, the controller is instructed to increase the chlorine level in the pool despite the evidence from its probes that the level is already at the set point. A conventional controller would blindly increase the dose of chlorine chemical. The TEC3000 will countermand the erroneous instruction and maintain the chlorine level at the correct value.

Standardization and calibration are automatically adjusted after each key press. This means that the system does not have to be frequently standardized or re calibrated.

Controlled dosing of the appropriate chemical also occurs automatically after each key press. The rate of response from the probes is learnt by the controller after dosing of the chemicals. The rate of dosing of reagents is accurately and intelligently adjusted by the TEC3000

The TEC3000 parameters are programmed during commissioning, and are tailored to the specific pool. These include pool volume, turnover, types and concentration of chemicals being dosed, and dosing pump sizes.

The TEC3000 is commonly used to dose a chlorine or bromine disinfectant, but peroxide based disinfectants can also be accommodated. As an option, the TEC3000 can also be used to control the Redox value of the pool water. The pool pH is usually accommodated by a dosing of acid or alkali, or as appropriate.

The TEC3000 has many built-in safety features: for instance, the TEC3000 automatically stops dosing if the water flow through the water test cell ceases. If the set point of a parameter has not been achieved after a given time has elapsed, the pump is stopped.

**The TEC3000: an energy saver** Filter pumps installed in swimming pools are generally oversized because they are available in standard pump sizes only. The pump selected is generally going to be larger than the exact requirement of the system.



This means the pool will operate at a higher turnover rate than required for effective water treatment. This wastes energy.

To avoid this, the filter pump can be installed with an external inverter controlled by the TEC3000 to vary its pumping speed, thus optimizing the energy consumption.

The TEC3000 can be set up to control the pump speed and vary it, to maintain a constant chlorine level in the pool. Therefore if the pool loading is extremely low or there are no bathers present, the water turnover rate can be reduced without compromising water quality, but saving a great deal of energy.

In fact, the equipping of a municipal pool with an inverter and a

TEC3000 system could pay for itself within two to three years purely on the energy savings alone.

**The TEC3000: quality construction** The TEC3000 is manufactured in the UK using high grade materials and components. It is designed to be robust and remain accurate under normal plant room conditions.

The solid state electronic controller is fitted with a colour touch screen display. Each controller is equipped with analogue and digital inputs and outputs. Operator inputs are via the touch screen.



The standard water testing cell is installed with a red chlorine probe, which is an amperometric cell

comprising of a silver to silver chloride reference electrode and a platinum working electrode encased in a potassium chloride gel. The black pH probe has a silver to silver chloride reference electrode and an industrial standard pH electrode. Amperometric cells are far less susceptible to the effects of fouling, this allows the TEC3000 to auto-compensate for fouling of the two measurement electrodes. Many systems do not have this facility, making it necessary to clean the electrodes frequently.

An optional Redox monitoring probe is available. The controller and water testing cell is supplied, factory mounted on an acrylic backboard for ease of installation.

Intelligent Dosing Systems    Water Chemistry at the touch of a button

Dimensions	365mmwide x 500mmtall x 100mmdeep
Power requirement	240VAC single phase 50 Hz.
Power consumption	15watts (Excluding Feeders)
Operating temperature	0-50 degrees centigrade
Enclosure	Plastic Ip54
Front control panel	Polyester membrane
Display	Touch screen
Chlorine sensor	Amperometric 3 electrode system
	Measuring range 0-40mg/l
pH sensor	Standard industrial pH probe
	Measuring Range 0-14pH
Outputs	Chemical feeders 2x 240 VAC switched
	BMS 0-10V
Inputs	3 analogue
	1 digital flow sensor



**TEC3000:** Available options

- Texts faults to a PC or mobile phone
- Redox probe monitoring
- Stop dosing if chemical tanks are empty
- Energy saving inverter control system
- Dosing pumps, tanks, valves and agitators
- Operation with peroxide disinfectant



# ELECTRO CHLORINATOR



**MP RANGE Electro chlorinators 25 to 400 g/hr**

## Clean, safe water at the touch of a button

To enjoy the benefits of a swimming pool or spa, the quality of the water is of paramount importance. A major defence against water born microorganisms is Chlorination, the disadvantage of using commercially supplied Sodium Hypochlorite is the need to have bulk supplies, which need to be stored and handled safely. The MP range of on-site electro chlorinators helps you eliminate these problems giving you an on-demand system providing a better working environment in your plant room. Clean, Clear, Safer water to enjoy.

## Benefits of using Electro chlorination in your pool

- Excellent water quality
- A pleasant bathing environment
- Treatment of complete re-circulating water flow
- Simple and easy to maintain
- Does not require daily maintenance
- Range of sizes to suit different demands
- Wall mounted compact design
- UPVC electrolyzer and degassing column fitted to control panel
- Force air ventilation through control panel and electrolyzer assembly
- Colour coded display indicates systems status at a glance
- Safe and reliable method of producing chlorine on-site
- Common salt as base material is nontoxic, easy to store and handle
- Low operating costs, world-wide use
- Fresh hypochlorite is always at hand
- Approved disinfection method complying with the drinking water regulation



## Clean, safe water at the touch of a button

### Application

The MP range of electro chlorinators is a modular design, compact enough to fit into any circulating water treatment system in a swimming pool or spa. It will generate, on demand, a low strength Sodium Hypochlorite solution suitable for any swimming pool or spa.

The MP range will produce from 25g/hr to 400g/hr depending on the model chosen allowing most sizes of pools or spas to be treated.

## Electro chlorination

The process of generating Sodium Hypochlorite Solution from three commonly available materials: **Salt, Water, and Electricity.**

This simple process occurs when a salt solution flows between a series of electrodes. A DC voltage applied to the electrodes causes a current to pass through the salt solution, which results in a chemical reaction, producing a safe to use, low strength Sodium Hypochlorite Solution. The solution can be stored in a product tank and used in the same way as a commercial Sodium Hypochlorite.

This on-demand process reduces the need to store large volumes of hazardous disinfection on site and at a considerably safer concentration.

The low strength solution has the benefit of a neutral pH compared to other forms of disinfection chemicals.

This can be advantageous where maintaining a pH is important, such as in swimming pools.

Additionally, electrolytically generated Sodium Hypochlorite solution does not degrade or "gas off" as commercial Sodium Hypochlorite.

The process of “On-Site Generation” of sodium hypochlorite is accomplished by combining sodium chloride (NaCl), water (H<sup>2</sup>O) and electricity within an electrolytic cell. The produced solution has a concentration of approx 0.85% by weight with approximately 7 g/l of free chlorine.

The following equation illustrates the electrochemical reaction which takes place. NaCl + H<sup>2</sup>O + 2e = NaOCl + H<sup>2</sup> Salt + Water + Electricity = Sodium Hypochlorite+ Hydrogen

As opposed to commercial hypochlorite, which has a strength of approx 12-15%, the on-site generated sodium hypochlorite has a much lower off-gassing as a result of degradation, causes minimal scaling and crystallization at feed points, and a much lower impact on pH of finished water.

On-site generation process starts with a concentrated brine solution. This is created by saturating pure vacuum dried salt into soft water solvent to create a concentrated brine solution of approx 315 g/l.

The solution is then filtered and mixed with softened water to produce the electrolyte needed to allow the efficient transfer of salt to sodium hypochlorite. The soft water and saturated brine solution flow rates are controlled by two peristaltic pumps, and the two solutions are mixed before entering the electrolytic chamber.

The electrolytic chamber consists of 4 bipolar electrolytic cells, which once fully submerged allow current to pass through the electrolyte forming sodium hypochlorite and hydrogen from the electrolyte solution.

The hypochlorite solution passes immediately into a degassing column to ensure 95% of the total hydrogen produced is removed

from the solution before it is passed onto the sodium hypochlorite storage tank.

Due to the explosive nature of hydrogen both the electrolytic chamber and degassing column of the Electro chlorinator are constantly purged by air to ensure that any hydrogen leaks are immediately reduced to below the Lower Explosive Limit (LEL) of hydrogen. This air jacket then flows out of the Electro chlorinator surrounding the hydrogen ventilation hose and dilutes the produced hydrogen below the LEL before it is safely vented from the building.

By this method any risk of ignition of the hydrogen produced is removed both from the basic operation of the Electro chlorinator or by the failure of any sealing component within the Electro chlorinator.

Throughout the electrolytic process, softened water produced within the unit is used to ensure the longevity of the system and prevent scale deposition on the surface of the electrodes. The softened water is used in two processes (a) it dissolves food grade salt in a brine tank (b) dilutes the brine solution to a concentration which is suitable for the electrolytic process.

The diluted brine solution flows between 4 bipolar electrodes within an electrolytic cell. The chemical reaction to generate the sodium hypochlorite is then initiated as a DC voltage is applied across the electrodes causing the conversion of the brine into sodium hypochlorite.

The sodium hypochlorite flows into a second chamber, where the by-product (hydrogen gas), is separated from the solution and safely vented to the atmosphere.

How it works

System Summary

Electrical Requirements	230 VAC,Single Phase, 50Hz
System Water Requirements: Water Temperature Water pressure	8°C to 15°C 3 to 6 bar at inlet to the water softener
Ambient Air Temperature:	5°C to 40°C
Salt Requirements:	Pure dried vacuum salt, free from flow binders
Control Panel:	Steel construction, featuring a HMI (Human Machine Interface) touch screen,featuring on-screen diagnostics for operator fault finding.
Electrolyzer Power Supply	Highly efficient switch mode,providing reliable DC power supply to the electrolyzer.
Water Softener	Duplex softener, with twin softener resin beds and automatic resin regeneration.

MP RANGE Electro chlorinators ideal for any size pool

SYSTEM OPERATING PARAMETERS

Model	Mp 25	Mp 50	Mp 100
Capacity	25g/hr	50g/hr	100g/hr
Solution Strength	0.65 % to 0.8%		
Weight	20 kg	20 kg	20kg
Soft Water	4.2 l/hr	8.1 l/hr	15.5 l/hr
Brine Flow	0.4 l/hr	0.8 l /hr	1.5 i/hr
Hypochlorite Flow	4.6 l/hr	8.9 l/hr	17 l/hr
Typical Salt Consumption (During Operation)	100g/hr	200g/hr	400g/hr
Typical Power Consumption (During Operation)	140watts/hr	280 watts/hr	560 watts/hr

Model	MPX200	MPX400
Capacity	200g/hr	400g/hr
Solution Strength	0.65 % to 0.8%	
Weight	25 kg	25 kg
Soft Water	3.5 l/hr	70.1 l/hr
Brine Flow	3.5 l/hr	7.1 l/hr
Hypochlorite Flow	38.5 l/hr	77.0 l/hr
Typical Salt Consumption (During Operation)	800g/hr	1.65kg/hr
Typical Power Consumption (During Operation)	1.1watts/hr	2.2 watts/hr





# SALT CHLORINATORS

## Indoor & Outdoor pH Controllers



### Enjoy healthy and safe crystal clear water

To enjoy the benefits of a swimming pool or spa, the quality and safety of the water is of paramount importance. A major defence against water born microorganisms is chlorination. For domestic pools and spas the drive towards salt chlorination is growing worldwide. The Bright Blue salt chlorinator from Thermalec allows you to enjoy a softer and silkier feel to your pool whilst knowing that it is safe and saving you money

### Benefits of using a Salt Chlorinator in your pool

- Excellent water quality
- A pleasant bathing environment
- Treatment of complete re-circulating water flow
- Simple and easy to maintain
- Does not require daily maintenance
- Range of controllers for indoor and outdoor pools
- Self cleaning electrolytic cell with reverse polarity, time based
- LCD display with simple and intuitive menu
- Salt level indicated in %
- Automatic electrolysis adjustment based on water °C
- Salt concentration from 2.8g/l to 35 g/l
- Allows for connection of an external controller
- Waterproof case ultra resistant to UV (IP65)
- 2 year warranty on the cell



### Salt Water Chlorination

Clean, safe, softer water for indoor and outdoor pools.

### Application

The Bright Blue Salt Chlorinator from Thermalec is a modular design, compact enough to fit into any circulating water treatment system in a domestic swimming pool or spa. It will generate chlorine from within its own electrolysis cell. Using the Colibri or Electral chlorinator together with the Sanus pH controller you can have confidence in your pool sanitation.

### Salt Chlorination

It is the natural and non-aggressive way of controlling the production of chlorine in its hypochlorous acid form as required by the pool or spa. This avoids any excess or lack of chlorine in the water. This feature turns the salt electrolysis into the best disinfecting process for an automated and low maintenance system.

The salt is added to the pool or spa water where it dissolves. It passes through the filtering circuit and the electrolysis cell, where a process of ion separation takes place, breaking the salt into a HOCl Hypochlorous acid (chlorine). The chlorine is released electrochemically, under control and complying with its disinfecting properties into the water. Afterwards the ions recombine, recomposing the salt.

The process repeats itself continuously, or whenever necessary, therefore no salt is lost, except when the pool is refilled with fresh water.

When classical disinfecting methods are used, the chlorine, as sodium hypochlorite, is added directly to the water which can cause concentration peaks, aggressiveness and unpleasant odor for the bather.

The Control Unit measures the electrolysis current continuously, which enables the pool user to know the continuity of the water flow that passes the cell as well as the cell's conditions.

Colibri

Model	Volume	Chlorine Production	Cell	Power	Flow M³/h	Pressure	Temp	Polarity
Colibri 45	45 M³	10 g/h	Vertical/ Horizontal 300x150(50Ø)	220-240 V VAC 50/ 60Hz	Min - 5 Max > 20c/ bypass	Max 500kPa 5 bar	< 40°C	Constant Time3h/6h
Colibri 60	60 M³	15g/h						
Colibri 90	90 M³	20 g/h						
Colibri 120	120 M³	30g/h						

pH Control

The pH levels depend on the geographic area and the geological nature of the water source. A pH probe monitors these values. When these are high it indicates alkalinity, when they are low it indicates acidity. Appropriate and healthy water for human use should be neutral (neither acidic, nor alkaline). The chlorine capacity of disinfecting depends directly on the water pH. In alkaline media the disinfecting power decreases significantly, it can even be cancelled. It is essential that the pH be measured and compensated with in parameters that guarantee a neutral value to guarantee an effective water treatment by any system. The Bright Blue system automates the pH value compensation, keeping it permanently within the appropriate parameters.



- Automatic control of pH with intelligent progressive injection
- Peristaltic or electromagnetic dosing pump
- Able to reduce or enhance pH
- Password, set points, and alarm configurable
- Liquid compensation level probe
- Manual drain valve
- Temperature probe for pH reading correction (optional)
- Potential free output for correction to other controllers

Sanus

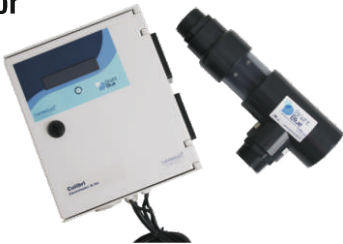
Model	Dosing Pump	Flow	Pressure	Protection	Includes	Warranty
Sanus	Peristaltic	1 L/h	3 bar 5 bar	IP65	pH Probe Probe Holder Buffer Solutions	2 years
Sanus Plus	Electromagnetic	5L/h				

A correct value of pH is essential to keep water well treated

It is very important to keep control of the pH in your swimming pool. The most efficient level for pH is between 7.0 and 7.4, after that the HOCl concentration reduces. At 7.5 it is only 50% efficient.

Electral Salt Chlorinator Indoor

The first electrolysis system which operates with only 0.5 g/l of salt



- Salt concentrations from 0.5g/l to 1.5 g/l
- LCD front panel with simple and intuitive menu
- Self cleaning electrolytic cell with reverse polarity, time based
- Automatic electrolysis adjustment based on water °C
- Coverage detector set to automatically reduce sanitizer output
- Information of chlorine production in %
- Adjustable Chlorine Production – 0% to 100%
- Allows connection of an external controller
- Waterproof case ultra resistant to UV (IP65)
- 2 year warranty on the cell

Electral

Model	Volume	Cell	Power	Flow	Pressure	Temp	Polarity
Electral	60 M³	Vertical/ Horizontal 300 x150 (50Ø)	220-240 V VAC 50/60 Hz	Min - 5 Max > 20 c> bypass	Max 500kPa 5 bar	≤40°C	DT 3h/6h

The Electral Salt Chlorinator is designed for indoor use, to allow you to lower the salt concentrations and operate with only 0.5g/l of salt. This is possible because of 2 factors:

1. The Electral has software which monitors the salt concentrations to higher levels allowing chlorination to be controlled, reducing the salt levels required.
2. You do not have the sun's effect on the pool which will burn off chlorine because of its UV light.

With the combination of these two factors the Electral will bring a better swimming experience to the bather.



# UV Pool Water Sanitation Systems

## Clean, safe water at the touch of a button



There have been many studies done which come to the conclusion that to reduce the amount of chemicals in your water will be beneficial. You cannot do away with all chemical but to reduce them will help you to eliminate some of the more common ailments from a pool or spa such as “Red Eye” and skin irritations. By using a Thermalec Ultra Violet system not as an alternative to other water treatments in swimming pools and spas, but as supplementary water treatment, you will gain the advantages of Clean, Clear, Safer water to enjoy.

### Benefits of using UV technology in your pool:

- Excellent water quality
- A pleasant bathing environment
- Treatment of complete re-circulating water flow
- Can reduce the amount of chlorine when using UV
- Simple and easy to maintain
- Does not require daily maintenance
- Range of sizes to suit different demands

### Application

The Thermalec ultraviolet water treatment system is designed to deactivate harmful pathogens in the circulating water of a swimming pool or spa. It uses ultraviolet light to render harmless dangerous microorganisms that are completely unaffected by chlorine, bromine or other conventional disinfectants. The Thermalec ultraviolet water treatment system is modular and can be configured to treat pool water circulation rates from 25 m³/h to 800 m³/h, at an applied UV dose of 30 mJ/cm² at the end of lamp life.



The Thermalec ultraviolet system subjects the water from the filter to the light emitted by a low pressure UV lamp. Most of this UV light is at a wavelength of 254 nm. UV light of this wavelength and at a sufficient intensity interferes with the DNA of pathogenic cells, deactivating them and rendering them harmless. This treatment has been shown to be extremely effective against dangerous viruses, cysts, spores and bacteria such as Cryptosporidium, Giardia lamblia and E. Coli, that are completely resistant to chlorine. If active, these microorganisms may be responsible for serious stomach infections and other complaints in humans. A further beneficial effect of the biocide properties of UV light is the destruction of algae spores, helping to reduce algal formation in outdoor pools and spas.

In addition to the disinfection effect, UV light has been shown to break down chloramines in swimming pool water. Chloramines

are compounds formed by the reaction of chlorine chemicals with organic matter such as perspiration, urine and grease from bathers in the swimming pool water. Chloramines, which manifest themselves as “combined chlorine” in a swimming pool or spa, are responsible for skin, eye and respiratory irritation in bathers, as well as for generating the unpleasant “chlorine smell” experienced in poorly managed pools.

### How it works

The UV light generated by so-called “low pressure” UV lamps, such as those used in Thermalec UV systems, provides a satisfactory degree of chloramine destruction, whilst avoiding any risk of UV overdose. There are indications that UV overdose (can be produced by oversized “medium pressure” UV systems) may well be responsible for the formation of hazardous trihalomethanes (THM) in the air above the water surface of swimming pools.



### Features and benefits of the Thermalec UV system

- Eliminates pathogens unaffected by chlorine
- Helps elimination of eye and skin irritation
- Helps prevention of unpleasant chlorine smells
- Chlorine in pool can be reduced to minimum
- Low electrical power consumption
- Robust 316L stainless construction
- Modular design reduces stocking requirements
- Lamp replacement only once per year
- Simple installation
- Simple cleaning and maintenance
- Low pressure lamps reduce the risk of dangerous THM formation
- Individual flow tubes avoids UV lamp shadowing, increasing disinfection efficiency

Construction and operation

The Thermalec ultraviolet system is based on a single standard UV module. The module consists essentially of a high quality cylindrical flow tube of 316L stainless steel, with a water inlet and outlet set at right angles to the longitudinal axis of the flow tube, both orientated in the same direction. Within the flow tube and concentric with it, a transparent quartz sleeve runs from one extremity of the tube to the other, terminating at each end in a sealing gland.

A low pressure UV lamp is contained within the sleeve and is connected at each of its extremities to a power supply cable that passes through each sealing gland. The purpose of the transparent quartz sleeve is to separate the UV lamp on its inside from the pool water flowing through the flow tube outside, whilst allowing the UV light to pass through it to treat the water. Each standard module is designed to disinfect a flow rate of 25 m³/h of pool water. In the Thermalec system, multiple modules are grouped into a single assembly using four-, six- or eight-way inlet

distributors and outlet collectors, according to the required total pool filtration rate. The outlet collector is fitted with a 65 µm mesh filter to prevent the ingress of glass into the pool causing injury in the event of lamp breakage. The power supply cables from the lamps run back to a wall-mounted control panel that contains the single phase mains terminals, the electrical safety gear and the electronic ballasts required to operate the lamps.

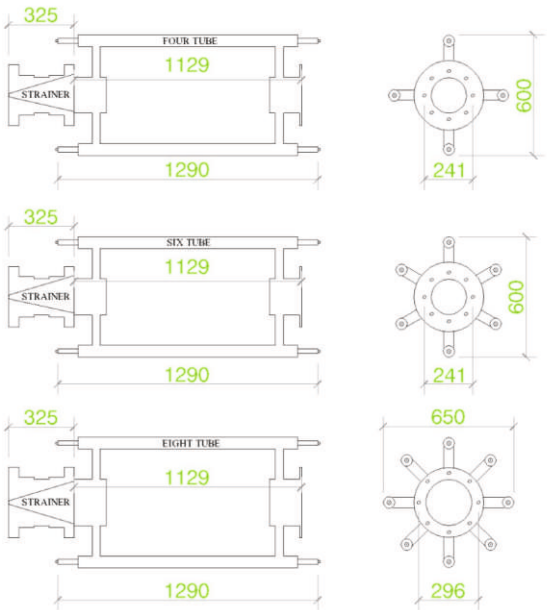
The Thermalec UV system is usually installed downstream of the pool filter. Water flows into the assembly through the inlet distributor from where it is fed to each of the standard UV modules. As it flows through the annular space between the stainless flow tube and the quartz thimble, the water is irradiated with UV light and exits the assembly completely disinfected via the outlet collector and outlet mesh filter. UV treatment is usually followed by chemical dosing to maintain pH and a residual disinfectant in the pool water, which is in turn followed by heating.

Specification
Single flow tube treatment capacity: 25 m³/h
Applied UV dose: 40 mJ/cm² @ UV transmittance of 95% (1 cm cell)
Number of flow tubes per assembly: 1, 4, 6 or 8
Power consumption per flow tube: 100 Watts
Power supply: 230V – 3ph – 50 Hz
Operating temperature range: 0 – 50 °C
UV lamp type: low pressure
Average lamp life: 8800 operating hours
Flow tube material: 316L stainless steel
Protection level: IP 54
Dimensions single tube control panel: 235 mm wide x 235 mm high x 150 mm deep
Dimensions multiple tube control panel: 345 mm wide x 345 mm high x 150 mm deep
Two control panels required for 6 and 8 tube assemblies.



UV Treatment Systems  
ideal for any sized pool  
Dimensions

Dimensions single tube control unit	235mm wide x 235mm high x 150 deep IP54 316 stainless steel
Power requirement	
Power consumption	36 Watts
Treatment rate each tube	15m³ per hour
Operating temperature	0-50 degrees centigrade





# ANODES

Thermalec® have a range of Anodes specifically for the pool industry. They are designed for new installations and existing installation and can be fitted easily.



**T104-C**  
**Retrofit Anode for existing pools**  
The T104-C inline zinc anode is designed with a copper bonding wire attached thereby protecting all metal parts against the effects of galvanic corrosion. The T104-C is available to fit 1½" and 2" size pipes. The see through housing allows you to easily see when the anode has depleted and needs to be replaced. No re-plumbing required. A must for salt water pools. Replacement Anode Kit (No. T104-R)



**T104-D**  
**New Pool Installation**  
Designed for new installations but can be easily fitted to an existing installation, standard pipe fitting 2" can be reduced to fit 50mm or 1½" pipe. The T104-D helps protect heaters, pool lights and rails from damage due to galvanic corrosion. Inline zinc anode for new installations - 4 feet of #8 copper bonding wire included. Replacement Anode Kit (No. T104-R)



**T104-R**  
**Replacement Anode**  
Replacement Anode for items T104-C, T104-D, T104-D Spigot.



**T104-D Spigot**  
**Any Tee Anode**  
The T104-D Spigot is designed to fit into any 2" Tee connector. The inline zinc anode is attached to the copper bonding wire thereby protecting all metal parts against the effects of galvanic corrosion. The see through housing allows the anode to be easily replaced when depleted.



**Ladder Anode T104-B**  
**Anti-Electrolysis Zinc Anode**  
Eliminates plaster staining and metal corrosion due to galvanic corrosion of your ladders and hand rails. Simply attach to the pool rail or ladder beneath the water line.



**Thermalec International Ltd.**

Kingsley Close East Way  
Lee Mill Industrials Estate,  
Ivybridge  
Devon, PL21 9LL  
England  
[www.thermalecinternational.com](http://www.thermalecinternational.com)

**Thermalec Pool & Spa Private Ltd.**

PAP/A-15, Khairane MIDC  
Near Fire Brigade Office  
Koparkhairane,  
Navi Mumbai 400 705.  
Mah. India. Tel.: +912227686616