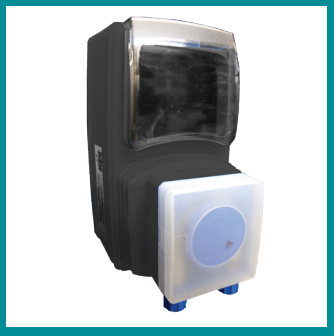
CERTiDos

Dosing Solutions by Certkin



Dosing Equipment Brochure

Certikin's Quality Statement

It is the policy of Certikin International Limited to provide products which give total customer satisfaction.

The aims and objectives of the company are:

- To place safety and quality first in everything
- To fully understand our suppliers and customers needs and expectations and to supply precisely the products and services agreed
- To involve all staff, utilising their skills and abilities to the full, in support of our quality policy
- To set ourselves a target of annual improvement, based on the simple but fundamental principle of 'do it right first time'

Neil Murray, Managing Director

CERTiDos
Dosing Solutions by Certkin

Welcome to the fourth edition of the Certikin Chemical Dosing Brochure.

On Site Survey

We continue to offer **free** onsite surveys, without obligation, outlining the equipment options for any given application.

Warranty

As standard our equipment is supplied with a 'return to works' 1 year warranty. If however you have the equipment serviced in accordance with our recommendations by a competent engineer using OEM parts, we will extend this warranty year on year to a maximum of **5 years** at no extra cost.*

Training

Whilst introductory and handover training is included with all of our installation packages, an in depth introduction to our full product range is available **free of charge** when you attend our facilities in Sleaford, Lincolnshire. Bespoke training packages are available to meet your specific requirements.

Stock

Our UK stock levels have been increased again this year. For clarity, we hold systems, pumps, tanks, accessories and spare parts available for next day dispatch.

Support

We now have an additional member on our internal technical team to help with your enquiries.

A greater range of our products is available with full remote connectivity to improve the support that we can offer.

A comprehensive handover pack is available with complete dosing system installs giving broader advice on interaction, operation and maintenance.

*Terms and conditions apply and are available upon request

Redox Based Systems

CertiDos WPRH

1. Controller
2. Pre-Filter
3. pH Electrode
4. ORP Electrode
5. Probe Holder

A pH and redox based system featuring a controller with integrated peristaltic dosing pumps providing an economical method of monitoring the pool or spa water quality plus balancing pH and sanitiser levels.

This equipment is best suited to domestic applications.

Board dimensions: 400mm x 600mm

CertiDos LRH

1. Controller
2. Pre-Filter
3. pH Electrode
4. ORP Electrode
5. Probe Holder

The LRH features a standalone controller which has a number of pump output options. External dosing pumps, mounted on tanks for example, can be connected to the controller for on/off or proportional control of pH and sanitiser levels.

This equipment is best suited to domestic applications.

Board dimensions: 600mm x 800mm

Feeder Output Systems

CertiDos WPSRH

1. Controller
2. Pre-Filter
3. pH Electrode
4. ORP Electrode
5. Probe Holder

A pH and redox based system featuring a controller with integrated peristaltic dosing pump for pH and an electrical power outlet allowing sanitiser tablet feeders or salt chlorinators to be directly 'plugged in.'

This equipment is best suited to domestic and light commercial applications

Board dimensions: 400mm x 600mm

CertiDos WPSOC

1. Controller
2. Pre-Filter
3. pH Electrode
4. Amperometric Cell

A pH and open amperometric chlorine cell based system featuring a controller with integrated peristaltic dosing pump for pH and an electrical power outlet allowing sanitiser tablet feeders or salt chlorinators to be directly 'plugged in.'

This panel is also available with a closed amperometric chlorine probe (CertiDos WSCP).

Board dimensions: 600mm x 800mm

Open Cell Systems

CertiDos WPOC

1. Controller
2. Pre-Filter
3. pH Electrode
4. Amperometric Cell

Open amperometric cells offer a relatively low cost method of automating the monitoring of the chlorine residual (displayed in ppm) of a water sample.

The WPOC features a pH/Chlorine controller with integrated peristaltic dosing pumps to balance pH and sanitiser levels.

Broadly speaking, most applications where the plant is operational 24/7 are suited to an open amperometric cell.

Board dimensions: 600mm x 800mm

CertiDos LOC

1. Controller
2. Pre-Filter
3. pH Electrode
4. Amperometric Cell

The LOC features a standalone controller which has a number of pump output options. External dosing pumps, mounted on tanks for example, can be connected to the controller for on/off or proportional control.

This equipment is suited to most applications that are operational 24/7.

Board dimensions: 600mm x 800mm

Closed Probe Systems

CertiDos WPCP

1. Controller
2. Pre-Filter
3. pH Electrode
4. Amperometric Probe
5. Probe Holder

Closed amperometric chlorine probe systems offer the most accurate free chlorine residual measurement available (displayed in ppm).

The probe has an ion selective membrane which only allows the hypochlorus acid and hypochlorite ion to enter the probe sensor area making the probe pH independent. The WCP features a pH/Chlorine controller with integrated peristaltic dosing pumps to balance pH and sanitiser levels.

As with open cells, closed probes are suitable for 24/7 use.

Board dimensions: 600mm x 800mm

Note: sample line must run at low pressure (max 0.5 bar) for all closed amperometric probes

CertiDos LCP

1. Controller
2. Pre-Filter
3. pH Electrode
4. Amperometric Probe
5. Probe Holder

The LCP features a standalone controller which has a number of pump output options. External dosing pumps, mounted on tanks for example, can be connected to the controller for on/off or proportional control of pH and sanitiser levels. The probe has an ion selective membrane which only allows the hypochlorus acid and hypochlorite ion to enter the probe sensor area making the probe pH independent.

As with open cells, closed probes are suitable for use for 24/7 use.

Board dimensions: 600mm x 800mm

Note: sample line must run at low pressure (max 0.5 bar) for all closed amperometric probes

Heavy Use Commercial

CertiDos PRC

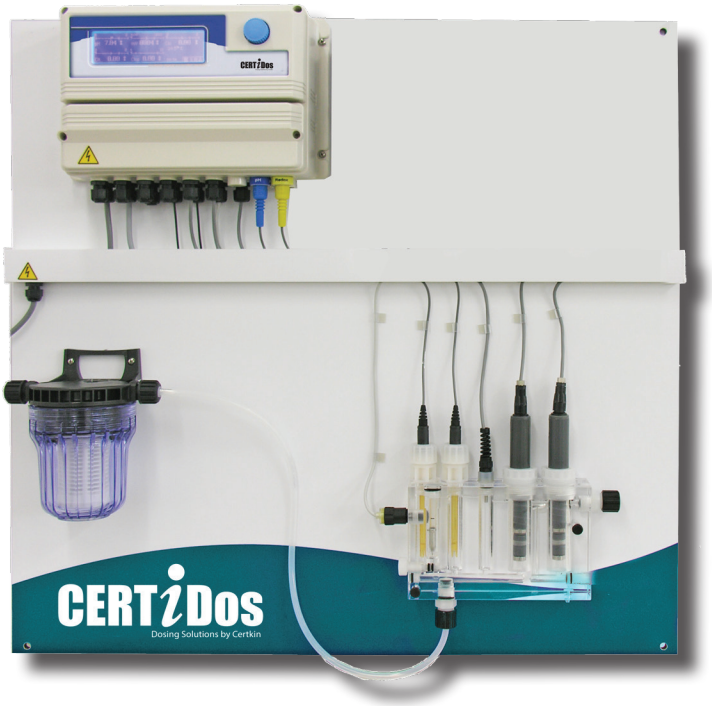
1. Controller
2. Pre-Filter
3. pH Electrode
4. ORP Electrode
5. Amperometric Probe
6. Probe Holder

A commercial grade system giving pH and chlorine monitoring and control. The system also features a redox (mV) monitor for general analysis of the water quality (display only).

The system uses a closed amperometric probe to give the most accurate measure of the levels available and is suited to 24/7 operation only.

Board dimensions: 600mm x 800mm

Note: sample line must run at low pressure (max 0.5 bar) for all closed amperometric probes



CertiDos M5

1. Controller
2. Pre-Filter
3. pH Electrode
4. ORP Electrode
5. Free Chlorine Probe
6. Total Chlorine Probe

A complete sampling and monitoring panel featuring a 5 channel controller offering pH, ORP, Free Chlorine, Total Chlorine and Combined Chlorine.

The MAX5 offers a comprehensive monitoring solution for a commercial facility including:

6 programable set point outputs (on/off)
6 programable proportional outputs
5 tank level inputs
5 timer outputs

Suitable for 24/7 use only.

Board dimensions: 800mm x 800mm

Note: sample line must run at low pressure (max 0.5 bar) for all closed amperometric probes

Solenoid Dosing Panels

CertiDos WRH

1. Controller
2. Pre-Filter
3. pH Electrode
4. ORP Electrode
5. Probe Holder

Solenoid dosing pumps suit light commercial applications.

CertiDos solenoid pump controllers are also available for use with open or closed amperometric probes for the control of pH and sanitiser level.

Board dimensions: 400mm x 600mm

CertiDos WSRH

1. Controller
2. Pre-Filter
3. pH Electrode
4. ORP Electrode
5. Probe Holder

The controller is fitted with a solenoid head instead of the standard peristaltic pump head. The CertiDos WSRH features a solenoid pH pump head plus power outlet for feeder output.

Board dimensions: 400mm x 600mm

Wall Mount Dosing Pumps

Solenoid driven dosing pumps with various features ranging from manual, automatic and pulse proportional control.

CertiDos FCE Series

A super economy solenoid driven dosing pump with **manual** stroke frequency adjustment.

Standard Materials:
Pump Head: Polypropylene
Diaphragm: PTFE
Seals: Viton

Supply: 230VAC 50Hz 1 Phase

CertiDos FCO Series

An economy solenoid driven dosing pump with **manual** stroke frequency adjustment.

Standard Materials:
Pump Head: PVDF
Diaphragm: PTFE
Seals: Viton

Supply: 230VAC 50Hz 1 Phase

CertiDos VCL Series

A solenoid driven dosing pump with **manual** stroke frequency adjustment and **low level probe**. This dosing pump will automatically stop dosing once the chemical in the storage container reaches the low level.

Standard Materials:
Pump Head: PVDF
Diaphragm: PTFE
Seals: Viton

Supply: 230VAC 50Hz 1 Phase

CertiDos VCOPERI Series

Peristaltic dosing pump with **manual** on/off delay options.

Standard Materials:
Tube: Santoprene

Supply: 230VAC 50Hz 1 Phase

Foot Mount Dosing Pumps

All Certikin dosing pumps are designed to integrate with Certikin controllers or can be used independently.

CertiDos HTA Series

An economy solenoid driven dosing pump with **manual** stroke frequency and length adjustment.

Standard Materials:
Pump Head: PVDF
Diaphragm: PTFE
Seals: Viton

Supply: 230VAC 50Hz 1 Phase

CertiDos HTS Series

An economy solenoid driven **pulse proportional** dosing pump with manual stroke length adjustment plus a **low level probe.** This pump, similar to the VCL, will automatically stop dosing once the chemical in the storage container reaches the low level.

Standard Materials:
Pump Head: PTFE
Diaphragm: PTFE
Seals: Viton

Supply: 230VAC 50Hz 1 Phase

CertiDos KCL Series

A solenoid driven dosing pump with **manual** stroke frequency and length adjustment plus a **low level probe**. This pump, similar to the VCL, will automatically stop dosing once the chemical in the storage container reaches the low level.

Standard Materials:
Pump Head: PVDF
Diaphragm: PTFE
Seals: Viton

Supply: 230VAC 50Hz 1 Phase

CertiDos KMS MF

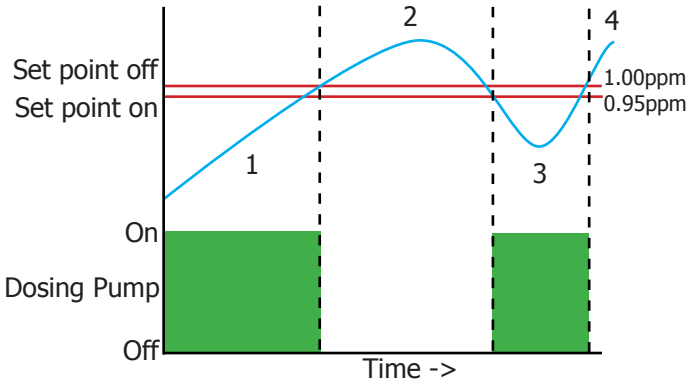
A solenoid driven **multifunction** dosing pump. Modes include: Constant, pulse divide, pulse multiply, ppm, batch, volt, mV, % and ml/q.

Standard Materials:
Pump Head: PVDF
Diaphragm: PTFE
Seals: Viton

Supply: 230VAC 50Hz 1 Phase

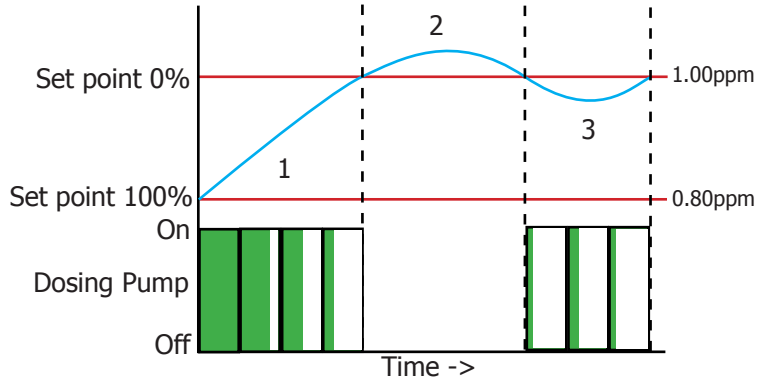
Pump Control

On/Off - once a parameter reading has dropped below the on set point, the controller powers the dosing pump until the off set point is reached. On/off dosing is prone to over and under dosing based on the lag time of the system e.g. if a system takes 30 minutes to register the level change, potentially the pump can be dosing at maximum speed for 30 minutes before this is realised.



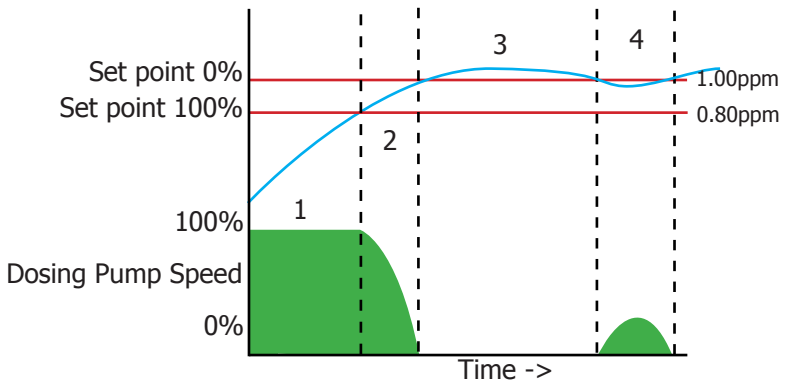
1. Dosing pump is running to increase level.
2. Pump stops once off set point is reached however, due to system lag time, the level continues to rise (overdose).
3. Pump again is powered however level continues to drop due to system lag until pump catches up.
4. Pump stops again once off set point is reached and the level will continue to rise as before due to system lag.

On/Off Proportional - mechanically similar to on/off dosing however elements of proportional dosing are employed. The pump still runs at 100% capacity however, the amount of time (run time) is varied proportionally. This 'run time' is expressed as a percentage over 100 seconds e.g. 80% = pump running 80 seconds out of 100. With on/off proportional dosing, the run time is reduced as the set point nears. e.g. near to set point = 10% = 10 seconds run out of 100.



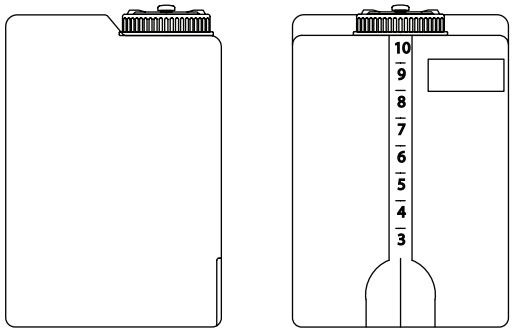
1. First run of pump is 100% (i.e. 100 seconds of 100 seconds). After this period, the controller can see that the level is starting to drift towards the set point. The second pump run is, for example 80%. If, after 100 seconds, the level is still drifting towards set point, the pump run will continue to reduce proportionally.
2. Pump stops at set point 0%. The system lag effect is similar to on/off dosing however it is not to the same extent.
3. As the level drifts away from set point, the pump run starts low (e.g. 10%). As the level continues to drift away, the pump run is increased proportionally. As the reading drifts back to setpoint, the pump run is again reduced proportionally.

Proportional - as the parameter reading drifts away from the set point, the dosing pump speed incrementally increases i.e. the further from the set point, the higher the pump stroke frequency. Similarly, as the reading nears the set point, the dosing pump speed proportionally decreases. Where possible, we would recommend that chemical dosing is proportional.



1. Dosing pump starts running at 100% to increase the level.
2. As the level passes set point 100% and drifts towards the set point 0%, the pump gradually (proportionally) reduces its speed
3. Pump stops when set point 0% is reached however, due to system lag time, the level continues to rise as before.
4. Pump begins to run at a slow speed as the level drifts below set point 0% . The pump speed increases as the reading drifts further from set point 0%. Once reading begins to drift back to set point, the pump begins to reduce speed proportionally.

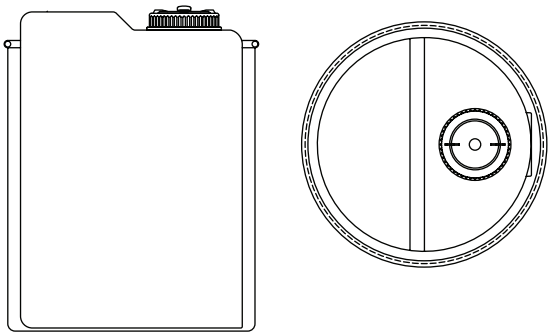
Tanks and Bunds



Chemical Holding Tanks - Cylindrical

This range of holding tanks can be considered the 'standard' type suitable for most plant rooms. The tanks feature a raised platform on top which allows for easy mounting of chemical dosing pumps etc. As standard, the cylindrical tanks are produced in natural MDPE

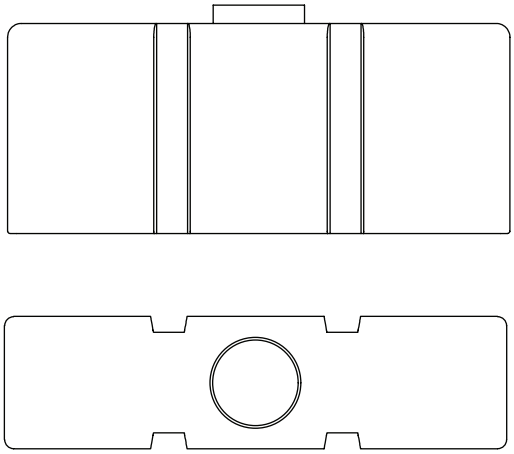
25Lt Holding Tank	340mm dia x 425mm h
60Lt Holding Tank	380mm dia x 635mm h
108Lt Holding Tank	470mm dia x 680mm h
230Lt Holding Tank	610mm dia x 870mm h
530Lt Holding Tank	830mm dia x 1065mm h



Chemical Bund Tanks - Cylindrical

All chemical storage vessels within a plant room should be bunded for safety reasons. The below range is suitable for use with the cylindrical tanks listed above.

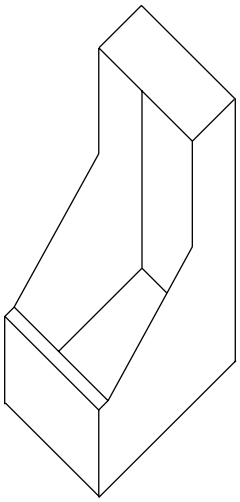
To suit 25Lt Tank	470mm dia x 173mm h
To suit 25Lt Tank	380mm dia x 343mm h
To suit 60Lt Tank	470mm dia x 430mm h
To suit 108Lt Tank	610mm dia x 445mm h
To suit 230Lt Tank	830mm dia x 480mm h
To suit 530Lt Tank	1005mm dia x 735mm h



Chemical Holding Tanks - Rectangular

Ideal for plant rooms with limited or restricted floor space available. Supplied in natural MDPE as standard. **Larger** sizes are available upon request.

25Lt Holding Tank	370mm h x 270mm x 350mm
50Lt Holding Tank	370mm h x 300mm x 500mm
75Lt Holding Tank	440mm h x 300mm x 600mm
125Lt Holding Tank	460mm h x 290mm x 1100mm
175Lt Holding Tank	620mm h x 290mm x 1100mm
250Lt Holding Tank	825mm h x 325mm x 1100mm



Chemical Carboy Bunds

Suitable for plant rooms where tank space is of a premium. Chemical carboys can simply be placed into the bund which significantly reduces the amount of chemical handling by the end user. Supplied in natural MDPE as standard.

To suit 25L Carboys	600mm h x 440mm x 300mm

Tank Sets

Tank sets are a versatile and vital part of any chemical dosing system. The sets will vary depending on tank type however, generally speaking, a holding tank can be fitted with dosing pumps, suction lance, mixers, chemical safety labels and much more.

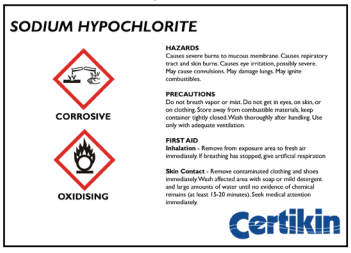
A bespoke tank set design service is available to meet specific needs and applications.

Manual Mixers
Page 19

Electric Mixers
Page 19

Suction Lances
Page 19

Chemical Dosing Pumps
Pages 8-10



Chemical Safety Labels
Pages 18

FLOC Dosing Set

CertiFloc

A complete FLOC or PAC dosing solution. Idealy suited for chemicals suppled in 25L carboys reducing chemical handling by the end user.

FLOC (flocculant) is a liquid that is metered into a pool improving the filter efficiency and, in turn, the water quality. FLOC works by bonding together small particles in the water making them much larger and easier to trap in the filtration system.

When using floc we would recommend that it is:

- As far away as possible from other dosing equipment
- Away from all sources of chlorine to reduce the risk of chlorine gas generation
- Injected as far upstream of the filter as possible

Also:

- Acid/chlorine injection points should be located POST filter
- FLOC cannot be used with Diatomaceous Earth or high rate sand filters

Calculating the Addition Rate

Certikin offer a specific range of dosing pumps for dosing FLOC - the CDE-VCLG range.

The correct amount of FLOC to be dosed will vary based on the size of the pool.

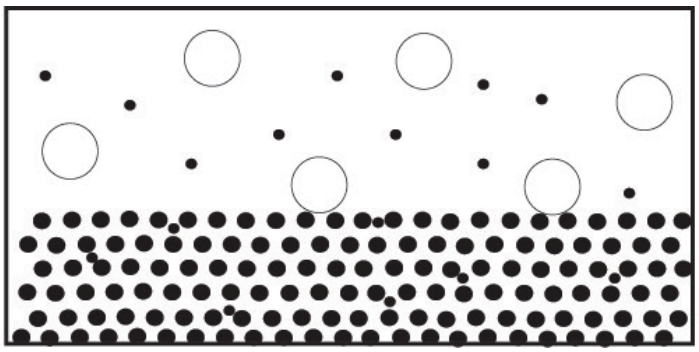
Generally speaking, the following formulae can be used to calculate the addition rate of FLOC:

Minium dose rate (gr/24hrs) = Filter flow rate (m3/h) x 5.8*

E.g. 100m3/h flow = 100 x 5.8 = 580gr/24hrs

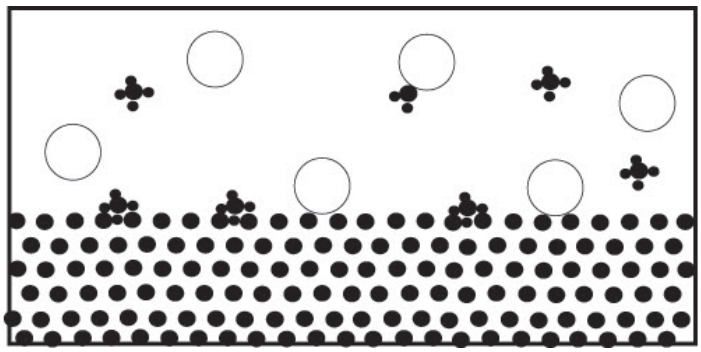
* Value of 5.8 assumes the following: Minimum FLOC addition rate of 0.3ml/m3/hr - FLOC S.G. of 1.2

How FLOC works



Without FLOC the smaller particles are too small for the filter media to trap and so they freely circulate through the system.

Larger particles are trapped as normal.



With FLOC the smaller particles are bound together. This forms much larger particles which can be easily trapped by the sand filter for later removal as part of the backwashing process.

Connectivity

All current CertiDos controllers can be remotely accessed from any compatible web browser via ERMES software.

Real Time Monitoring

All controller parameters can be monitored in real time including probes, outputs, alarms and set points.

Controllers can be programmed to text (SMS) or email preset users a list of current parameters or in the event of an alarm such as tank empty, high parameters and sample line no flow

24/7 History and Logs

All parameters on the controller such as pH, sanitiser and flow etc are automatically logged.

The data can be used for identifying trends or in problem solving.

The logs can be viewed and exported using the on-line web interface. The data can be displayed via an interactive graph or in plain text.

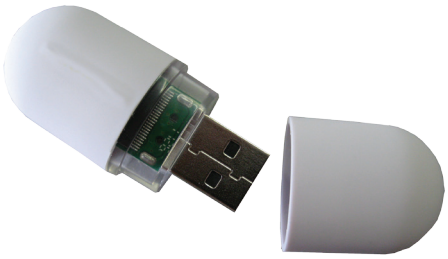
For controllers not connected to the internet, an optional USB port can be fitted so that the logs can be downloaded onto a USB drive for viewing on a computer.

Multiple Pools/Spas? Multiple Sites?

Multiple controllers can be linked through the same connectivity device. Multiple sites can be registered to the same ERMES account.

ERMES can display all controllers linked to an account in an easy to read overview screen. Each controller can also be individually interegated for further information. A maximum of 30 controllers can be linked to one account.

Getting Connected



USB

For local connection only. Controller is fitted with a USB port. Once a USB drive is connected, the event log is automatically transferred for further analysis. A special version of the ERMES software is provided for reading the logs on a compatible computer

Ethernet

Controller is connected to a local area network with internet access. Once configured, the user can access the controller 'live' via the ERMES web server using any internet enabled device.

Ethernet users can send alerts by e-mail

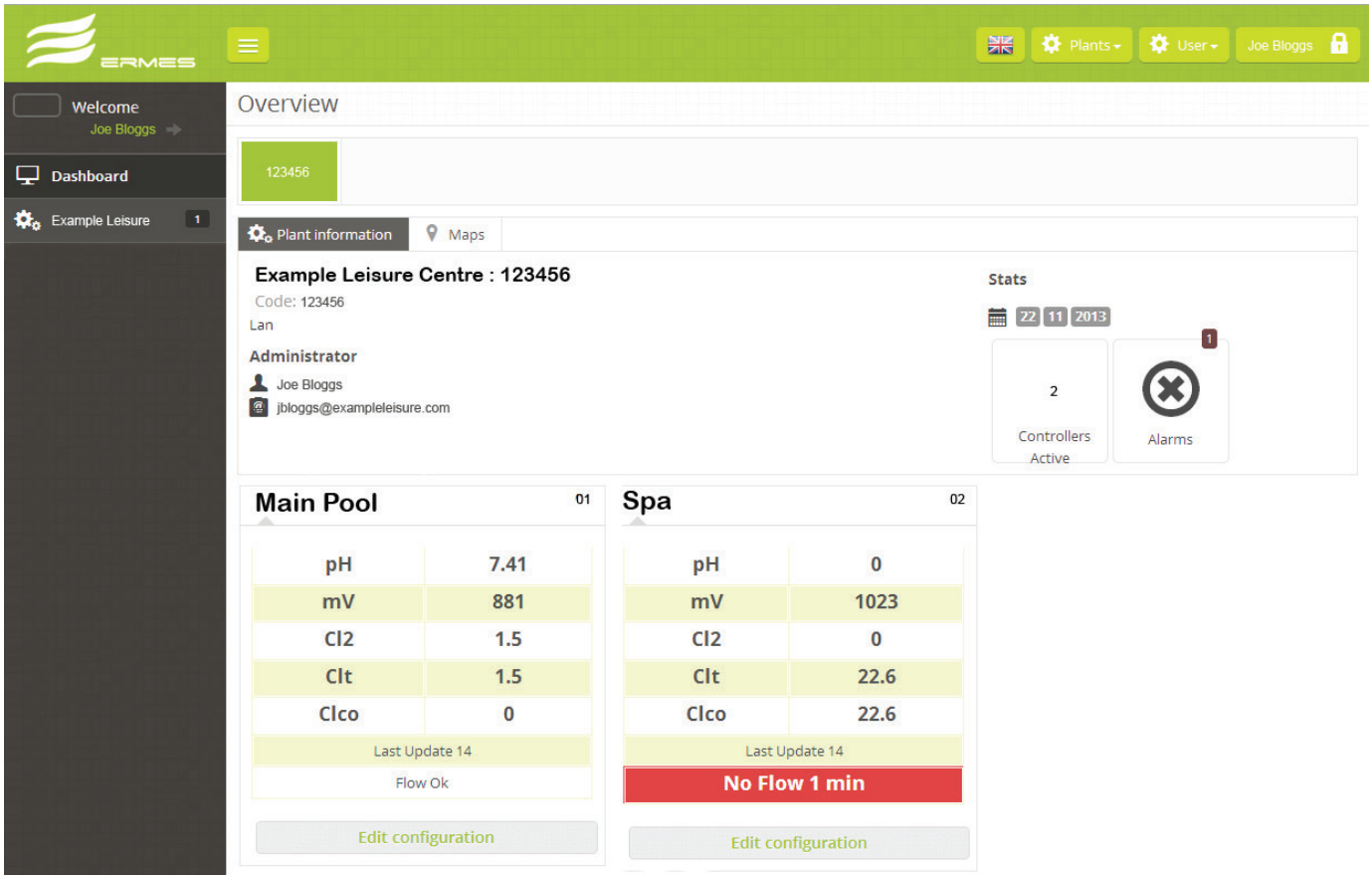
GPRS Modem

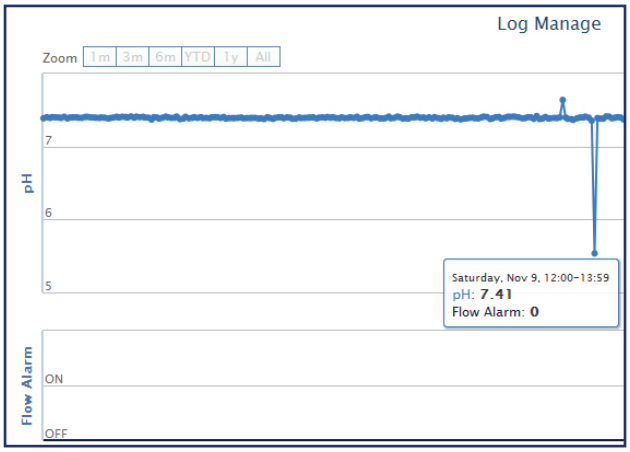
Using a data SIM card, the controller is connected to the mobile data network. The controller automatically connects to ERMES and be accessed 'live' via the ERMES web server using any internet enabled device.

GPRS users can send alerts by e-mail and SMS

ERMES uses approx 250mb data per calendar month

ERMES Server





What is ERMES?

ERMES allows users to remotely access their chemical dosing controller through any internet enabled device. When users first log in they are presented with a summary screen which shows all the controllers and sites assigned to the account. Each controller can be investigated further giving status information on dosing pumps, flow, set points etc.

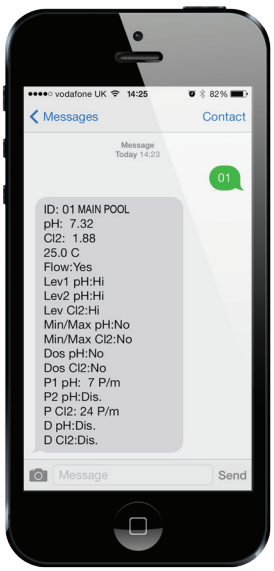
Logged information from the controller can be presented in traditional text log format or can be presented in graph form which, for example, can be used to identify trends in the water chemistry.

Text Updates and Text Alerts

Controllers fitted with a GPRS modem are capable of sending text (SMS) updates and alerts to any mobile device.

Text updates can be prompted by sending a text to the controller which will 'reply' with the update (shown right). Information sent includes: ID name, pH level, sanitiser level, temperature, flow status, pH tank level, sanitiser tank level, dosing pump status, dosing pump speed and other ouput status.

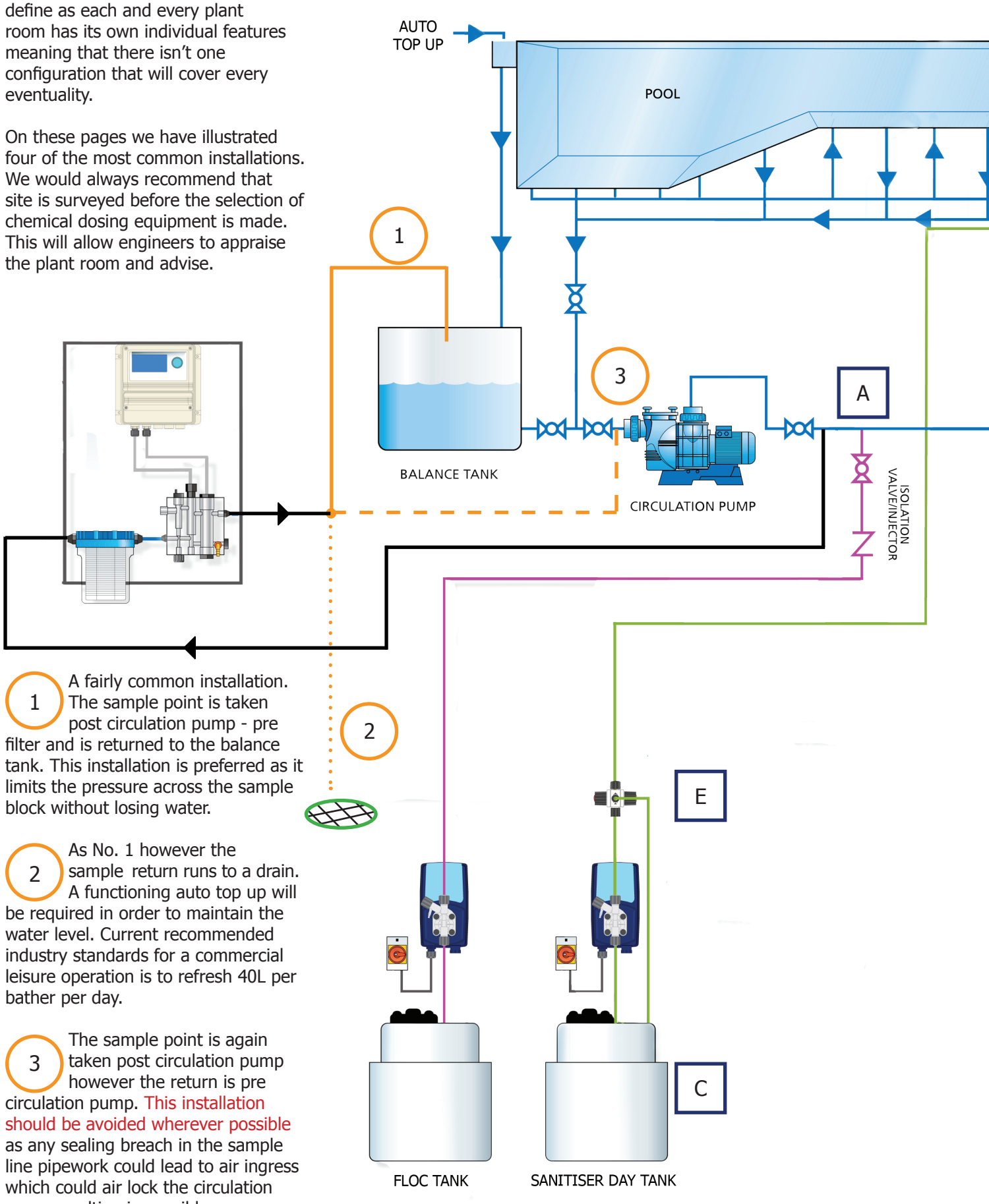
Text alerts are automatically sent by the controller once an alarm state is triggered. Pre-programmed telephone numbers are sent the following information in the event of an alarm: ID name, alarm status, pH level alarm status, sanitiser alarm status, tank level status and flow alarm status.



Typical Installation

A typical installation is difficult to define as each and every plant room has its own individual features meaning that there isn't one configuration that will cover every eventuality.

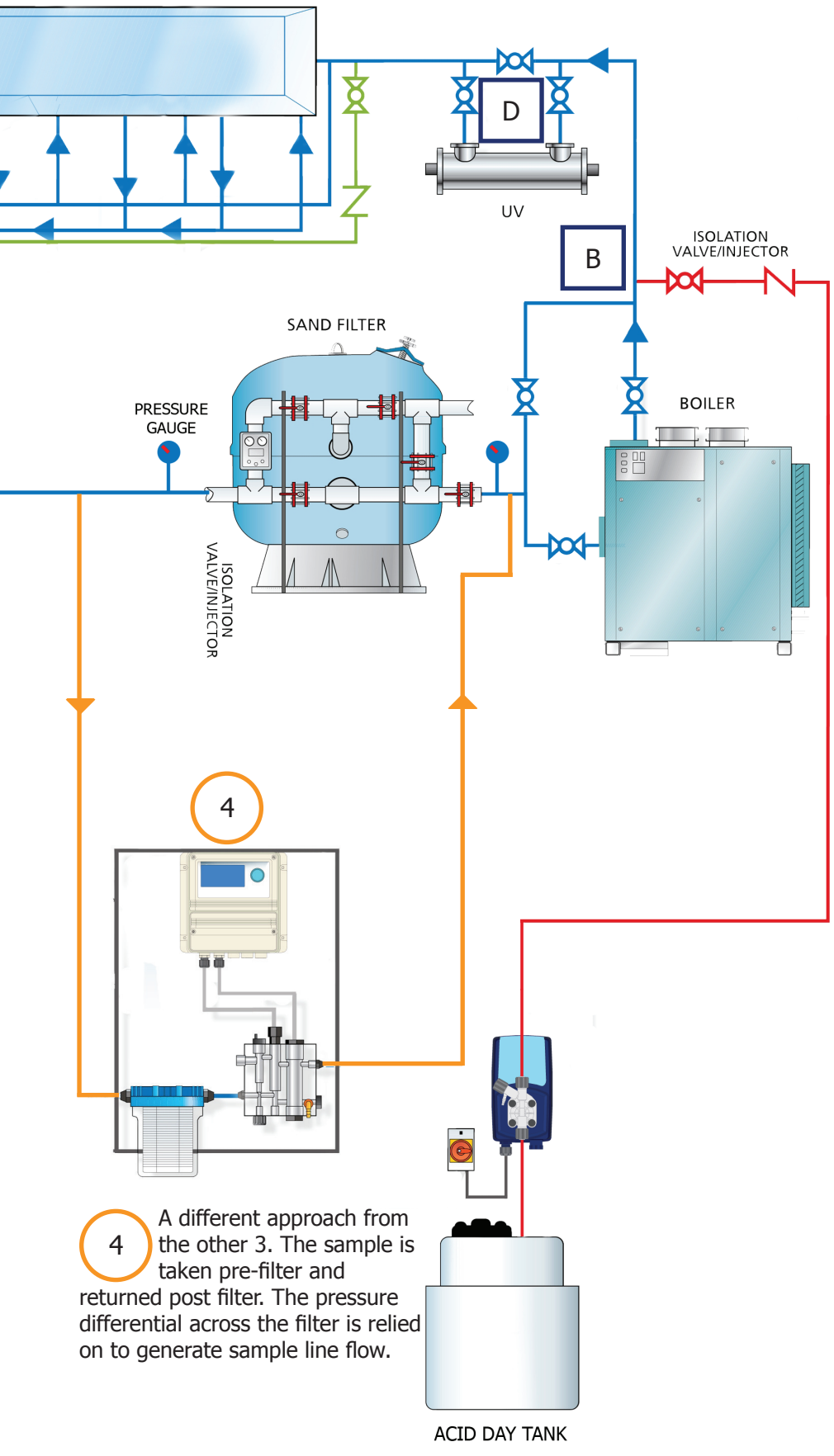
On these pages we have illustrated four of the most common installations. We would always recommend that site is surveyed before the selection of chemical dosing equipment is made. This will allow engineers to appraise the plant room and advise.



1 A fairly common installation. The sample point is taken post circulation pump - pre filter and is returned to the balance tank. This installation is preferred as it limits the pressure across the sample block without losing water.

2 As No. 1 however the sample return runs to a drain. A functioning auto top up will be required in order to maintain the water level. Current recommended industry standards for a commercial leisure operation is to refresh 40L per bather per day.

3 The sample point is again taken post circulation pump however the return is pre circulation pump. This installation should be avoided wherever possible as any sealing breach in the sample line pipework could lead to air ingress which could air lock the circulation pump resulting in possible pump failure. This option is not suitable for closed probes.



4 A different approach from the other 3. The sample is taken pre-filter and returned post filter. The pressure differential across the filter is relied on to generate sample line flow.

Dosing Pointers...

A The FLOC injection point should be as far upstream of the filter as possible and located away from other injection points. This allows the FLOC sufficient time to react, bonding the smaller particles together before reaching the filter. Injection points should never be placed on the suction side of the circulation pump as this could syphon the chemical from the storage tanks.

B Acid injection points should, where possible, be post boiler/heat exchange. Introduction of a strong acid to these devices may cause significant damage. Close proximity to the sanitiser injection point should be avoided where possible. Current guidance is to have the injection points at least 10 pipe diameters apart.

C Chemicals, wherever they are stored should always be in separate containers. Sanitisers and acids should never be allowed to mix and should be bunded individually.

D UV plants are an effective way of disinfecting pool water. If a UV plant is installed, sanitiser injection points should be installed post UV plant.

E Multifunction valves can be used to redirect chemical flow in the event that an injection valve or the line becomes blocked. Multifunction valves should also be used where day tanks are located above the plant room to prevent syphoning

F Injection valve type will vary depending on the plantroom level in relation to the pool/spa. If the plant room is located below the pool level isolatable, removeable injection valves should be considered for ease of use. The image below shows how the withdrawable injection valve should be fitted into a pipe line.

Accessories

CDE-EPHS
pH electrode for pressures up to 7 bar. 0.8m cable. Epoxy body

CDE-ERHS
Redox electrode for pressures up to 7 bar. 0.8m cable. Epoxy body

BUFFER SOLUTIONS
Reference solutions for PH and Redox probes

CDE-ECL3S/10
Free chlorine amperometric probe from 0 to 10 ppm. pH and temperature compensated

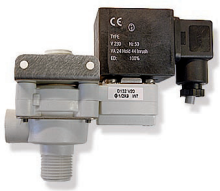
CDE-ECL4
Free chlorine amperometric cell from 0 to 10 ppm

CDE-ECL6
Free chlorine amperometric cell from 0 to 10 ppm. Cell features integrated pH/Redox probe holder plus flow sensor

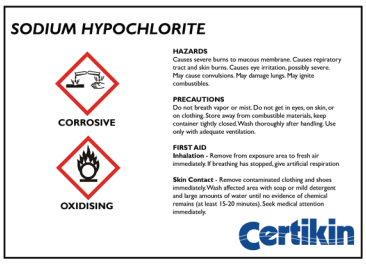
CDE-NPED4
Off-line electrode holder for pH and redox electrodes. Max 5 bar pressure. Features N.O flow sensor

CDE-PEL
PVDF in-line electrode holder for pH and redox electrodes with 1/2" or 3/4" thread for 'Tee' connection

CDE-PELC
PVDF in-line electrode holder for pH and redox electrodes with 1/2" or 3/4" thread for saddle connection



Electrovalves
Solenoid driven valves.
Available in 1/4", 3/8", 1/2" and 3/4"
For use with feeders



Safety Labels
Range of safety labels to suit the various chemicals that Certikin offer. Can be supplied in suitable sizes for chemical holding tanks or bunds as well as injection points

CDE-MIXV

High speed mixer (1400rpm)
ANSI shaft with PVC coating - various lengths. Marine impeller

CDE-MIX

Low speed mixer (65-200-400rpm)
ANSI shaft with PVC coating - various lengths - 3 blade impeller

CDE-MAN

Manual mixer
PVC shaft - various lengths
Slotted disk impeller

CDE-LASP

Suction lances with level control
Available in different shaft lengths to suit holding tanks

CDE-LINIR

1/2" Withdrawable injection valve.
PVDF body with Viton seals.
Supplied with PVC ball valve

Level Probe

PVDF level probe with foot filter and BNC connector

Mounting Bracket

For mounting wall mount dosing pumps onto a tank OR mounting foot mount dosing pumps on the wall

CDE-MFKTS

Multifunction Valve:
Anti-syphon function
Safety valve function
Manual vent
PVDF body with Viton or EPDM seals
Hose holding kits to suit various hoses

Notes

CERTiDos

Dosing Solutions by Certkin

Certikin International Limited
Witan Park - Avenue Two
Station Lane Industrial Estate - Witney
Oxon - OX28 4FJ - Reg. in England No. 3047290
E-Mail: enquiries@certikin.co.uk

Certikin France
Zl de Torremilla - 219 Rue Henry
POTEZ - 66000 Perpignan
Tel: 04 68 52 64 30 Fax: 04 68 52 64 30
E-Mail: sentex@sentex-france.com

Certikin Pool Iberica S.L.U P.I
Mas Puigvert-Oest - 19-20 Parc 3
08389 Palafolls - Barcelona
Tel: 902 02 03 42 Fax: 93 764 53 97

Certikin Italia SpA
Via Gavardina 96/98/100
25010 Ponte S Marco (BS) Italia
Reg. Imp di Brescia 00813790987
Capitale Sociale 300.000,00 int. vers
Tel: +39 030 99 80 088 Fax: +39 030 96 37 619

Certikin India
7a Dyavasandra Industrial Estate
3rd Cross - Singayanapalya
Bangalore - India 560048
Tel: +91 80 4094 3024 Fax: +91 80 4094 3025

Certikin Middle East
Jebel Ali Free Zone
Dubai
Tel: +971 4 88 61 404 Fax: +971 4 88 61 004