



Cooling Tower Control & Dosing

Bleed, Inhibitor, Timed Biocides

DIGICHEM®
the industry standard



DIGICHEM-XP2



DIGICHEM-AB2-V

Ordering Code

Description

DIGICHEM-XP2

DIGICHEM® XP2 Series Conductivity controller for Cooling Towers with datalogging & 2 x 28-day timers for Dual Biode dosing. Relay outputs for optional bleed solenoid valve, Inhibitor & 2 Biocide Pumps. Includes conductivity probe with PVC Tee.

DIGICHEM-AB2-V

DIGICHEM® XP2 Controller with Inhibitor & Dual Biocide Peristaltic Pumps with manifold on PVC back-board. (Incl. Bleed solenoid valve & conductivity probe)

DIGICHEM-AB2-V-CABG

DIGICHEM-AB2-V with controller & pumps in IP66 Polyester hinged cabinet.

DIGICHEM-AB2-VB-CABG

DIGICHEM-AB2-V with controller, pumps & manifold in IP66 Polyester hinged cabinet. Bleed Solenoid valve replaced with 1/2" full bore Belimo Actuated Ball Valve

DIGICHEM-X/3S-EMEC3-V

DIGICHEM® XP2 Controller with Inhibitor & Dual Biocide High Pressure Solenoid Pumps with manifold on PVC backboard. (Incl. Bleed solenoid valve & conductivity probe)

DIGICHEM-X/3S-EMEC3-V-CABG

DIGICHEM-X/3S-EMEC3-V with controller & pumps in IP66 Polyester hinged cabinet Pumps plug into GPOs.

DIGICHEM-X/3S-EMEC3A-V

DIGICHEM-X/3S-EMEC3-V with self-venting (ie. de-gassing) head on one of the Biocide pumps for dosing Chlorine or Hydrogen Peroxide

DIGICHEM-X/3S-EMEC3A-V-CABG

DIGICHEM-X/3S-EMEC3A-V with controller & pumps in IP66 Polyester hinged cabinet Pumps plug into GPOs

DIGICHEM-A2-V

DIGICHEM® XP2 Controller with Inhibitor & Single Biocide Peristaltic Pumps with manifold on PVC back-board. (Incl. Bleed solenoid valve & conductivity probe)

DIGICHEM-A2-V-CABG

DIGICHEM-A2-V with controller & pumps in IP66 Polyester hinged cabinet.



DIGICHEM-AB2-VB-CABG



DIGICHEM-X/3S-EMEC3A-V



DIGICHEM-AB2-V-CABG



(Note: Specifications subject to change without notice)

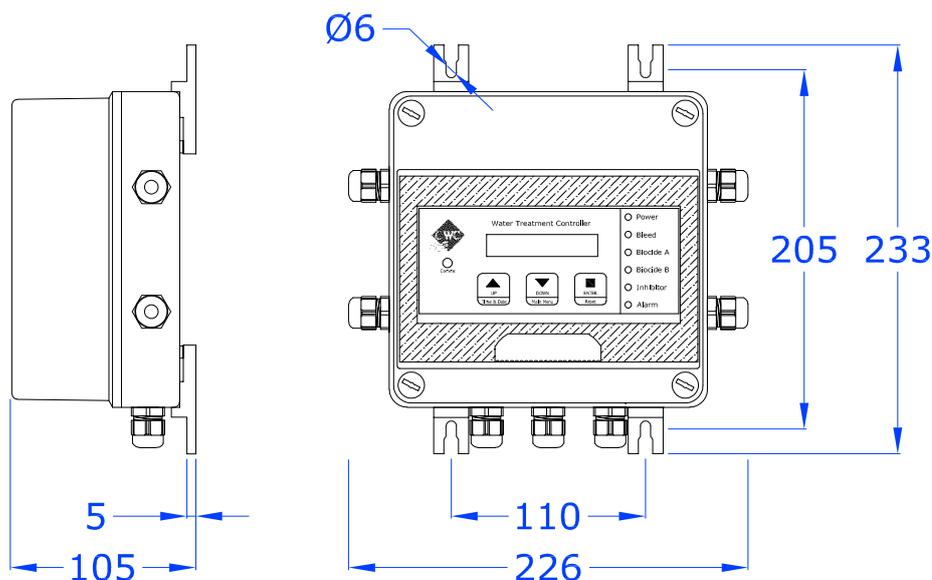
Description

One complete system for cooling towers – Conductivity control, Inhibitor & Dual Biocide Dosing with manifold on PVC panel – ready for installation – ready to control. The integrated **DIGICHEM[®] XP2** controller, with data logging, maintains the conductivity of the tower water via its bleed solenoid valve. Corrosion Inhibitors are dosed on bleed, on a cycle or proportional to make-up. Biocide chemicals are dosed according to 10 independent 28-day timer programs. The circulating/condenser pump can be configured to automatically run during and after any biocide dosing program to ensure that the biocide mixes thoroughly.

Features & Benefits

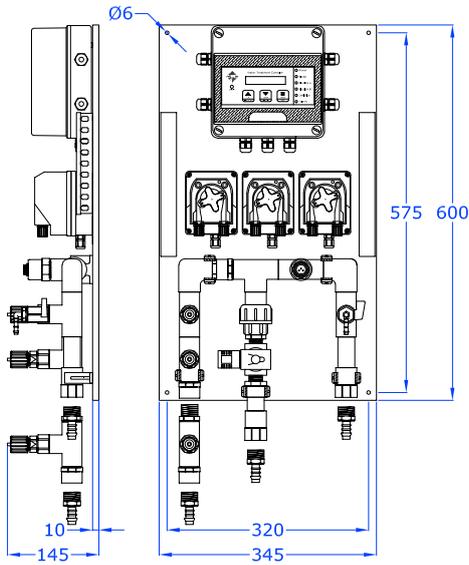
- Bleed Control via solenoid valve (or via optional actuated ball valve)
- Dual Biocide Dosing via 10 x 28-day timer programs with programable pre-bleed & bleed lockout
- Inhibitor Dosing on bleed, on cycle or proportional to make-up (via water meter pulses)
- Data logging of conductivity, output status, flow, alarm & power status
- Easy to program and calibrate
- Backlit LCD simultaneously displays Conductivity, Temperature & Setpoint
- Manual priming & testing via menu
- Automatic Slug Dose Feature
- Fail-safe alarm relay with remote power failure detection
- Condenser pump override facility with delay-off timer - ensures flow through manifold during & after biocide dosing
- Optional flow switch can be configured to disable different combinations of outputs on no-flow
- Manifold with sample valve incorporates flow & bleed indicator
- Weatherproof - can be mounted outside

Dimensional Drawing - Controller only

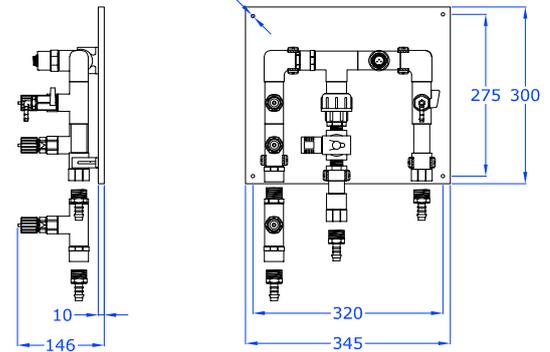
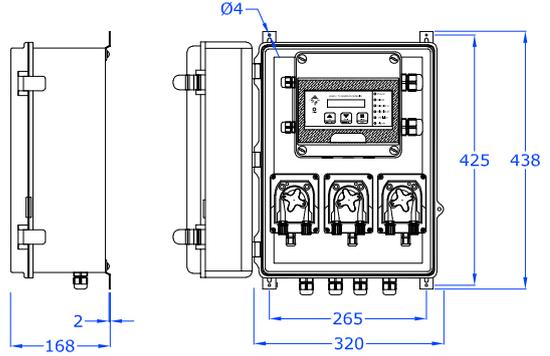


DIGICHEM-XP2

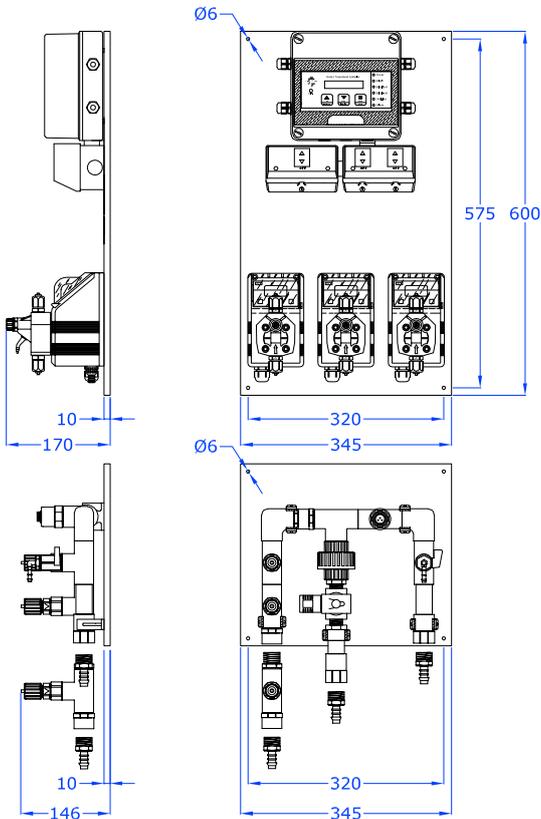
Dimensional Drawings - Dual Biocide Systems



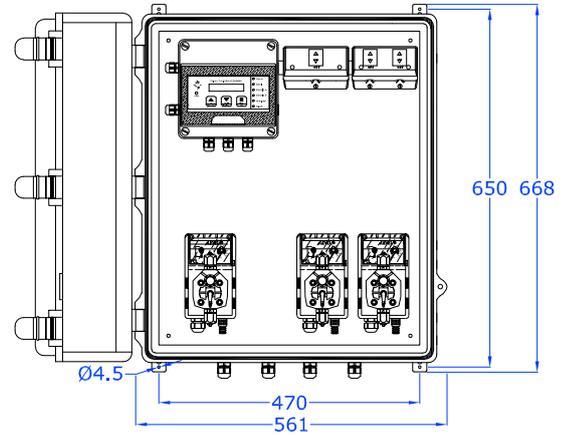
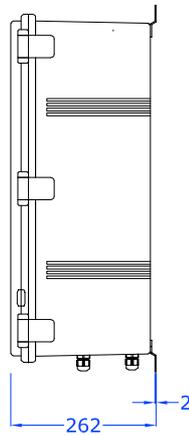
DIGICHEM-AB2-V



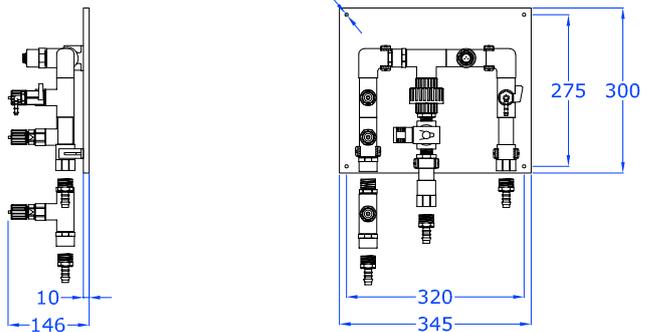
DIGICHEM-AB2-V-CABG



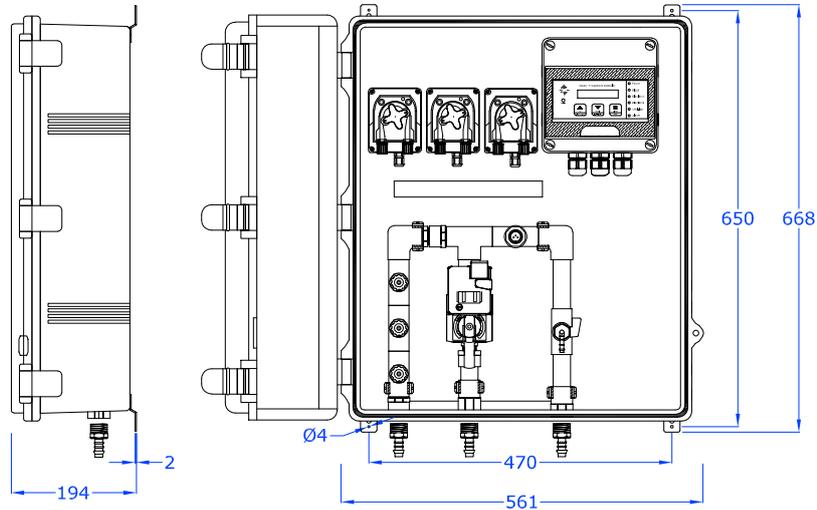
DIGICHEM-X/3S-EMEC3-V
 DIGICHEM-X/3S-EMEC3A-V



DIGICHEM-X/3S-EMEC3-V-CABG
 DIGICHEM-X/3S-EMEC3A-V-CABG

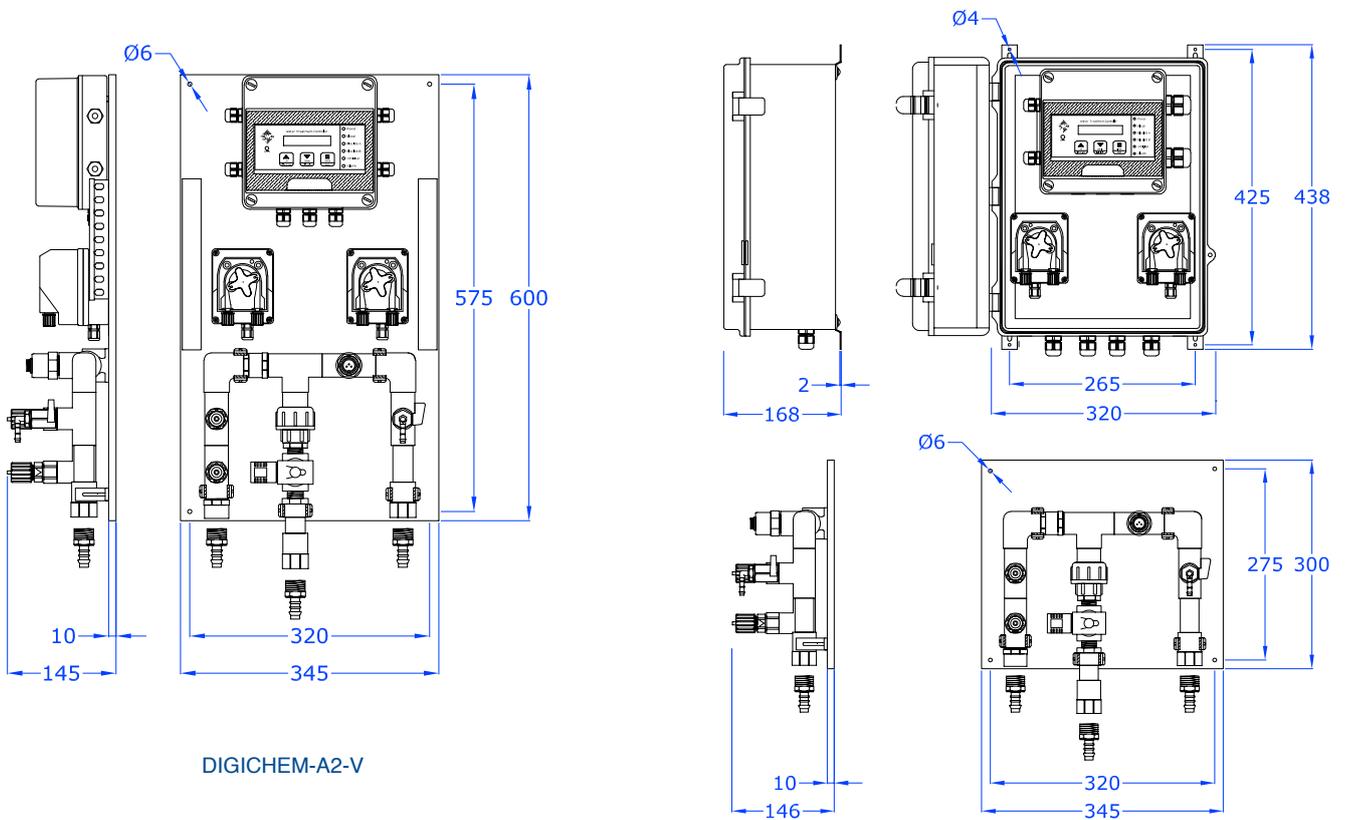


Dimensional Drawing - Dual Biocide with Actuated Ball valve for Bleed mounted inside IP66 cabinet



DIGICHEM-AB2-VB-CABG

Dimensional Drawings - Single Biocide Systems



DIGICHEM-A2-V

DIGICHEM-A2-V-CABG

Note: Mounting holes 6mm diameter, countersunk

How to Order

Controller with Conductivity Probe Only (excludes pumps, manifold, backboard & cabinets)

Ordering Code → **DIGICHEM - XP2**

Conductivity Bleed & Dosing Systems Supplied with Peristaltic Dosing Pumps

Ordering Code → **DIGICHEM - AB 2 - V B - CABG**

Biocide Pumps	
A	1 Peristaltic Biocide Pump (ie. Single Biocide)
AB	2 Peristaltic Biocide Pumps (ie. Dual Biocide)

Mounting of Controller & Pumps	
blank	Controller & pumps on PVC backboard.
CABG	Controller & pumps in IP66 hinged cabinet.

Explanation of Fixed Part Codes	
DIGICHEM	System with DIGICHEM ® XP2 Series controller
2	2nd Generation DIGICHEM ®
V	Vertical Inlet & Outlet Flow in Manifold

Belimo Actuated Ball Valve for Bleed	
blank	Manifold fitted with bleed solenoid valve as standard
B	Manifold fitted with Belimo actuated ball valve for bleed. Complete system incl manifold fitted inside IP66 hinged cabinet

Conductivity Bleed & Dosing Systems Supplied with 10 bar rated Solenoid Driven Diaphragm Pumps

Ordering Code → **DIGICHEM - X/3S - EMEC 3A - V - CABG**

Dosing Pump Configuration	
3	Inhibitor: 2.2 l/hr @ 10 bar Biocide A: 2.2 l/hr @ 10 bar Biocide B: 2.2 l/hr @ 10 bar
3A	Inhibitor: 2.2 l/hr @ 10 bar Biocide A: 2.2 l/hr @ 10 bar Biocide B: 1.4 l/hr @ 10 bar with self-venting (de-gassing) pump head

Mounting of Controller & Pumps	
blank	Controller, GPOs & pumps on PVC backboards. Pumps plug into GPOs.
CABG	Controller, GPOs & pumps in IP66 hinged cabinet. Pumps plug into GPOs.

Explanation of Fixed Part Codes	
DIGICHEM	System with DIGICHEM ® XP2 Series controller
X/3S	System with manifold & 3 GPOs to plug the 3 dosing pumps into
EMEC	Brand of solenoid dosing pumps used
V	Vertical Inlet & Outlet Flow in Manifold

Note: Flow Switch Optional on all systems



Options & Accessories

Ordering Code	Description
AF02	Replace 1/2" direct acting solenoid valve with pilot assisted 3/4" solenoid valve
AF02-1/2-LRU230	Replace 1/2" solenoid valve with Actuated Ball Valve 1/2" F/F (15mm) 240VAC, Full bore, Continuous voltage to close, Apply voltage to open (3-wire connection A, A, N), 3.5 bar, 100 degC max, IP54 (Weather protection recommended)
AF02-3/4-LRU230	Replace 1/2" solenoid valve with Actuated Ball Valve 3/4" F/F (20mm) 240VAC, Full bore, Continuous voltage to close, Apply voltage to open (3-wire connection A, A, N), 3.5 bar, 100 degC max, IP54 (Weather protection recommended)
AF04-M	Option on new system: Add Flow Switch To Manifold during manufacture (Configuration of outputs disabled on no-flow is programmable via the DIGICHEM [®] XP2 menu
RV ILS-3/4-T20E	In-line Strainer, 3/4" NPTF ports, transparent Nylon bowl, 20% glass filled PP body, EPDM gasket, 20 mesh (915 micron) SS304 screen, max 6.9 bar @ 52 degC or 10.3 bar @ 21 degC, mounting in any orientation
RV ILS-1-T20E	In-line Strainer, 1" NPTF ports, transparent Nylon bowl, 20% glass filled PP body, EPDM gasket, 20 mesh (915 micron) SS304 screen, max 6.9 bar @ 52 degC or 10.3 bar @ 21 degC, mounting in any orientation
AF09-XP2	Isolated 4-20mA output card (proportional to 0-5000uS/TDS).
AF10-XP2	Output Card for BMS/DDC, incl. isolated 4-20mA (proportional to 0-5000uS/TDS), plus open collector NPN logic outputs for each pump & solenoid valve status, and for alarm & power status.
SP-XP2-COMCABLE-1	Serial cable for local download of logged data from DIGICHEM [®] XP2 controller (plugs into Comms port on controller fascia. Software for download at www.cwc.com.au)
Available on Request	CIRCULATION PUMPS - refer to Onga Pumps Data Sheet
Available on Request	WATER METERS - refer to Water Meters Data Sheet
Available on Request	CORROSION COUPON RACKS - refer to Corrosion Coupon Racks Data Sheet

Recommended Spare Parts & Consumables

Ordering Code	Description
SP-DCON-P10T-P	Replacement conductivity probe 3/4" BSPM
SP-DCON-P10AT-P-PL	Replacement probe lead
SP-SOL-1/2-S	Replacement SMC direct acting solenoid valve (0-2.7bar)
SP-SK-01A-BK	Replacement Squeeze tube, EPDM 3x8mm (pre-greased with connectors) for SEKO PE-1.3 peristaltic pump with SP-SK-06 rotor assembly
SP-SK-06	Replacement rotor assembly for SEKO PE-1.3 pump with SP-SK-01A-BK squeeze tube

Specifications - DIGICHEM-XP2 Controller

DIGICHEM [®] XP2 CONTROLLER	
Control Function	
Measured Variable	Conductivity
Range	0 - 9999 μ S/TDS
Resolution	1 μ S / 1 ppm TDS
Accuracy	0.2% of Range
Repeatability & Drift	1% of Range
Control Type	ON/OFF (controlling bleed valve)
Hysteresis	Deadband: 3% (fixed)
ON/OFF Bleed Cycle	ON/OFF = 0-99s/0-99s (00s/00s = disabled)
Alarms	
Activation	High/Low Conductivity/TDS, Max bleed time, Flat battery, Power Failure, No Flow
Level Alarms	High & Low μ S/TDS
Max Bleed Timer Alarm	0-999m (0 = disabled)
Alarm Output	Common alarm via N/O & N/C failsafe volt-free contact
Dosing Settings	
Inhibitor	Programmable Cycle (ON/OFF) - in Modes: Continuous or On Bleed OR Proportional to Make-up pulses (pulse water meter optional)
Biocide A	Timed doses via 28 day timer programs (10 max per day)
Biocide B	Timed doses via 28 day timer programs (10 max per day)
Pre-Bleed	Conductivity Setpoint lowered by 15%, Duration (0 - 250 min) immediately before Biocide Dosing
Bleed Lock-out	Conductivity Setpoint raised by (0-50%) when Biocide Starts until (0 - 999 min) after Biocide Stops
Condenser pump override	During Biocide dosing and during Manual Dose with delay-off timer (15 - 240 min)
General	
Display	Backlit Single Line LCD displays Conductivity (μ S/TDS), Setpoint, Water Temperature, Flow & Alarm Status
Keypad	UP, DOWN & ENTER pushbuttons
LED Indication	green (Power on), yellow (Bleed, Inhibitor, Biocide A, Biocide B), red (Alarm)
Manual Test	All outputs independently activated via menu
Flow Sensing	Flow sensing individually set per output
Calibration	Menu driven
Datalogging Interval	Programmable from 5 min to 240 min
Logged Variables	Conductivity, Temp, %Bleed, %Inhib, %Biocide A, %Biocide B, %Bleed, %Alarm
Data Retention	100 years
Battery Backup	1 year (approx)
Battery Type	CR2032 (3VDC)
Electrical	
Power Supply	220-240 VAC, 50/60 Hz (110 VAC available on request)
Power Consumption	10W max (with no loads on outputs)
Fuse	2A, 5x20mm (in-line with circuit and powered relay outputs)
Auxiliary Mains Output	240VAC continuous (2A fused)
Control Relay Outputs	Switched 240VAC outputs rated 8A/250VAC resistive (2A fused)
Alarm Relay Output	N/O & N/C Volt-free (6A/250VAC resistive) 2A fused. Relay Coil de-energises on power failure
Condenser Pump Relay	N/O Volt-free (6A/250VAC resistive) 2A fused
Water Meter Input	Volt-free pulse



Specifications - Dual Biocide Dosing Systems

	DIGICHEM-AB2-V	DIGICHEM-AB2-V-CABG	DIGICHEM-AB2-VB-CABG
Dosing Pumps Incl.			
Inhibitor	1.3 l/hr	1.3 l/hr	1.3 l/hr
Timed Biocide A	1.3 l/hr	1.3 l/hr	1.3 l/hr
Timed Biocide B	1.3 l/hr	1.3 l/hr	1.3 l/hr
Pump Type	Peristaltic Pump (SEKO PE-1.3-FP-T), 2.7 bar max (EPDM Compound Squeeze tube, PP injection valve, PVC foot valve, Clear PVC suction tubing, Black UV stable PE discharge tubing). Bromine Pump 0.4 l/hr, 2.7 bar		

Manifold Standard	
Description	Inlet, (flow switch - optional), transparent flow indicator, sample point, conductivity probe (carbon electrodes), 1/2" bleed valve (w/ flow indicator) to drain, check valve, 3 injection points, outlet
Bleed Valve	SMC 240VAC N/C Direct Acting 0-2.7 bar solenoid valve, 10mm orifice Belimo 1/2" full bore actuated ball valve fitted in manifold inside cabinet
Inlet & Outlet	3/4" BSP Female Thread (3/4" x 12mm hosesails supplied loose)
Max pressure & temp.	270 kPa (2.7 bar) @ 50°C

Physical			
Protection	Controller IP55, Pumps IP65 (weatherproof)	IP66 (best suited to outdoor installation)	IP66 (best for outdoor installation with highest bleed reliability)
Lockable Cabinet containing Controller & Dosing pumps	-	Polyester hinged, 390 (h) x 290 (w) x 160 (d) mm Mounting brackets incl.	Polyester hinged, 600 (h) x 500 (w) x 250 (d) mm, Mounting brackets incl.
10mm PVC panel	600 (h) x 345 (w) mm	300 (h) x 345 (w) mm (manifold only)	-
Packaged dimensions	630(l) x 370(w) x 290(h) mm	480(l) x 370(w) x 400(h) mm	860(l) x 580(w) x 220(h) mm
Packaged weight	10 kg	10 kg	19kg

	DIGICHEM-X/3S-EMEC3-V	DIGICHEM-X/3S-EMEC3-CABG-V	DIGICHEM-X/3S-EMEC3A-V	DIGICHEM-X/3S-EMEC3A-CABG-V
Dosing Pumps Incl.				
Inhibitor	EMEC Solenoid Driven Diaphragm pump (variable speed)			
Timed Biocide A	EMEC Solenoid Driven Diaphragm pump (variable speed)			
Timed Biocide B	EMEC Solenoid Driven Diaphragm pump		EMEC Solenoid Driven Diaphragm pump with self venting (de-gassing) PVDF head, suitable for dosing Sodium Hypo (Chlorine) or Hydrogen Peroxide	
Inhibitor & Primary Biocide Pump dose rate	2.2 l/hr @ 10 bar (5 l/hr @ 5 bar avail on request)			
Secondary Biocide Pump dose rate	2.2 l/hr @ 10 bar (5 l/hr @ 5 bar avail on request)		1.4 l/hr @ 10 bar (4.5l/hr @ 6 bar avail on request)	

Manifold Standard	
Description	Inlet, (flow switch - optional), transparent flow indicator, sample point, conductivity probe (carbon electrodes), 1/2" bleed solenoid valve (w/ flow indicator) to drain, check valve, 3 injection points, outlet
Bleed Solenoid Valve	SMC Pilot Assisted, 240VAC, N/C, 10mm orifice (0-10 bar)
Inlet & Outlet	3/4" BSP Female Thread (3/4" x 12mm hosesails supplied loose)
Max pressure & temp.	1000kPa (10bar) @ 50°C

Physical				
Protection	IP55 + IP65 (weatherproof)	IP66 (best suited to outdoor installation)	IP55 + IP65 (weatherproof)	IP66 (best suited to outdoor installation)
Lockable Cabinet containing Controller & Dosing pumps	-	Polyester, 600 (h) x 500 (w) x 250 (d) mm, Mounting brackets incl.	-	Polyester, 600 (h) x 500 (w) x 250 (d) mm, Mounting brackets incl.
10mm PVC panel	300 (h) x 345 (w) mm (manifold only), supplied loose to mount below or beside control panel/cabinet			
Packaged dimensions	2 boxes: 630(l) x 370(w) x 290(h)mm 430(l) x 370(w) x 300(h)mm	2 boxes: 700(l) x 600(w) x 350(h)mm 430(l) x 370(w) x 300(h)mm	2 boxes: 630(l) x 370(w) x 290(h)mm 430(l) x 370(w) x 300(h)mm	2 boxes: 700(l) x 600(w) x 350(h)mm 430(l) x 370(w) x 300(h)mm
Packaged weight	2 boxes: 14kg + 5kg			

Specifications - Single Biocide Dosing Systems

	DIGICHEM-A2-V	DIGICHEM-A2-V-CABG
Dosing Pumps Incl.		
Inhibitor	1.3 l/hr	1.3 l/hr
Timed Biocide A	1.3 l/hr	1.3 l/hr
Timed Biocide B	-	-
Pump Type	Peristaltic Pump (SEKO PE-1.3-FP-T), 2.7 bar max (EPDM Compound Squeeze tube, PP injection valve, PVC foot valve, Clear PVC suction tubing, Black UV stable PE discharge tubing). Bromine Pump 0.4 l/hr, 2.7 bar	
Manifold Standard		
Description	Inlet, (flow switch - optional), transparent flow indicator, sample point, conductivity probe (carbon electrodes), 1/2" bleed solenoid valve (w/ flow indicator) to drain, check valve, 2 injection points, outlet	
Bleed Solenoid Valve	SMC 240VAC N/C Direct Acting 0-2.7 bar, 10mm orifice	
Inlet & Outlet	3/4" BSP Female Thread (3/4" x 12mm hosetails supplied loose)	
Max pressure & temp.	270 kPa (2.7 bar) @ 50°C	
Physical		
Protection	Controller IP55, Pumps IP65 (weatherproof)	IP66 (best suited to outdoor installation)
Lockable Cabinet containing Controller & Dosing pumps	-	Polyester hinged, 390 (h) x 290 (w) x 160 (d) mm Supplied with mounting brackets
10mm PVC panel	600 (h) x 345 (w) mm	300 (h) x 345 (w) mm (manifold only)
Packaged dimensions	630(l) x 370(w) x 290(h) mm	480(l) x 370(w) x 400 (h) mm
Packaged weight	10 kg	10 kg