CERTiDos

Dosing Solutions by Certikin

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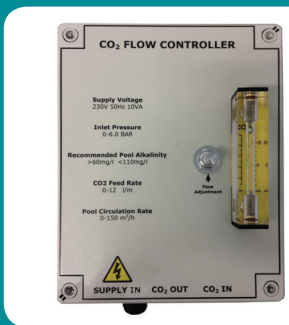


Dosing Equipment Brochure

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

Welcome

Welcome to the sixth 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 and 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

Our technical team are happy to help with all things dosing. From specification to troubleshooting, call us on 01993 777200 or e-mail certichem@certikin.co.uk. In addition, a greater range of our products are available with full remote connectivity which allows off-site diagnosis of problems and improves the support that we can offer.

A comprehensive handover pack is available with complete dosing system installations. We provide broad advice on interaction, operation and maintenance.

End User Manuals - QR Codes

Throughout this brochure you will notice that QR codes have been included next to product listings. Simply scan these codes using a suitable app on your smart phone to download the end user manuals for that product. You can even scan the code on the front of this brochure to download a digital copy!

*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. This provides an economical method of monitoring the pool or spa water quality.

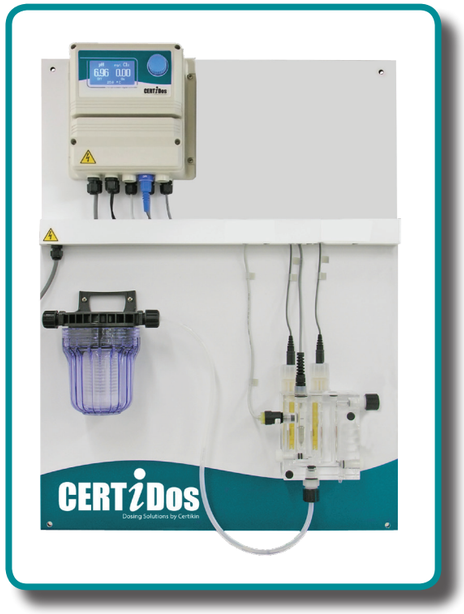
This equipment is best suited to domestic applications where the chemical holding tanks can be positioned directly below the panel.

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 including on/off; PWM and proportional. External dosing pumps, mounted on tanks for example, can be connected to the controller for control of the pH and sanitiser levels.

This equipment is best suited to domestic applications however the chemical holding tanks can be positioned remote from the panel.



Open Cell Systems

CertiDos WPOC

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

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 pumps to balance the pH and sanitiser levels.

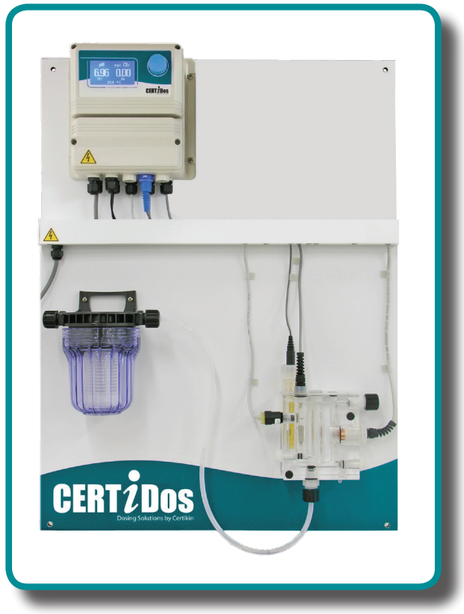
This equipment is best suited to applications with a 24/7 circulation and where the chemical holding tanks can be positioned directly below the panel.

CertiDos LOC

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

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

As above, the equipment is best suited to applications with 24/7 circulation however the chemical holding tanks can be positioned remote from the panel.



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 which is displayed as a ppm value.

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.

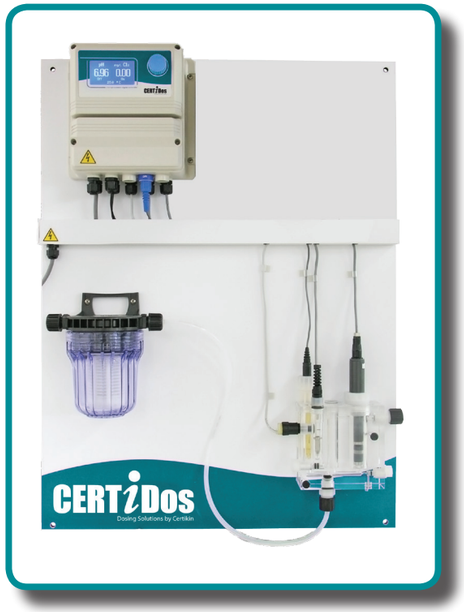
This is equipment is best suited to applications with a 24/7 circulation and where the chemical holding tanks can be positioned directly below the panel.

CertiDos LCP

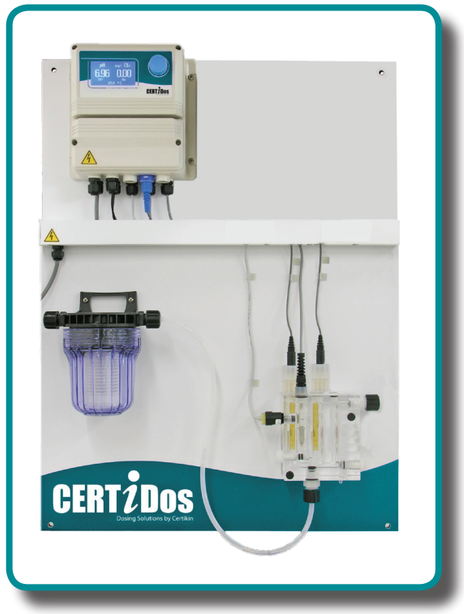
1. Controller
2. Pre-Filter
3. pH Electrode
4. Amperometric Probe
5. Probe Holder

The LCP features a standalone controller which has a number of pump output options including on/off; PWM and proportional. External dosing pumps can be connected to the controller for control of the pH and sanitiser levels.

As above, the equipment is best suited to applications with a 24/7 circulation. Chemical holding tanks can be positioned remote from the panel.



Heavy Use Systems



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/ORP (mV) monitor for general analysis of the water quality (display only).

The system can either be supplied with an open cell or closed probe both being suitable for applications with a 24/7 circulation. Due to the nature of the controller, the chemical holding tanks can be remote from the panel.

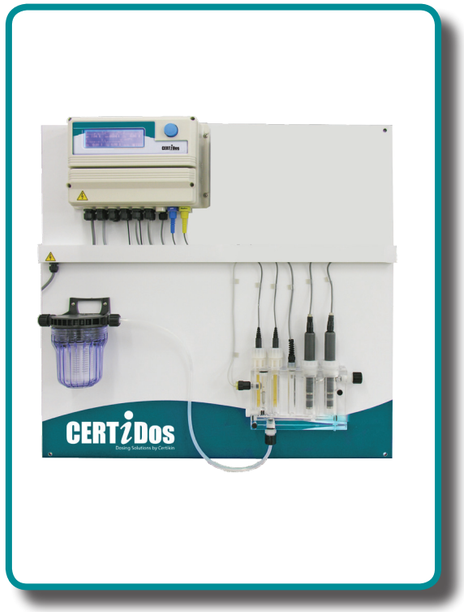
CertiDos M5

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

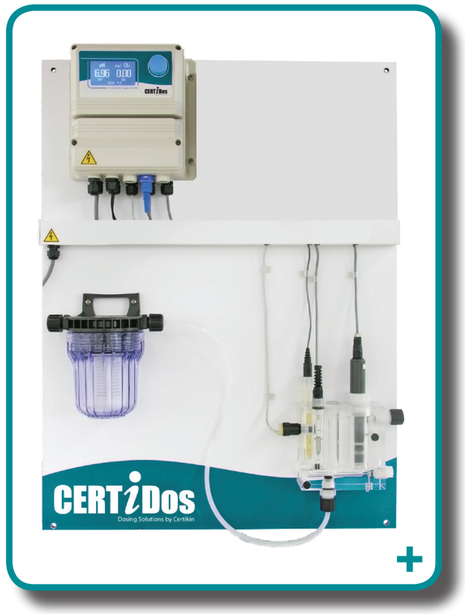
A complete sampling and monitoring panel featuring a five channel controller offering pH, ORP, free chloirine, total chlorine and combined chlorine (calculated).

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

6 programmable set points (on/off)
6 programmable proportional outputs
5 tank level inputs
5 timer outputs



Variable Speed & Covers



CertiDos LCP+

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

Variable Speed Drives (VSD) are becoming increasingly common place within the commercial environmental. This presents a unique challenge in terms of chemical addition. The LCP+ has been developed to work in conjunction with a water meter to intelligently mitigate the effects of changing water flow within the system.

Closed amperometric chlorine probe systems offer the most accurate free chlorine residual measurement available which is displayed as a ppm value.

This is equipment is best suited to applications with a 24/7 circulation.

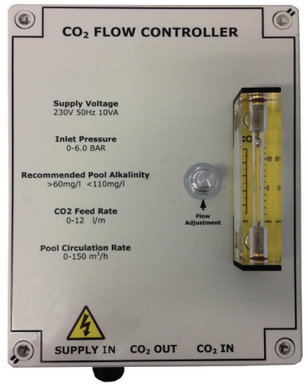
Enclosures and Covers

All of our dosing panels can be supplied within a GRP enclosure for the ultimate in end user protection.

'L' and 'PRC' based systems can be housed within our specially designed CertiDos cover which provides access to the control interface whilst protecting the end user from harm. In this configuration, the probe block is fitted with a LED pack which changes colour to indicate that an alarm condition has been activated.

Speak to a member of the CertiChem team for more information

CO2 Control & Gas Alarms



CertiDos CO2FC

Carbon dioxide is fast becoming the most popular method of balancing the pH within commercial applications with its relatively 'safe' end user interaction.

As with all chemical additions, care must be taken to ensure that a measured amount is added to the body of water.

The CO2 flow controller allows flow into the body of water to be calibrated/set and is suitable for connection to the 'L' type of controllers.

Other CO2 accessories such as stainless steel injection valves and hoses are also available.

CertiDos Gas Alarms

New for this year, gas alarms enhance the safety of any plant room. Each alarm is supplied with a main control unit which features the end user interface as well as a remote 'detector' unit (additional detectors can be supplied).

In the event of excessive gas detection a high volume and pitched sounder is triggered at the main control unit as well as the detector.

Gas alarms are available for Chlorine Gas or Carbon Dioxide (CO_2).

Test and calibration equipment that generates a small amount of chlorine gas is also available on request.

Manual Dosing Pumps

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. Similar to the FCO series however this pump is fitted with a different wet end.

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

Supply: 230VAC 50Hz 1 Phase

CertiDos HTA Series

A foot mount solenoid driven dosing pump with manual stroke frequency and length adjustment.

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

Supply: 230VAC 50Hz 1 Phase

CertiDos ECO Peri Series

Peristaltic dosing pump with manual on/off options.

Standard Materials:
Tube: Santroprene

Supply: 230VAC 50Hz 1 Phase

Control Dosing Pumps

CertiDos HTS Series

An economy solenoid driven pulse proportional dosing pump with manual stroke length adjustment plus a low level probe.

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

Supply: 230VAC 50Hz 1 Phase

CertiDos KMS MF Series

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

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

Supply: 230VAC 50Hz 1 Phase

High Flow Dosing Pumps

CertiDos AMS Series

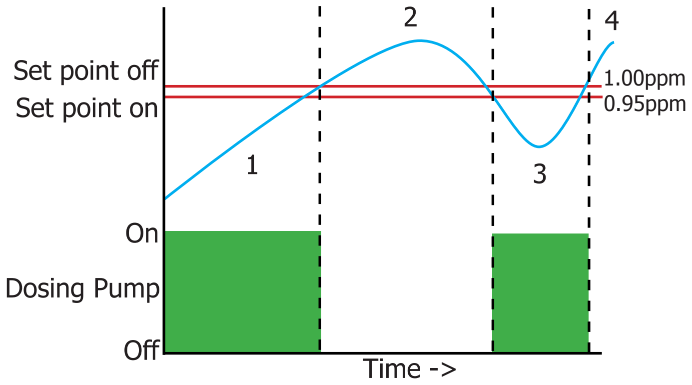
For flow rates above 20Lph (e.g. calcium hypochlorite applications) the AMS series has it covered. Available in both manual and control variants.

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

Supply: 230VAC 50Hz 1 Phase

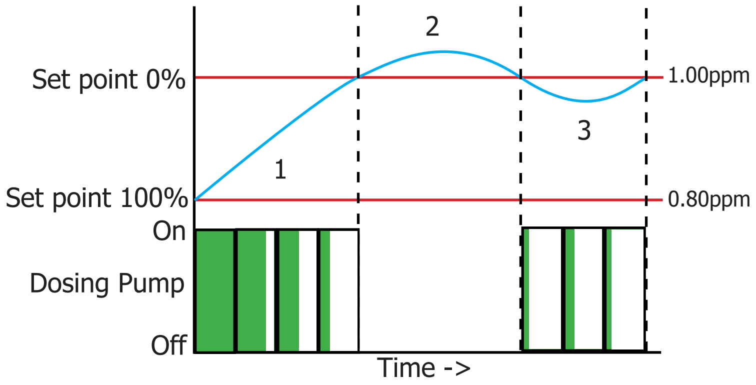
Pump Control

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.



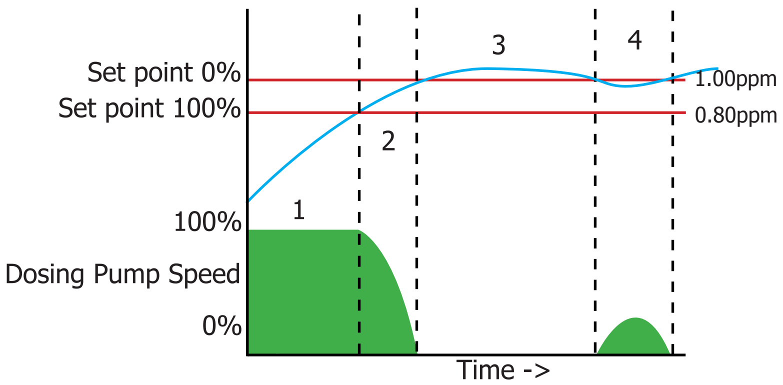
1. Dosing pump is running to increase level.
2. Pump stops once off set point is reached however, due to system lag time, the level continues to rise (overdose).
3. Pump again is powered however level continues to drop due to system lag until pump catches up.
4. Pump stops again once off set point is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



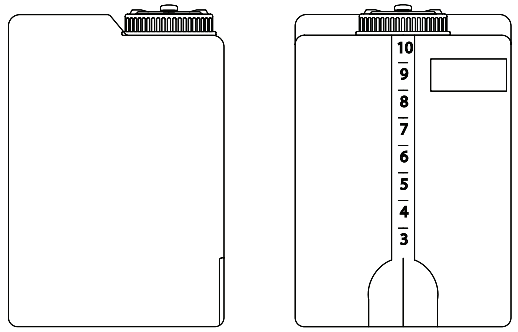
1. First run of pump is 100% (i.e. 100 seconds of 100 seconds). After this period, the controller can see that the level is starting to drift towards the set point. The second pump run is, for example 80%. If, after 100 seconds, the level is still drifting towards set point, the pump run will continue 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.

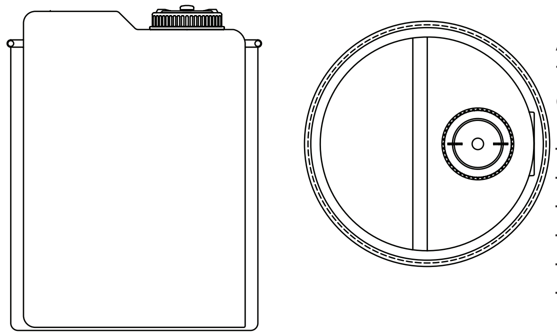
Tanks and Bunds



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

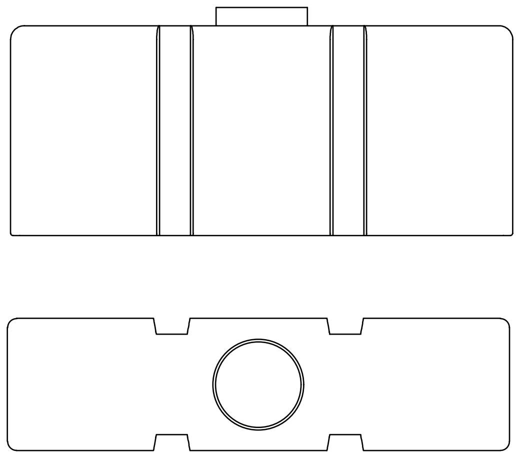
25Lt Holding Tank	340mm dia x 425mm h
60Lt Holding Tank	380mm dia x 635mm h
108Lt Holding Tank	470mm dia x 680mm h
230Lt Holding Tank	610mm dia x 870mm h
530Lt Holding Tank	830mm dia x 1065mm h



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.

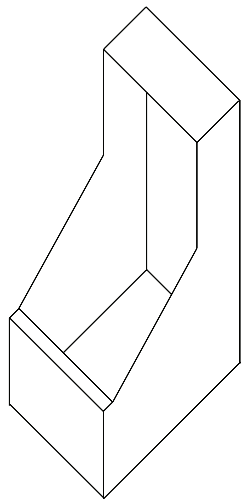
To suit 25Lt Tank	470mm dia x 173mm h
To suit 25Lt Tank	380mm dia x 343mm h
To suit 60Lt Tank	470mm dia x 430mm h
To suit 108Lt Tank	610mm dia x 445mm h
To suit 230Lt Tank	830mm dia x 480mm h
To suit 530Lt Tank	1005mm dia x 735mm h



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

Connectivity - ERMES

All current CertiDos controllers can be remotely accessed from any compatible web browser via our dedicated remote connectivity suite 'ERMES.'

Real Time Monitoring

All controller parameters can be viewed, in real time, through ERMES server. Information that can be viewed includes probe readings; outputs; alarms and set points.

Alarms

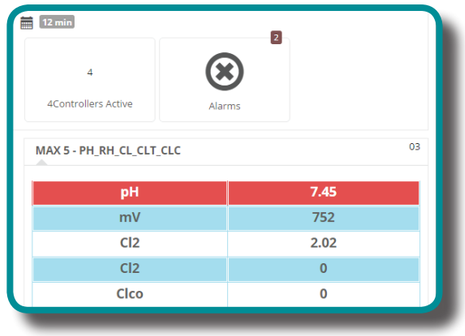
Controllers can be programmed to text (SMS) or e-mail preset users a list of current parameters on request or in the event of an alarm being triggered such as low level in the chemical tanks; high/out of range parameters and sample line no flow.

24/7 History and Logs

All parameters on the controller such as pH, sanitiser and flow etc are automatically logged. The stored data can be used for identifying trends or in problem solving making it invaluable.

The logs can be viewed and exported using the online web interface. The data can be displayed on an interactive graph or in text form.

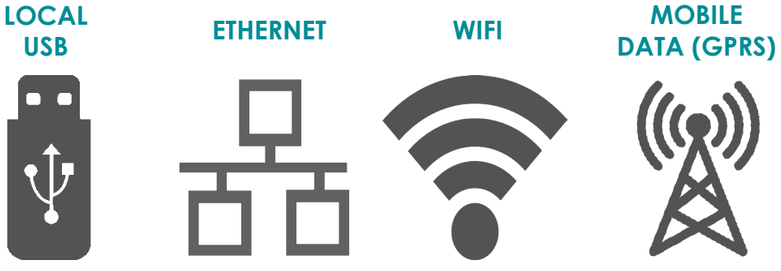
For controllers that don't have access to the internet, an optional USB port can be fitted so that the logs can be downloaded onto a USB drive. The data stored on the drive can be uploaded to ERMES and viewed as outlined above.



Multiple Pools/Spas? Multiple Sites?

Multiple controllers on the same site can be linked throught the same connectivity device. Similarly, multiple connectivity devices across multiple sites can be linked to the same ERMES account.

ERMES can display all controllers linked to the account in an easy to read overview screen. Each controller can also be individually interegated for further, more in depth, information.



On-site Services

Equipment Selection

In terms of how we approach kit selection our starting point is primarily safety. There are questions we look to answer before we even start to think about controller and probe selection. For example, what equipment represents the least risk? Which chemicals will minimise operator risk? Is their sufficient space for the equipment to be installed safely? Is the equipment easily accessible for interaction and maintenance? Can sample and injection points be easily accessed? Is there a safe route for chemical lines to be run?

All commercial sites should consider Risk Assessments and Method Statements (RA MS) and with our assistance in kit selection, the best operating strategy can be implemented.

The team are more than happy to assist with selecting equipment from this brochure or the main price list. We can also arrange a free of charge site survey to throughly assess kit selection from a safety and technical point of view.

Installation, Commissioning and Training

The first weeks following the installation of a dosing system are crucial in terms of satisfaction of the end client. If the installation is performed correctly and goes smoothly, there is less chance of teething problems which may lower confidence. CertiDos engineers install and commission many systems all year round.

Before attempting an installation, there are a number of site preparations that we are are completed prior to arrival. The most important of these preparations being water balance and sanitier levels. Full pre-installation check lists are sent once the visit is booked and the team can be contacted for guidance.

Have your own engineers? We are more than happy for our trade customers to install our systems and we can arrange to attend to commission and provide training to the end user / operator once it is completed on request. That said, we take industry guiance notes very seriously and will only sign off installations once they are deemed 'safe.'

End User and Operator training is a crucial part of ensuring that the equipment is correctly operated and maintained. Our standard 'handover' traning after commissioning the system is usually sufficient however we understand that staff training needs will vary depending on skill and experience. Therefore, in some cases, we offer enchanced in depth training. Training requirements can be assessed during the pre-site survey and advice will be given as to whether a more intensive session is recommended. We can also return to site further down the line to deliver 'refresher' training or to train new members of staff as required.

Preventative Maintenance

'Service visits' or 'Planned Preventative Maintenance (PPM)' form an essential part of the smooth running of any chemical dosing system. The frequency of visits will depend on the facility, bather load and the site's own maintenance schedule. As a general rule, we recommend at least two service visits per year at 6 month intervals. Depending on the individual site requirements, more or less frequent visits may be required. We can act on your behalf as our trade customer and provide the necessary service contract for your client. Again, this can be assessed at the time of an initial pre-site survey.

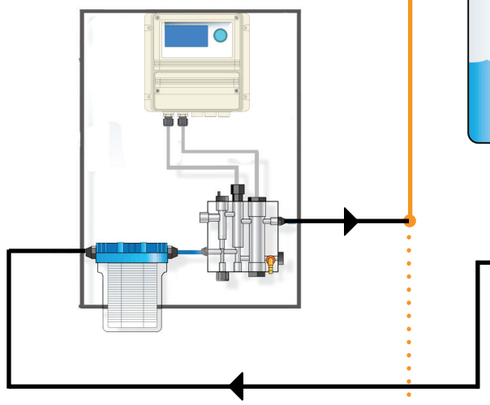
As always, please feel free to get in touch with our team to discuss your requirements in full!

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.

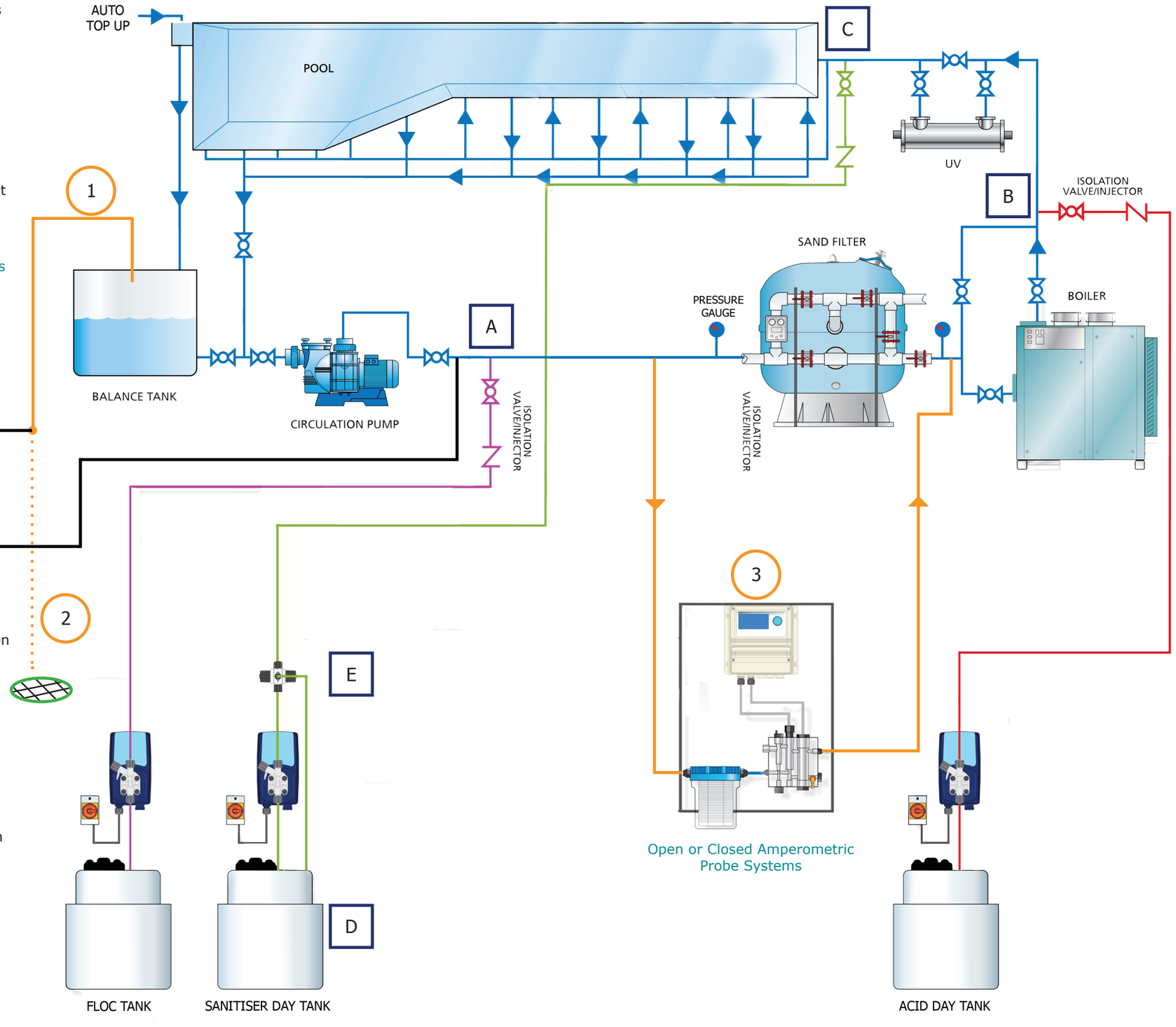
Closed Amperometric Probe Systems



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 cross 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 Another approach. The sample is taken pre-fiter and returned post filter. The pressure differential across the filter is relied on to generate a 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 Sanitiser injection points should be post any UV systems disinfection systems.

D 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.

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.

And finally...

Injection valve type will vary depending on the plantroom level in relation to the pool/pa. If the plant room is located below the pool level isolatable, removeable injection valves should be considered for ease of use.

Accessories

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

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

CDE-SVCL3S/20
Free chlorine amperometric probe from 0-20ppm. pH and temperature compensated

CDE-ECL4
Free chlorine amperometric cell (open) from 0-10ppm. Separate platinum and copper

CDE-ECL6
Free chlorine amperometric cell (open) from 0-10ppm. Combined platinum and copper. Cell features integrated ph/ORP electrode holder plus flow sensor

CDE-NPED4
Offline probe holder for pH and ORP electrodes. Max 5 bar pressure. Features integrated flow sensor

CDE-PEL
PVDF in-line electrode holder for pH and redox electrodes with 1/2" of 3/4" thread for 'tee' connections

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

BUFFER SOLUTIONS
Reference solutions for pH and Redox probes

ELECTROVALVES
Solenoid driven valves. Available in 1/4", 3/8", 1/2" and 3/4". For use with feeder based systems. Motorised valves available upon request

SAFETY LABELS
PVDF in-line electrode holder for pH and redox electrodes with 1/2" or 3/4" thread for saddle connections

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

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

CDE-MAN
Manual mixer - plunger type. PVC shaft - various lengths available. Slotted disk plunger Features integrated flow sensor

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 valves

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
Saftey valve function
Manual vent
PVDF body with Viton or EPDM seals. Hose holding kits to suit various hoses

Notes

CERTiDos

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