evoqua
WATER TECHNOLOGIES

DISINFECTION SOLUTIONS FOR DRINKING WATER

SAFE, RELIABLE WATER TREATMENT

Ultraviolet Solutions

UV DRINKING WATER TREATMENT

UV is a proven and safe method of disinfecting municipal drinking water and protecting against harmful microorganisms, including Cryptosporidium and Giardia. The highly efficient process does not involve the use of chemicals and reduces the risk of disinfection by-products by lowering chemical disinfection requirements.

It is effective as both a primary and secondary barrier disinfection, installed post chlorination specifically to target chlorine resistant microorganisms. UV is also widely used as part of a multi-barrier treatment strategy, used as the primary disinfectant, followed by the addition of residual chlorine to protect the treated water as it travels through the distribution network.

Evoqua's range of reliable UV systems are installed by municipalities around the world to ensure compliance, improve water quality and enable future resilience.

WHAT IS UV AND HOW DOES IT WORK?

Ultraviolet disinfection works by using short wave UVC light between 200–315 nanometres. UVC light at this wavelength is absorbed by the DNA of microorganisms and efficiently disinfectants any fluid passing through the system. Validated by extensive testing for reliable performance, Evoqua have invested heavily to support water companies on the application of UV into disinfection strategies.

Ultra-efficient UVLX UV System

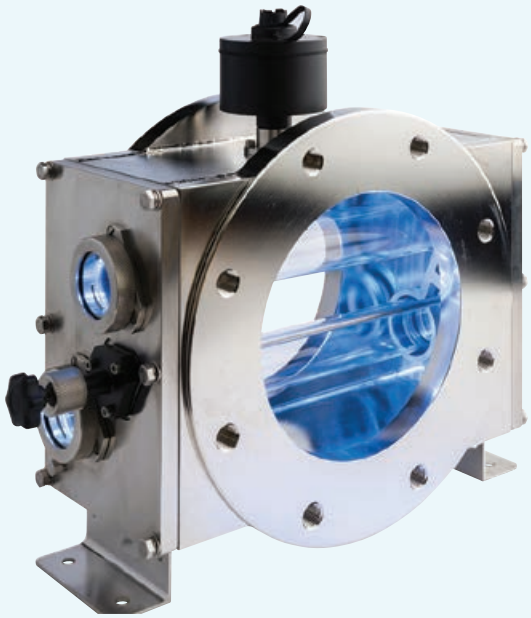
EVOQUA UV RANGE

Specialising in both ultra-compact medium pressure, and high output low pressure amalgam UV systems, Evoqua offer a range of integrated UV plants to suit any municipal application and enhance the quality of drinking water. Evoqua's compact systems ensure power efficient, high intensity delivery of UV within a small footprint for installation flexibility.

Operators will benefit from the compact Spectra control system, a state-of-the-art microprocessor unit which offers standard and advanced features with simple operation and easy maintenance.

	SX	WAFER	UVLX
Medium Pressure	•	•	
Low Pressure			•

UVLX-30800-30 low pressure amalgam system in situ operating at a UK drinking water plant



Ultra-Compact WAFER® UV System

ADVANTAGES OF UV DISINFECTION

- Proven solution against microorganisms such as cryptosporidium and giardia
- Safe, low risk technology and easy to operate
- Easy to install and retrofit into existing plants
- Highly efficient technology reduces CAPEX
- Simple and low maintenance technology reduces OPEX
- Independent 3rd party validated performance to US EPA UVDGM

On-site Hypochlorite Generation Solutions

OSEC® SYSTEMS FOR DRINKING WATER

On-site electrochlorination provides valuable security of supply for water utilities by generating a sodium hypochlorite solution on-site, on-demand for the disinfection of water. Electrochlorination produces a sodium hypochlorite solution through the electrolysis of salt (brine). The safe and simple method is widely adapted by water utilities to eliminate harmful microorganisms in water and has several advantages over other chlorination systems. Key among these advantages is safety.

WHAT IS THE OSEC® SYSTEM AND HOW DOES IT WORK?

OSEC systems generate a low pH sodium hypochlorite solution by electrolysing a brine solution directly on-site. The resulting solution contains 0.8% sodium hypochlorite and can be dosed directly into the water system. The sodium hypochlorite is prepared as it is needed with no long storage periods.

The only chemical required on site is salt which is non-hazardous and can be conveniently purchased in 25 kg bags or as a powder by road tanker deliveries. It is also widely available from many suppliers which ensures security of supply.

ADVANTAGES OF OSEC SYSTEMS

- Safe and reliable method of producing chlorine on-site
- Significantly lower cost than purchased bulk hypochlorite
- No handling of dangerous chemicals: consumes salt, water and electricity
- Storage of a low quantity of disinfectant for economic production according to demand
- Cost savings can be achieved via off-peak production scheduling
- Capable of compliance with drinking water regulations

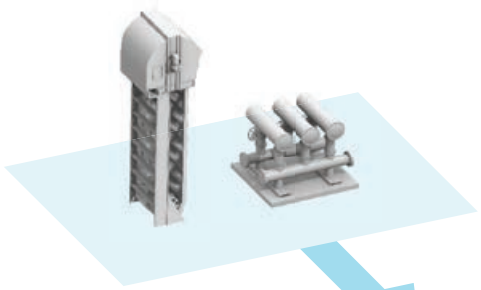
OSEC B-PAK System

OSEC L System

Dŵr Cymru Welsh Water's Hirwaun water treatment works required a solution to replace their Evoqua OSEC® packaged system installed over twenty years ago that had reached the end of its asset life. Given the plant is situated in a remote area with poor road access, Evoqua's offer for an OSEC B-Pak system was the ideal technology, capable of generating chlorine on site without having to transport any hazardous chemicals.

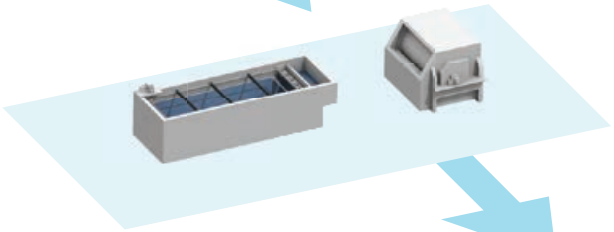
Disinfection Solutions for Municipal Drinking Water

PRODUCT AND TECHNOLOGY OFFERING



WATER SOURCE

- Chlorine Dosing Systems
- Chlorine Dioxide System

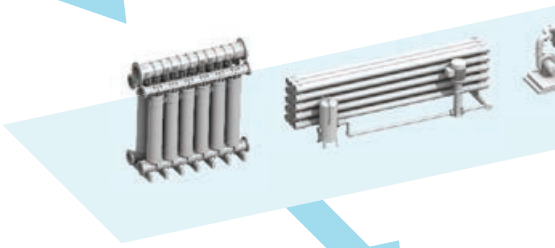


COAGULATION & FLOCCUL

- Chlorine Dosing Systems
- Chlorine Dioxide System

SETTLEMENT & CLARIFICA

- Analysers, Monitors and



FILTRATION

- Chlorine Dosing Systems
- SO_2 Systems (Dechlorination)
- UV Disinfection Systems
- Analysers, Monitors and Controllers

DISINFECTION (PRE AND/OR POST FILTRATION)

- Chlorine Dosing Systems
- Ozone
- UV Disinfection Systems
- Analysers, Monitors and Controllers

STORAGE RESERVOIRS & DISTRIBUTION SYSTEM

- Chlorine Dosing Systems
- Analysers, Monitors and Controllers
- UV Disinfection Systems

s
ns

UV Disinfection Systems

Analysers, Monitors and Controllers

ATION

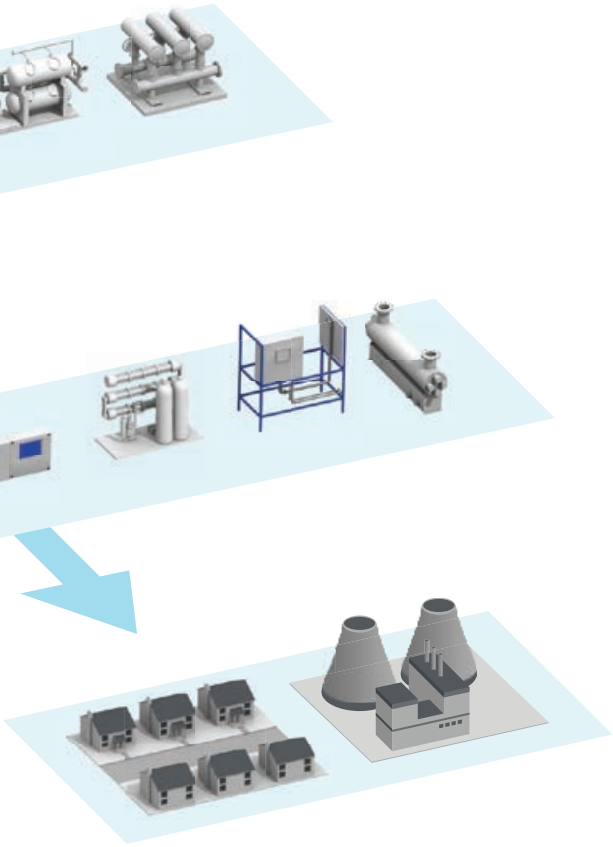
s
ns

Ozone

Analysers, Monitors and Controllers

TION

Controllers



iterature contains merely general descriptions or characteristics of performance
eristics shall only exist if expressly agreed in the terms and of the contract.

evoqua
WATER TECHNOLOGIES

UV Disinfection Systems

- Wafer® Range
- UVLX Range
- SX Range

OSEC® Hypochlorite Generation Systems

- OSEC® B-Pak On-Site Hypochlorite Generation System
- OSEC® B-Plus On-Site Hypochlorite Generation System
- OSEC®L On-Site Hypochlorite Generation System

Hypochlorite Dilution Systems

- Minichem

Chlorine Dioxide Systems

- DIOX-A Chlorine Dioxide Generator
- DIOX-C Chlorine Dioxide Generator

Analysers, Monitors and Controllers

Chlorine, Chlorine Dioxide, Conductivity, pH, UVT, Fluoride and REDOX

- DEPOLOX® 400 M Analyser
- SFC Analyser/Controller
- MFC Analyser/Controller
- DEPOLOX® 5 Flow Cell
- Varia Sens™ Flow Cell for Membranes
- MICRO/2000® Analyser
- DEOX/2000® Analyser
- V600® Disinfection Controller
- GMS Plus Gas Detection System
- UVT Monitoring System

Gas Feed Systems

Disinfection, Chlorination and Dechlorination

- Automatic Changeover Modules with CCU
- V10K™ Vacuum Gas Feed System
- S10K™ Chlorinator System
- Emergency Shutoff Drive (ESD)

Ozone

- MNG Ozone Generator

DFMA Packaged Solutions

Any of the above equipment can be supplied as a packaged solution.

Gas Chlorination

CHLORINE GAS FOR DRINKING WATER TREATMENT

Chlorine gas has been the predominant chemical used for the disinfection of drinking water supplies since our founders Charles F. Wallace and Martin F. Tiernan installed the first chlorinator in New York over 100 years ago. Evoqua's gas feed line continues to lead the market using the latest remote vacuum and solution feed technology, designed with "V" notch high precision dose control.

Selecting the right gas feed equipment and safety accessories can ensure simple and reliable disinfection dosing, easy maintenance and total safety for the operating personnel.

CHLORINE GAS INJECTION

Gas Chlorination is one of the most economic disinfectants available as gaseous or liquid chlorine supplied in cylinders or ton containers. Using a remote vacuum operated gas feeder, a chlorine solution is prepared on site from chlorine gas and water. Evoqua offers the V10K™ vacuum gas feeder featuring the proven V-notch flow control technology for safe and accurate dosing and control of gaseous chlorine, including other disinfectants such as ammonia and sulphur dioxide.

To ensure a safe connection between the chlorine gas bottle and the dosing vacuum system, Evoqua's S10K™ vacuum regulator ensures a safe process by only operating if a vacuum is present, making it the preferredchoice for delivering chlorine gas to the water flow.

GAS SAFETY

The GMS plus gas detection system is a dual channel measuring system that can be used to measure chlorine gas, chlorine dioxide or ozone. It provides extra safety for operating personnel due to its automatic fault detection and sensor monitoring capabilities.

ADVANTAGES OF GAS DISINFECTION

- Safe, simple and reliable disinfection: chlorination and dechlorination
- Accurate and reliable all-vacuum dosing
- Destroys a broad range of microorganisms
- Scalability and low cost
- Does not degrade and remains at a consistent concentration

V10K™ Vacuum Gas Feed System

S10K™ Vacuum Regulator

Chlorine Dioxide

CHLORINE DIOXIDE FOR DRINKING WATER TREATMENT

Chlorine Dioxide is a highly effective disinfectant and oxidizing agent that offers many clear advantages to ensure a clean and safe water supply. When added to drinking water, it helps to destroy waterborne pathogens, parasites and microorganisms in biofilms (prevention of Legionella and pseudomonas), control taste and odour, and is used for the oxidation of iron and manganese, as well as control of algae growth. The solution does not form bromates, THM (Trihalomethanes) and reduces formation of organochlorine compounds (AOX). In addition, it does not react with ammonia to form chloramines.

ADVANTAGES OF CHLORINE DIOXIDE

- Greater oxidizing power than chlorine
- Effective at a very low dose rate
- Stable disinfection over a wide pH range
- Reliable and safe generation system
- Lower reactivity with natural organic matter than chlorine

DIOX-A Chlorine Dioxide Generator

Evoqua's DIOX range produce a high quality, chlorine dioxide solution that will improve efficiencies and drastically reduce the chance of a bacterial outbreak. Effective as both a disinfectant and oxidizing agent, it is also ideal for the control of biofilm and zebra mussel control within inlet systems.

Analysers & Controllers

ANALYSIS AND CONTROL OF WATER QUALITY

With ever increasing demands for water utilities to provide safe and clean water to their customers, constant monitoring of water quality parameters is critical. Evoqua's solutions ensure the effective management of the water distribution network with analysis technologies that provide accurate, real time measurements and monitoring systems for total control of water quality parameters.

EVOQUA RANGE

Evoqua offers a range of single and multiparameter analysers, and single and multichannel controllers to ensure greater measurement confidence and the delivery of safe, compliant water to the public. Monitoring water quality requires accurate on-line residual monitoring which has been synonymous with Depolox® analysers for over 60 years.

Evoqua analysers can incorporate a range of measurement parameters including: free or total chlorine, chlorine dioxide, ozone or potassium permanganate, as well as either pH or fluoride and Redox (ORP).

ADVANTAGES

- Simple set-up and data management for complete control of water quality
- Ensures compliance to disinfection regulations
- Minimise chemical overdosing risks
- Enables quick identification of quality issues
- Modern communication options such as Ethernet (HTTP Protocol/Modbus TCP) and RS 485 interface
- Fast response time to meet fluctuating disinfection demands

Product	Description
DEPOLOX 5 Measurement Module	Measurement module for use with SFC or MFC consisting of plug-in sensor card and flow cell
DEPOLOX 400 M Analyser	Online process analyser for the measurement of disinfectant concentration
SFC/MFC Controllers	Flexible disinfection measurement and control systems for analysis and disinfection/ chemical control
Micro/2000® Measurement Module	Measurement module for continuous measurement of oxidant resdiuals in combination with SFC or MFC electronics module
Deox/2000® Measurement Module	Online dechlorination process instrument for the continuous measurement of Sulphur Dioxide and total chlorine residuals
V600® Controller	Online disinfection process controller compatible with multiple chemical dosing technologies

DFMA Packaged Solutions

TAILORED SOLUTION AND DESIGN

Design for Manufacture and Assembly (DFMA) is an engineering concept that focuses on simplifying the design of a product for ease of manufacture and efficiency of assembly. Our DFMA capabilities allow us to address construction and engineering challenges in the early design phases of your project.

ADVANTAGES

- Reduced time on-site
- Reduced costs
- Improved health and safety
- Easy transport
- Reduced carbon footprint
- High quality solutions
- Designed to meet local regulations and requirements

Evoqua offer a range of pre-fabricated skid packages, containerised plants and kiosk designs that offer a quick and easy installation option for drinking water applications.

Designed for both temporary use and long-term installation, Evoqua's ready-made packaged solutions include all the necessary components and equipment meaning on-site installation time is reduced with minimal civil works needed.

Service

SAFEGUARDING YOUR INVESTMENT

Evoqua Water Technologies is one of the world's leading providers for water treatment equipment and service. It offers municipal customers and communities' sustainable solutions for highly efficient water usage and supply.

When you purchase solutions from Evoqua, you are entering into an on-going relationship with our team of specialists who understand your process and your productivity goals—even as they evolve over time.

To protect your investment, we deliver unrivalled after-sales service packages including: free technical support via our technical inbox or helpline, on-site service with start-up and commissioning, troubleshooting, training and spare parts. Our dedicated team of highly skilled engineers are here every step of the way.

EVOQUA SERVICE

- **Service Contracts**—Recurring scheduled services with a defined scope of work for operations, or maintenance of a customer's water treatment systems.
- **Field Services**—One time event services covering a broad range of activities; equipment repairs, warranty services, new equipment start-ups, unscheduled maintenance and safety audits.
- **Retrofits and Upgrades**—Technical services associated with unit operations audits, water and energy audits, and equipment improvements/upgrades for Evoqua or other installed solutions.
- **Spare Parts/Repairs**—Evoqua provides quick and reliable service for both proprietary spare parts, consumable items and comprehensive repair services for clients.
- **Training**—Evoqua offers training directly from the manufacturer and therefore first hand know-how. The courses comprise the entire disinfection range.

TRANSFORMING
WATER
ENRICHING
LIFE

evoqua
WATER TECHNOLOGIES

12, Dana Estate, Transfesa Rd, Paddock Wood, Kent TN12 6UT

+44 (0) 300-124-0500 evoqua.com