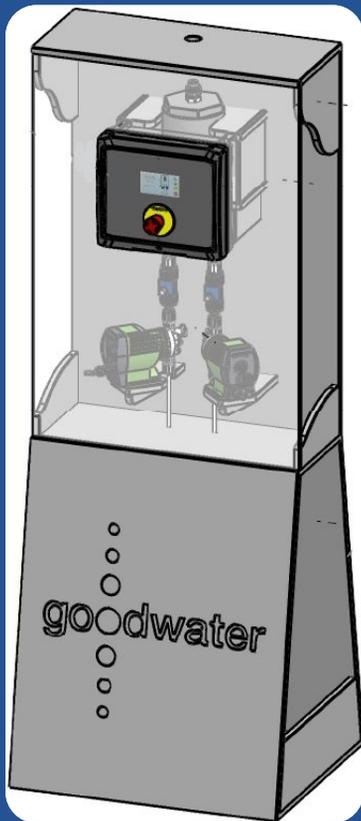


## Chlorine Dioxide Systems

### Dorado Dioxychlor IV

#### Introduction

Chlorine dioxide is an extremely effective biocide against legionella and other bacteria such as pseudomonads within potable water systems. The use of chlorine dioxide is endorsed by the HSE in its Approved Code of Practice L8, "The control of legionella bacteria in water systems".



The Dioxychlor systems find use in a wide range of applications including: office developments, hospitals, schools, care homes and hotels, in fact anywhere where legionella bacteria might be a problem.

Since its introduction over 20 years ago, the Goodwater Dorado Dioxychlor systems have been continuously developed and the latest iteration in the range is the Dioxychlor IV; a direct development of the Dioxychlor III treatment system incorporating a range of enhanced features to increase its effectiveness.

#### Overview

Similar to the previous Dioxychlor III units, dosing is initiated using an impulse water meter which measures the volumetric flow of water to service and sends information pulses directly to the sophisticated PLC, which then initiates the high performance electromagnetic dosing pumps to ensure that accurate quantities of the pre-cursor chemicals are dosed to the water stream to deliver the DWI-prescribed levels of chlorine dioxide ( $\text{ClO}_2$ ).

This ensures the dosing of  $\text{ClO}_2$  is in direct proportion to the amount of water being consumed; this in turn provides maximum chemical efficiency and minimum wastage of the pre cursor chemicals. An optional  $\text{ClO}_2$  analyser can be connected as a safety feature, to ensure dosing only occurs if the desired set point has not been exceeded.

Whilst the system is primarily designed for installation upstream of storage tanks, the enhanced features allow for far better control of dosing in other applications, for example on a mains only system.

The PLC continuously monitors the operation of the dosing system and the high specification HMI displays the system's operational status on a constant basis. The system monitors and reports on numerous safety features and alarms which allows the system to operate automatically yet safely.

The high performance electronic dosing pumps with flow monitoring devices ensure accurate dosing of the specified quantities of chemical, and double-level sensors in the chemical drums ensure that the system cannot be overdosed or allow only one of the pre-cursor chemicals to be delivered to service. The fail-safe nature of the system ensures that the system will shut down in the event of a pump failure or if one of the chemical reservoirs becomes exhausted. A volt free alarm output is available for monitoring of the system remotely/via BMS. The HMI will also log up to 12 alarm events for better diagnosis of faults.

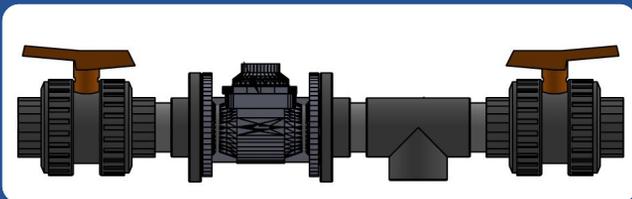
## Chlorine Dioxide Systems

### Overview *cont'd*

The Dioxychlor IV is available as standard as a fully skid mounted system, however can also be supplied as a more basic wall mounted system for applications where space is at a premium. The standard package is supplied with all the components required for the safe and effective operation of the system.

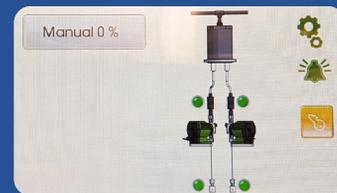
### System Features

- Skid mounted unit complete with bunded chemical compartments.
- Fully factory assembled and tested to ensure ease of on-site installation.
- WRAS approved manifold assembly (1", 2" or 3") comprising inlet and outlet valves, water meter and injection tee.
- PVC machined reaction chamber delivers chlorine dioxide directly into the water line.
- Electromagnetic dosing pumps suitable for operation at 7.0 barg.
- Flow monitoring devices to ensure correct application of chemicals.
- PVDF dosing line to connect reaction chamber to injection tee.
- Chemical suction lances c/w double-level switches (warning and low level)
- Audible and visual local alarm.



### Control Features

- State of the art system PLC and HMI marshals all operational functions, using a touch screen interface.
- Has 2 available operational "modes"
  - External pulse control with selectable multiply/divide rate.
  - Priming mode.
- HMI screen continuously displays the operational and alarm status of the system.
- Total and partial (resettable) water meter counter.
- If optional analyser is connected, the HMI continuously displays the chlorine dioxide concentration.
- Fully programmable high and low chlorine dioxide alarms.
- Data logger for last 12 alarms.
- Common alarm output relay for the following conditions:
  - Low chemical level
  - Dosing pump flow failure
  - High/Low chlorine dioxide level (if analyser connected)
- Emergency Stop safety button.
- Internal contacts for remote enable/disable.
- Optional remote telemetry connection for instant alarm notification and recording of residual levels.



### Optional Extras

- Chlorine dioxide analyser with proportional control and flow detector
- Chlorine dioxide test kit.
- Chlorine dioxide gas sensor alarm system.
- Remote telemetry system for instant alarm notification.

## Chlorine Dioxide Systems

### Dioxychlor IV – Technical Specification

#### System Data

Maximum System Operating Pressure	10.0 bar (at 20 °C)
Maximum Operating Water Temperature	30 °C (at 7.0 bar)
Maximum Operating Ambient Temperature	40 °C
Dosing Pump Delivery Capacity	0 - 4.5 l/hr
Dosing Pump Delivery Pressure	0 - 7.0 barg
Reactor Vessel Working Volume	1.0 L
Chlorine Dioxide Concentration [Reaction Chamber]	2.0% ClO <sub>2</sub>
Chlorine Dioxide Concentration [Delivery Range]	0 - 0.5mg/l as ClO <sub>2</sub>

#### Flow Rates (m3/hr)

	Minimum	Nominal	Maximum*
DN25 (1")	0.07	3.5	4.4
DN50 (2")	0.30	15.0	17.6
DN80 (3")	1.20	40.0	40.0

\* based on a maximum velocity of 2.5m/s

#### Chemical Data

Dioxychlor 20/50/75	BS EN 12671:2000 2%-7.5% Sodium Chlorite
Dioxychlor Activator B	BS EN 12671:2000 9% Hydrochloric Acid

#### Electrical Data

Electrical Connection	230/240Vac Single Phase 50Hz at 3A
Protection Rating	IP 55

#### Dimensional Data

	Skid Mounted	Wall Mounted
Length	710mm	710mm
Width	600mm	390mm
Height	1885mm	1020mm
Weight/Working Weight	70Kg / 120Kg	50kg / 100kg